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Learners' Participation, Retention and Success in e-learning:

An Annotated Bibliography

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KEY FINDINGS

Our reading of the research literature on learner participation, retention and success in e-learning in tertiary education finds:

- Teaching practices and pedagogies, institutional support and learner characteristics and attitudes are all critical in tertiary learners' retention and success in e-learning. Of particular importance are appropriate teacher-learner interactions. Courses need to be designed to incorporate e-learning's strengths. This includes selecting appropriate technology and ensuring that e-learning is linked to assessments and authentic learning experiences.

- For best results, institutions need to provide 'user-friendly' systems, processes and appropriate pastoral and technical support. Learners also need motivation, self-direction and independence as well as having prior experience in e-learning. Learners with positive attitudes towards technology tend to do better in e-learning than learners with negative attitudes towards technology.

- E-learning provides additional flexibility to traditional delivery by allowing learners to study at a time, place and pace of their choosing. E-learning can also reduce isolation by better connecting learners to their peers, teachers and institutions – especially for learners studying part-time or through distance education.

- E-learning can provide greater access to a wider range of resources and experts than is available through traditional delivery. The fact that all learners can equally access these experts and resources is of benefit to non-mainstream learner groups e.g. disabled learners.

- The evidence supporting younger learners being more successful than their peers in e-learning is inconclusive. While some studies support the assertion that younger learners are more effective in e-learning, others do not.

1   INTRODUCTION

Background

During 2010, we carried out a stocktake of the research literature on e-learning. The stocktake aimed:
- To provide an overview of the literature on tertiary e-learning.
- To contribute to the evidence base for tertiary e-learning and for distance education that uses e-learning.
- To determine if there are gaps in the tertiary e-learning literature and if so, to make suggestions for how these could be addressed.

This paper presents an annotated bibliography of the materials assembled in the stocktake. The annotated bibliography was intended to make the literature more accessible. The annotations and the summary of the major themes and messages add value to the literature. And the bibliography references 'grey' literature as well as published articles.

The material included in the annotated bibliography surveys a large selection of the literature – 127 papers. But while it is not comprehensive, there is sufficient literature to:
- Give an overview of what is available.
- Extract the major themes and messages.
- Determine its strengths, limitations, and gaps.

Purpose

The objectives of this annotated bibliography are:
- To provide an overview of the literature on participation, retention and success in e-learning in tertiary education.
- To identify the contribution of e-learning to tertiary learners' participation, retention and success.
- To contribute to the evidence base on tertiary learners' participation, retention and success in e-learning.
- To assist practitioners, tertiary education sector groups, organisational leaders and agencies' in their planning and implementation of e-learning.
- To identify the gaps in e-learning research and make recommendations for how these could be addressed.

Categories

The literature selected for this bibliography was grouped into categories. The categories were derived from our 2006 environment scan on tertiary e-learning and from the research topics we used in our tertiary e-learning research funding rounds. The categories are:
- Participation and access.
- Retention.
- Achievement.
- Comparative. This category compares the participation, retention and success of learners who undertake e-learning with trends among those who take traditional delivery and between different e-learning delivery modes. It also includes papers that compare the participation, retention and success of different learner groups in e-learning environments.
- Learner support. This category contains the literature related to factors that support learner participation, retention and success in e-learning. This includes learners' e-learning experiences and their satisfaction with these. It also includes the literature on learner self-regulation, learning styles and motivation in an e-learning context.
- Digital information literacy. This category has the literature relating to digital information literacy and the use of e-learning to support language, literacy and numeracy.
- Priority learners. This category contains literature related to the priority learner groups identified in the 2010-2015 Tertiary Education Strategy i.e. Māori, Pasifika and learners under 25 years of age[1].
- Specialised contexts. This category has literature focused on specific subjects or disciplines and particular learner groups' participation, retention and success in e-learning based on their ethnicity, culture, gender, age, and disability.

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[1] This includes both New Zealand and international studies. It also includes studies where there is a diverse age range but the mean age of the population sample is under 25

Planned Series

This annotated bibliography is the first in a planned series. Other publications being considered for this series are listed below:
- Organisational approaches to tertiary e-learning.
- Technologies used in tertiary e-learning.
- Tertiary e-learning activity and trends.
- Workplace e-learning.

2   METHODOLOGY

The literature in this annotated bibliography was obtained from four main sources. Firstly we obtained literature from Google Scholar, government agencies, and from relevant professional associations. Secondly it was obtained through the Ministry of Education's Library.

Thirdly it was sourced from the research register of Ako Aotearoa (the National Centre of Tertiary Teaching Excellence). Finally it was derived from a suggested list supplied by the Distance Education Association of New Zealand.

We selected published research from journals, books and the internet and we also sourced 'grey' literature, including project reports, unpublished theses and dissertations and reports commissioned by government agencies.

Literature was selected for this bibliography if it:
- Was published between 2004 and 2010.
- Was published in New Zealand, the United States, Australia, Canada, and the United Kingdom or included learners from these countries.
- Dealt with e-learning's contribution to learner participation, retention and success.
- Fitted into, or aligned with, the categories listed above.
- Contributed to the evidence base on learners in tertiary e-learning.
- Was likely to assist sector and agency e-learning activity.

This annotated bibliography uses the Ministry of Education's definition of *e-learning* which is: 'learning that is enabled or supported with the use of information and communication technologies (ICT) including the internet, mobile phones and video conferencing[2]. *Participation* is defined both in terms of learners' access to study and their participation in it. *Success* includes not only achievement but also other outcomes such as satisfaction with the learning experience and/or the course and improvements in important learner attributes e.g. motivation and critical thinking.

The annotations summarise each piece of literature using the following sub-headings: background, literature review, methodology, key findings, limitations and future research. The references used to support the major messages and themes are listed at the end of each sub-section. These numbers are the order in which they appear in the references section.

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[2] Ministry of Education website at
http://www.minedu.govt.nz/NZEducation/EducationPolicies/TertiaryEducation/ELearning/WhatIsELearning.aspx

3   MAJOR THEMES AND MESSAGES

Main messages from this literature

This literature reinforces the importance of the contributions that teachers, institutions and students themselves must make if learners are to participate effectively and to succeed in e-learning. Good pedagogies and practices, supported by appropriate institutional systems and processes, are more likely to lead to learner success in e-learning. But learners also need the necessary attributes, skills and capabilities and not experience significant external pressures if they are to succeed in e-learning.

However the literature also uncovers a number of important messages that are specific to e-learning that show that it can make an important contribution to learner participation, retention and success. This is because of the opportunities e-learning gives that are different to those available through traditional delivery[3].

For example, it provides more flexible options that allow all learners to study at a time, place and pace of their choosing. This is of particular benefit to learners who are unable to participate in traditional delivery such as those studying by distance or part-time.

It also assists learners who cannot access or participate in traditional delivery by allowing them equal access to resources, information and experts. For some disabled and English as a Second Language (ESOL) learners e-learning can also improve access.

E-learning can also assist part-time and distance learners' retention by reducing the isolation traditionally experienced in these modes of study by giving learners better connections to their peers, their teachers and institutions. E-learning also contributes to learner success by allowing all learners access to a much greater range of resources, information and experts than is the case for traditional delivery. The increasing sophistication of e-learning environments can also provide authentic learning experiences that would not be available in a traditional delivery classroom.

Teachers

Pedagogy and Practice
Teachers' pedagogies and practices are critical to learner participation, retention and success in e-learning. The most important contribution teachers make is their interactions with learners. These interactions include feedback, guidance and support. They are more likely to be effective if they are timely, relevant and personalised. This can help increase learners' motivation and engagement.

In a distance education context, this additional and more personalised support can reduce traditionally high attrition rates. However where this level and quality of support is absent, it can lead to increases in their isolation and attrition rates. These interactions are also important as they make a significant contribution to learners having more positive attitudes towards e-learning. It is also important that these interactions meet learners' expectations and requirements. Learners' learning can be hindered if they believe that teachers' interactions are insufficient or excessive.

References
1, 2, 3, 5, 15, 16, 18, 24, 26, 27, 29, 30, 31, 34, 38, 41, 42, 44, 45, 49, 52, 59, 61, 64, 67, 69, 70, 73, 76, 79, 80, 81, 82, 84, 85, 87, 89, 91, 93, 96, 98, 100, 101, 102, 103, 104, 105, 109, 112, 114, 115, 117, 118, 119, 121, 122, 125, 127

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[3] Traditional delivery refers to teaching and learning that occurs face-to-face without any technological support. In a distance or part time education context it refers to delivery being made without the support of digital technologies such as the internet, mobile devices or institutional LMS'.

Course Design

Course design makes an important contribution to learner participation, retention and success in e-learning. If an e-learning course is well designed, the outcomes for learners are generally similar to, or in some cases better than, those for learners in traditional delivery courses. But if an e-learning course is poorly designed, learners tend to have worse outcomes than in traditional delivery courses.

Poorly designed e-learning courses often fail to meet their objectives and this is most likely because of a failure to clearly link learning activities and tasks with assessments. But where e-learning is linked to relevant tasks and assessments, it can increase learner engagement and motivation and increase the quality and quantity of student interactions.

So what constitutes good course design? E-learning can provide more flexibility and personalisation than traditional delivery and if it does so, learners are more likely to be satisfied with their e-learning experience. Maximising a course's flexibility and personalisation can be achieved by ensuring that it provides a self-paced learning environment and/or access to extra resources at a location and time of the learners' choosing.

But it is important that this flexibility provides different options and approaches for learners. For example, while personalisation and additional flexibility is a major advantage of e-learning, some learners prefer a more structured, traditional type approach because they find more customised learning environments isolating and confusing.

Learning styles are predictors and determinants of learner outcomes. Using a traditional delivery approach means teachers are often unable to cater for these different styles simultaneously. But e-learning with its ability to provide a more flexible and personalised approach can cater for a number of different learning styles simultaneously, especially if supported by an institutional Learning Management System.

The literature also demonstrates the importance of incorporating learner profiles into the design of an e-learning course because they can be used to inform the selection of appropriate technologies. For example, learner profiles that show preferences for visual or auditory learning styles can be supported by e-learning environments that incorporate video and audio-streaming technologies.

The other major component of good e-learning course design is to ensure that it is not simply an 'add on' to traditional delivery. The e-learning component needs to be an integral part of the course, linked to meaningful tasks and assessments and provide opportunities for learner participation and interaction. This can be achieved through appropriate technology selection.

But poor course design can negate these benefits. For example, e-learning courses are often designed on the expectation that learners will be independent and self-directed and therefore, more likely to participate effectively, engage and succeed in e-learning environments.

But, if learners are not motivated they are less likely to be self-directed and independent and may find e-learning environments confusing and isolating. It is important that e-learning course design takes into account these differing levels of learner motivation and approaches.

If the technologies selected do not support the course objectives or do not meet learner requirements and expectations, then this can reduce participation, interaction, engagement and motivation. Learner motivation is also adversely impacted if the e-learning course is difficult for learners to access and use, because these difficulties add to their cognitive load.[4]

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[4] This theory is based on an assumption that learners have a limited capacity to deal effectively with new information

Good course design can support and increase learner motivation. For example, well-designed e-learning courses that have clear instructions on how to use the supporting technologies and have easily locatable resources can reduce learners' cognitive load and increase their motivation.

Well-designed courses also potentially allow non-mainstream learner groups (particularly those with disabilities or ESOL backgrounds) the opportunity to participate and achieve on a similar basis to their mainstream peers. But a poorly designed course can have the opposite effect by excluding or making it more difficult for these learners to participate and succeed.

References
3, 4, 5, 7, 8, 9, 10, 14, 16, 17, 19, 20, 21, 25, 26, 28, 30, 31, 32, 33, 34, 36, 38, 39, 40, 41, 42, 44, 45, 46, 47, 49, 50, 51, 52, 53, 55, 57, 58, 59, 61, 64, 65, 68, 69, 70, 71, 72, 73, 77, 78, 79, 81, 82, 84, 85, 86, 87, 89, 91, 93, 94, 95, 96, 97, 101, 102, 103, 104, 106, 108, 109, 110, 112, 113, 114, 115, 117, 118, 120, 121, 122, 123, 124, 125, 126, 127

Learners

Learner Attitudes and Beliefs
Learner attitudes and beliefs are important predictors and determinants of student success in e-learning. These attitudes and beliefs are often characterised as self-efficacy[5] and confidence. Learners who have high self-efficacy and confidence are more likely to be successful in e-learning than those who do not.

Learners who have favourable attitudes and beliefs towards technology and its use to support their learning are far more likely to be engaged. These learners typically have expected or better levels of participation than students with unfavourable attitudes and beliefs. Learners with favourable attitudes are also far more likely to complete the course successfully than students who have unfavourable attitudes and beliefs. Learners with favourable attitudes and beliefs are also more likely to be satisfied with their course, teacher and institution than students with unfavourable attitudes and beliefs.

References
1, 3, 5, 7, 8, 9, 10, 19, 20, 21, 23, 31, 32, 34, 36, 37, 38, 40, 41, 42, 44, 47, 48, 49, 50, 51, 52, 53, 55, 59, 61, 63, 64, 65, 67, 69, 72, 73, 76, 77, 78, 82, 84, 85, 86, 87, 88, 89, 92, 93, 94, 95, 96, 97, 102, 104, 105, 106, 112, 113, 114, 117, 121, 122, 124, 125, 126, 127

Digital Information Literacy
Even if learners have favourable attitudes and beliefs, they are less likely to be successful in e-learning environments if they do not have the capability and skills needed for e-learning. These skills are referred to as digital information literacy[6]. These are particularly important because one of the key advantages of e-learning is its ability to provide access to a much greater range of information, resources and experts than is available through traditional delivery and non-digital environments.

To successfully locate, and then evaluate and incorporate this range of information to support their learning, learners need to have key digital information literacy skills and capabilities. These include information searching, critical judgement, problem solving and the ability to use a wide range of tools.

References
8, 16, 20, 21, 23, 25, 26, 28, 31, 41, 48, 49, 50, 51, 52, 53, 60, 67, 70, 71, 81, 85, 86, 91, 94, 95, 97, 104, 109, 111, 114, 115, 117, 118, 120, 121, 125

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[5] Defined here as an individual's belief about whether or not they have the capabilities to successfully complete a task
[6] Defined here as the ability to recognise the need for, to access, and to evaluate electronic information

Prior Experience

Prior experience in e-learning is important because learners with limited or no experience often struggle to adapt to the additional demands imposed by an e-learning environment. These demands include the extra cognitive load and need for digital information literacy skills and capabilities.

Problems can also arise when learners who are used to traditional delivery have their assumptions about teaching and learning challenged by the more learner-centred and flexible approaches provided in e-learning. These additional demands can create a 'tipping point' leading to decreased engagement and lower levels of achievement and, in some instances, withdrawal from the course.

As might be expected, learners' previous academic records and experiences are also important in predicting their success. For example, learners with a higher performing academic background tend to have higher retention and achievement in e-learning than those with an academic record of lower performance. Lower achievement in e-learning may also be due to learners returning to study after a prolonged absence.

References
7, 15, 15, 16, 38, 41, 49, 52, 58, 68, 70, 72, 73, 77, 79, 81, 84, 88, 92, 94, 96, 105, 106, 107, 109, 112, 118, 121, 122

Culture

There is a noticeable difference between the findings of the New Zealand and international literature on the impact of e-learning on non-English speaking learner groups. The main focus for both sets of literature is the differences between 'Asian' and 'Western' learners[7]. Differences in e-learning success between these groups are generally attributed to cultural factors.

Most of the international literature tends to focus on the problems and concerns that Asian learners have with e-learning. There are three main reasons cited for this. Firstly, e-learning is dominated by written English.

Secondly, e-learning is increasingly becoming learner-centred. In practice, this often means that learners are expected to take a more active approach to their learning and in some cases take on roles such as mentoring and group facilitation. These learner-centred e-learning environments often have more informal teacher-student and peer-peer interactions.

But many writers find that Asian learners are more likely to struggle in these student-centred environments as they tend to come from educational contexts that are more formal and where the teacher is relatively more dominant. This leads to Asian learners raising concerns around lack of teacher input and the relative informality of e-learning environments.

Finally Asian learners are seen in much of the international literature as having cultural inhibitions which can adversely impact their success in e-learning. Particularly important is the prioritisation by Asian learners of conformity with the group or fears around losing 'face'[8]. These inhibitions are often demonstrated by Asian learners' tending to be uncomfortable commenting on others' work or having others comment on their work.

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[7] For the purposes of this bibliography Asian learners refers to those mainly from China but also includes those from Japan, South Korea, Taiwan, Singapore, Thailand, Hong Kong and Malaysian-Chinese. Western learners refer to those who are from New Zealand, Australia, Canada, the United States and the United Kingdom. Note the US literature has a stronger focus on African-American and Hispanic students.

[8] Face has both a negative and positive basis. Positive face is based in part around an individual's need to be approved of and liked by others and to have their wishes and desires shared and respected. Negative face in contrast is based in part on individuals' need for privacy and distance from others, and to have their autonomy and independence respected.

However, much of the New Zealand literature in this bibliography finds positive experiences of e-learning among Asian learners. For example, some New Zealand research suggests that the concept of face can potentially have a positive impact on learner interactions in online discussions. There were also not the same difficulties reported in terms of participation.

The New Zealand literature also indicates that Asian learners are just as likely as other learners to be successful if the course is well designed. A forthcoming Ministry of Education analysis of performance data from e-learning in the New Zealand tertiary system supports the view that Asian learners taking e-learning appear not to be disadvantaged.

But the New Zealand and international literature agreed that Asian learners were more comfortable in e-learning environments that had a strong, visible teacher presence. They were less comfortable in courses where they were expected to take on more of the teaching roles e.g. group facilitation. Where the teacher presence was absent or lacking (and as a result they were expected to take on more of the teaching roles) their levels of participation, engagement and satisfaction were lower and success was less likely.

References
4, 15, 23, 24, 47, 39, 43, 73, 99, 103, 106, 110, 119, 120, 121, 125

Learners with Special Education Needs

E-learning often does not meet its potential for learners with special education needs. While e-learning has the potential to equalise their access to and participation in study, this is generally not the case because the course often does not take account of their particular needs and requirements due to inappropriate technologies and design.

For example, e-learning environments tend to be dominated by visual learning approaches which do not suit visually impaired learners. For learners with special education needs, the reliance on writing as the main communication medium in e-learning can cause problems as they may be unable to read it and/or easily type in written responses.

Accessibility is also an issue if relevant standards and/or guidelines are not adhered to. This often leads to learners with special education needs having problems navigating the course and accessing its supporting resources. Also, selecting synchronous technologies that rely on real time communications and interactions can also disadvantage some learners with special education needs.

But e-learning can support better outcomes for learners with special education needs. For example, text-based, asynchronous environments can allow deaf learners to participate and contribute on an equal basis with their peers and teachers. As a result, the quality and quantity of their interactions, as well as their satisfaction levels, are higher.

References
6, 28, 45, 73, 75, 89, 105, 115, 119, 123

Gender

Gender differences may have an impact on learner participation, retention and achievement. Some studies state that if e-learning courses are designed to enable participation, interaction and collaboration females will do better than males. This is because females prefer a more collaborative, interactive approach whereas males tend to take a more functional approach.

References
24, 46, 47, 70, 84, 91, 106, 108

Priority Learners

Under 25 Learners

Some studies show that younger learners have a more positive attitude towards technology and are more effective in e-learning environments than their older peers. But other studies looking at distance education that uses e-learning show that older learners who were more motivated and/or had prior e-learning experience can do better than their younger peers. There is also some evidence that younger learners have no more digital information literacy skills and capabilities than other learners.

A favourable attitude to technology does not necessarily equate to increased use of learning technologies by younger learners. Many younger learners have limited expectations of e-learning. They also tend to use a narrow range of ICT to achieve a small number of outcomes, many of which are non-educational.

References
10, 24, 47, 57, 61, 63, 70, 91, 93, 98, 106, 108, 109, 122

Māori and Pasifika Learners

Māori and Pasifika learners place a strong value and emphasis on face-to-face interaction and as a result, they expect e-learning to supplement and support traditional delivery, not replace it. Māori and Pasifika learners valued the flexibility provided by e-learning. But access to the supporting technologies and technical issues can be barriers to their participation. It was important that adequate support was provided for Māori and Pasifika learners if they were inexperienced in e-learning.

Some of this literature showed low participation by Māori learners in e-learning. The main reason given for this was because Māori learners had lower participation in universities where e-learning is more prevalent and higher participation in polytechnics and wānanga where it is less common. Some Pasifika learners' withdrew from their courses because they could not successfully balance the competing pressures of study, work, family and/or community.

Māori learners saw benefit in the focus on group work prevalent in many e-learning environments. But they were concerned at the lack of te reo Māori resources and the potential for e-learning environments to misuse or misrepresent their culture.

References
66, 89, 90, 114, 117, 128

External Factors

The main external factor influencing learner participation, retention and success in e-learning was time pressures and in particular, the challenges and complexities of balancing the competing pressures of study work and/or family. These external factors have a significant impact on learner retention in e-learning. Where learners were unable to cope with these external factors they were far more likely to withdraw from the course.

References
14, 17, 26, 38, 53, 72, 84, 91, 102, 103, 106, 109, 118, 125

Institutions

Institutions that provide appropriate processes, practices, systems and infrastructure increase the likelihood of effective learner participation, retention and success in e-learning. Organisational leadership and management are important in determining how effective these processes, practices, systems and infrastructure are in supporting e-learning.

E-learning environments allow institutions to increase the quality and quantity of learner-institution interactions which is particularly important for distance education learners.

For example, email can be used to provide initial study skills advice, a mid-course progress check and study planning support. Without this additional support, distance education learners can experience isolation which can lead to decreased engagement and in some instances withdrawal from courses.

If institutions provide support for e-learning that is poorly designed or implemented, it can have an adverse impact on participation, retention and success. For example, learners may experience considerable frustration if institutions do not provide timely and relevant technical support and if this hinders them from accessing or utilising e-learning. This can lead to learners having decreased motivation and engagement, and in some cases, they may withdraw from the course.

E-learning may not reach its full potential if institutional support does not meet learner expectations or requirements. For example, some of the studies noted that learners would have liked guidance on different learning methods and approaches to maximise e-learning's potential. Learners were concerned that institutions might use e-learning as a replacement for interactions with teachers. They also expressed negative views about the potential or actual transfer of costs associated with printing materials.

While there may be conflicting views from learners of institutional use of e-learning, most now expect it to be part of its business as usual. However, inappropriate, ineffective or inconsistent use of e-learning is viewed negatively by learners. Learners want to see e-learning that is applied correctly, and that is 'fit for purpose'.

But even where this is the case, some learners prefer to use personal technologies and systems rather than the ones institutions provide. This is, in many cases, because of a gap in perceptions between what institutions think learners want and what they actually need. But in other instances, learners prefer to use a mix of institutional and personal technologies to support their learning.

References
1, 3, 6, 16, 20, 25, 28, 30, 31, 32, 38, 41, 42, 45, 50, 51, 52, 53, 54, 55, 56, 57, 60, 62, 63, 64, 65, 71, 74, 75, 77, 78, 82, 83, 84, 85, 88, 89, 91, 92, 93, 94, 95, 97, 98, 100, 101, 102, 104, 105, 106, 107, 108, 110, 115, 117, 118

Changing Learner Roles

Some e-learning courses are designed to minimise student-teacher interactions. This is often based on a desire to create a learner-centred environment which, it is believed, will lead to good results. In other cases, this absence may be the result of poor practice. If it is a consequence of deliberate course design, this lack of teacher presence is often expected to be overcome by learners taking a more active role in their learning and this expectation is built into course materials and is appropriately supported.

This shift to a learner-centred environment where the teacher is absent to varying degrees is also often accompanied by an expectation that learners take on teaching roles e.g. mentoring and group development and facilitation. But if the expectations for these roles are not made clear to learners or if they are not adequately supported, they can lead to adverse outcomes such as decreased participation.

These additional demands may also prove too much for learners inexperienced in e-learning or who are trying to balance study with external commitments. In these cases, even with appropriate attitudes and behaviours supported by good teacher pedagogy and practice, learners are more likely to withdraw from the course.

But these changing roles can also have positive outcomes. This is determined not just by teachers' pedagogies and practices but by the learners themselves. For example, learners who have positive attitudes and beliefs about this type of learning are more likely to have better outcomes. Learners who are more motivated, self-directed and independent are also more likely to place greater value on the additional empowerment that these learner-centred e-learning environments provide.

Institutional practices are also important if learners are to take on their new roles successfully. For example, the provision of appropriate and timely technical support makes a difference. Institutions can also provide support which can help reduce the adverse impacts of teachers' absence and increase the likelihood of positive outcomes for learners.

References
3, 4, 11, 12, 13, 15, 16, 18, 23, 32, 35, 39, 40, 41, 44, 45, 52, 53, 55, 58, 60, 61, 64, 65, 67, 69, 73, 76, 79, 85, 86, 87, 89, 91, 93, 101, 102, 104, 106, 108, 110, 111, 113, 114, 115, 117, 120, 121, 122, 127

Online Learning Communities

Online learning communities are increasingly viewed as a vehicle for supporting increased learner participation, retention and success. They also provide greater access to a larger range of resources and additional experts and assistance for learners to transition from novice to expert within a supported community.

Some studies also argue there are additional benefits in these communities for women because of their increased emphasis on interaction and collaboration. Online communities also provide additional avenues for support and interaction with peers, teachers and course content. This helps reduce learners' isolation and attrition rates.

Teachers play a key role in the success or otherwise of these communities through their pedagogies and practices. For example, a learner's absence from a community can be effectively overcome by a more active and personalised teacher's presence and guidance. However, if teachers are absent from these communities, either through poor practice or intention, it can have an adverse impact.

References
1, 3, 5, 24, 26, 46, 52, 61, 64, 67, 75, 84, 111, 113, 120, 121, 122, 127

Blended Learning

Blended learning[9] is increasingly becoming the preferred e-learning delivery mode[10]. While it is becoming more popular, in the majority of studies, blended learning was shown to have the same or roughly equivalent outcomes as other delivery modes. However a number of studies showed blended learning had better achievement and/or increased satisfaction compared to other delivery modes.

The growing popularity of blended learning is due largely to two main reasons. Firstly it allows learners to adopt a mix and match approach between the 'e' and face-to-face components of the course to suit their particular learning needs. Secondly, blended learning can increase learners' ICT knowledge, use and capability.

But there were a roughly equal number of studies that showed lower achievement or decreased retention in blended learning compared to other delivery modes. Where learners had adverse

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[9] Blended learning is where traditional delivery is supported to varying degrees by e-learning.
[10] The exception to this growing dominance of blended learning is in the US where a significant component of their e-learning provision is taking place entirely online without any face-to-face interaction.

outcomes in e-learning environments this, was associated with such things as lower than expected participation levels or learners being unsatisfied with their changing roles.

References
1, 2, 4, 5, 7, 10, 12, 15, 16, 17, 20, 21, 24, 29, 32, 35, 36, 37, 38, 40, 41, 42, 44, 45, 48, 49, 52, 53, 56, 58, 59, 61, 62, 64, 65, 69, 70, 71, 72, 73, 75, 76, 77, 78, 79, 82, 84, 85, 87, 88, 89, 91, 92, 93, 94, 95, 97, 101, 103, 104, 105, 106, 108, 109, 110, 112, 113, 115, 117, 118, 121, 122, 123, 126

4   SOME OBSERVATIONS ON THE LITERATURE

Strengths

There is a large amount of literature relating to tertiary learners in e-learning environments. It provides evidence for some of the major factors that predict and determine learner success or failure in e-learning.

This literature also provides models for other practitioners to explore and adapt. So while the individual studies are focused on specific contexts, readers can transfer the findings to their own contexts. This literature also provides useful insights into particular contexts e.g. specific disciplines and/or learner groups.

Limitations

The selected literature is typically focused on particular contexts. Few studies within this literature had large population samples and many also had a limited disciplinary and/or institutional focus. For example, there was a strong university bias within the literature. While there were some studies related to vocational contexts and polytechnics there were no studies relating to Private Training Establishments (PTEs) or wānanga. This makes generalisation of their findings difficult.

Questionnaires, survey and interview data were used to inform many of the studies. This imposes limitations. Many of the studies that used surveys and questionnaires as their data collection methods had low response rates (i.e. less than 50 percent) so the findings may not be representative as they are influenced by selection bias. A number of studies also used interviews where the interviewees self-select. There were also no longitudinal studies.

Many of the studies in this literature were advocating particular pedagogical and technological choices and approaches rather than examining how to improve learner outcomes in wider e-learning and/or institutional environments. Finally there was a relative absence of priority learners from the literature. For example, while there were some studies involving Māori and Pasifika learners, there were none identified relating to learners who were under 25 in a New Zealand context.

5   E-LEARNING RESEARCH GAPS

A review of the literature has identified three major gaps in e-learning research. Firstly the individual studies are not applicable to wider contexts and as a result do not provide a solid basis for change. As identified above this is largely due to a lack of longitudinal studies and a narrow range of data gathering mechanisms (which themselves have limitations). There were also a limited number of studies with large population samples. We would like to see research with statistically robust sampling on larger populations. A greater variety of data gathering and analytical approaches should be used.

Secondly there also appears to be a lack of research relating to vocational settings, polytechnics, PTEs, wānanga, and priority learners. Future research should include these contexts and priority learners. Finally, few studies relate their small-scale findings to more comprehensive administrative data. There is a need for more research using these types of data to better assess the efficacy or otherwise of the findings from the smaller-scale studies.

6   BIBLIOGRAPHY

This section lists the literature used for this annotated bibliography in alphabetical order. The summary of this literature (i.e. the annotated bibliography) immediately follows.

1. Abdous, M., and Yen, C-J., (2010), A predictive study of learner satisfaction and outcomes in face-to-face, satellite broadcast, and live video-streaming learning environments, Missouri, Elsevier Inc.

2. Abu Ziden, A., (2007), Personal Learning in Online Discussions, University of Canterbury, Christchurch, New Zealand. Retrieved from http://ir.canterbury.ac.nz/bitstream/10092/1063/1/thesis_fulltext.pdf.

3. Akyol, Z., Garrison, D. R. and Ozden, M. Y., (2009), Online and Blended Communities of Inquiry: Exploring the Developmental and Perceptional Differences, The International Review of Research in Open and Distance Learning, Volume 10, Number 6. Retrieved from http://www.irrodl.org/index.php/irrodl/article/viewArticle/765/1436.

4. Anderson, B. and Simpson M., (2004), Group and Class Contexts for Learning and Support Online: Learning and affective support in small group and class contexts, The International Review of Research in Open and Distance Learning, Volume 5, Number 3. Retrieved from http://www.irrodl.org/index.php/irrodl/article/viewArticle/208/291.

5. Andrew, M. B., (2009), Deepened Mirrors of Cultural Learning: Expressing Identity Through E-writing, Unitec, New Zealand, Auckland, New Zealand.

6. Arbaugh, J. B., (2008), Does the Community of Inquiry Framework Predict Outcomes in Online MBA Courses? International Review of Research in Open and Distance Learning, Volume 9, Number 2. Retrieved from http://www.eric.ed.gov/PDFS/EJ801088.pdf.

7. Armstrong, H. L., (2009), Advanced IT Education for the Vision Impaired via e-Learning, Journal of Information Technology Education, Volume 8. Retrieved from http://informingscience.org/jite/documents/Vol8/JITEv8p243-256Armstrong685.pdf.

8. Artino, A. R. Jr., and Stephens, J. M., (2009), Academic motivation and self-regulation: A comparative analysis of undergraduate and graduate students learning online, Missouri, Elsevier Inc.

9. Barnard-Brak, L., Lan, W. Y., and Paton, V. O., (2010), Profiles in Self-Regulated Learning in the Online Learning Environment, International Review of Research in Open and Distance Learning, Volume 11, Number 1. Retrieved from http://www.uh.cu/static/documents/AL/Profiles%20Self-Regulated%20Learning.pdf.

10. Barnard, L., Paton, V. and Lan, W., (2008), Online Self-Regulatory Learning Behaviours as a Mediator in the Relationship between Online Course Perceptions with Achievement, International Review of Research in Open and Distance Learning, Volume 9, Number 2. Retrieved from http://www.irrodl.org/index.php/irrodl/article/view/516/1075.

11. Berenson, R., Boyles G. and Weaver, A., (2008), Emotional Intelligence as a Predictor for Success in Online Learning, The International Review of Research in Open and Distance Learning, Volume 9, Number 2. Retrieved from http://www.irrodl.org/index.php/irrodl/article/viewArticle/385/1036.

12. Bhattacharya, M., and Hartnett, M., (2007), E-portfolio Assessment in Higher Education. Paper presented at the 37th Annual Frontiers in Education Conference, Milwaukee, US. Retrieved from http://fie-conference.org/fie2007/papers/1720.pdf .

13. Blyth, P., Loke, S-K., and Swan, J., (2010, December), Otago Virtual Hospital: medical students learning to notice clinically salient features. Paper presented at 2010 Ascilite Conference, Sydney, Australia. Retrieved from http://www.ascilite.org.au/conferences/sydney10/procs/Blyth-concise.pdf.

14. Boyle, F., Kwon, J., Ross, C., and Simpson, O., (2010), Student-student mentoring for retention and engagement in distance education, Open Learning, 25(2), 115-130.

15. Bremer, D., (2006), Teaching an Experiential and Technical course via Distance Delivery. In S. Mann and N. Bridgeman (Eds.), Proceedings of the 19th Annual Conference of the National Advisory Committee on Computing Qualifications. Retrieved from http://www.naccq.ac.nz/conferences/2006/papers/29bremer.pdf.

16. Brine, J., and Franken, M., (2006), Students' perceptions of a selected aspect of a computer mediated academic writing program: An activity theory analysis, Australasian Journal of Educational Technology, 22(1), 21-38. Retrieved from http://www.ascilite.org.au/ajet/ajet22/brine.html.

17. Brooks, D., (2010), To go from murkiness to clarity: How do course members perceive the teacher's role in an online learning environment? University of Canterbury, Christchurch, New Zealand. Retrieved from http://ir.canterbury.ac.nz/bitstream/10092/4203/2/thesis_fulltext.pdf.

18. Brown, A. H. and Green, T., (2009), Time Students Spend Reading Threaded Discussions in Online Graduate Courses Requiring Asynchronous Participation, The International Review of Research in Open and Distance Learning, Volume 10, Number 6. Retrieved from http://www.irrodl.org/index.php/irrodl/article/viewArticle/760/1432.

19. Brown, M., (2008), Beauty and blended learning: E-learning in vocational programs. Poster session presented at Ascilite 2008, Melbourne, Australia. Retrieved from http://researcharchive.wintec.ac.nz/328/2/brown-poster.pdf.

20. Brown, T., Maryam, Z., Williams, B., Shapour, J., Roller, L., Palermo, C., McKenna, L., Wright, C., Baird, M., Schneider-Kolsky, M., Hewitt, L., Sim, J. and Holt, T-A., (2009), Are learning style preferences of health science students predictive of their attitudes towards e-learning? Australasian Journal of Educational Technology, 25(4). Retrieved from http://www.ascilite.org.au/ajet/ajet25/brown.pdf.

21. Burgess, J., (2008), Is a Blended Learning Approach Suitable for Mature, Part-time Finance Students? The Electronic Journal of e-Learning, Volume 6, Issue 2.

22. Burgess, J., (2008), A Nurse Prescribing Programme Incorporating e-Learning, The Electronic Journal of E-Learning, Volume 5, Issue 4.

23. Kiliç-Çakmak, E., (2010), Learning strategies and motivational factors predicting information literacy self-efficacy of e-learners, Australasian Journal of Educational Technology, 26(2), 192-208. Retrieved from http://ascilite.org.au/ajet/ajet26/kilik-cakmak.html.

24. Cartner, H. and Hallas, J., (2009), Exploring the R2D2 model for online learning activities to teach academic language skills. Paper presented at the 2009 Ascilite

Conference, Auckland, New Zealand. Retrieved from
http://www.ascilite.org.au/conferences/auckland09/procs/cartner.pdf.

25. Coldwell, J., Craig A., Paterson, T. and Mustard, J., (2008), Online Students: Relationships between Participation, Demographics and Academic Performance, The Electronic Journal of E-Learning, Volume 6, Issue 1. Retrieved from http://www.deakin.edu.au/dro/eserv/DU:30017242/coldwell-onlinestudents-2008.pdf.

26. Conole, G., de Laat, M., Dillon, T. and Darby J., (2006), Joint Information Services Committee (JISC) LXP, Student Experiences of Technologies, Final report, JISC, Bristol. Retrieved from http://labspace.open.ac.uk/file.php/1/kmap/1176712833/references/LXP%20project%20final%20report%20dec%2006.pdf.

27. Conrad, D., (2009), Cognitive, Instructional, and Social Presence as Factors in Learners' Negotiation of Planned Absences from Online Study, International Review of Research in Open and Distance Learning, Volume 10, Number 3. Retrieved from http://www.irrodl.org/index.php/irrodl/article/view/630/1296.

28. Davies, J. and Graff, M., (2005), Performance in e-learning: online participation and student grades, Volume 36, Number 4, Coventry, BECTA. Retrieved from http://www.elsinnet.org.uk/research/mgg_files/BJET2005.pdf.

29. Davis, N. and Fletcher, J., (2010), E-learning for adult literacy, language and numeracy: Summary of findings, Wellington: Ministry of Education. Retrieved from http://www.educationcounts.govt.nz/__data/assets/word_doc/0009/77067/eLearningAdultLiteracy-summary.doc.

30. Deka, T. S. and McMurry, P., (2006), Student Success in Face-To-Face and Distance Teleclass Environments: A matter of contact? International Review of Research in Open and Distance Learning, Volume 7, Number 1. Retrieved from http://www.irrodl.org/index.php/irrodl/article/view/251/498.

31. Ehlers, U-D., (2004), Quality in e-Learning from a Learner's Perspective, European Journal of Distance Learning, Volume 1. Retrieved from http://www.eurodl.org/materials/contrib/2004/Online_Master_COPs.pdf.

32. Ellis, R. A. and Goodyear, P., (2010), Students' Experiences of E-Learning in Higher Education: The Ecology of Sustainable Innovation, Oxfordshire, Routledge.

33. Ellis, R. A., Ginns, P. and Piggott, L., (2009), E-learning in higher education: some key aspects and their relationship to approaches to study, Higher Education Research and Development, Volume 28, Number 3, Oxford, Routledge. Retrieved from http://www.informaworld.com/smpp/section?content=a910554918andfulltext=713240928.

34. Engelbrecht, P. C., Makany, T., Meadmore, K., Dudley, R., and Dror, I. E., (2007), It is not worth learning if it is not remembered: designing e-learning to increase memory, Southampton, University of Southampton. Retrieved from http://eprints.soton.ac.uk/65959/1/Engelbrecht_et_al._INTED'07.pdf.

35. Eom, S. B., Wen, H. J., and Ashill, N., (2006), The Determinants of Students' Perceived Learning Outcomes and Satisfaction in University Online Education: An Empirical Investigation, Volume 4, Issue 2, Alabama, Decision Sciences Institute.

Retrieved from http://onlinelibrary.wiley.com/doi/10.1111/j.1540-4609.2006.00114.x/full.

36. Farley, P., C, Magan, N., Charron, C. L., Broomfield, N.I., and Farley, A. F., (2007), You be the examiner! Biochemistry and Molecular Biology Education, 35(6), 392-396. Retrieved from http://onlinelibrary.wiley.com/doi/10.1002/bmb.112/full.

37. Ferguson, J. M. and DeFelice, A., (2010), Length of Online Course and Student Satisfaction, Perceived Learning, and Academic Performance, The International Review of Research in Open and Distance Learning, Volume 11, Number 2. Retrieved from http://www.irrodl.org/index.php/irrodl/article/viewArticle/772/1547.

38. Fillion, G., Limayem, M., Laferriere, T., and Mantha, R., (2009), Integrating ICT into Higher Education: Investigating Onsite and Online Professors' Points of View, Chesapeake, Association for the Advancement of Computing in Education.

39. Frydenberg, J., (2007), Persistence in University Continuing Education Online Classes, International Review of Research in Open and Distance Learning, Volume 8, Number 3. Retrieved from http://www.irrodl.org/index.php/irrodl/article/view/375/957.

40. Gardener, D., (2008), Sharing Resources and Experiences Across the Cultural Hemisphere. Paper presented at the 5th Biennial Conference of the Institutes of Technology and Polytechnics of New Zealand Research Forum, Tauranga, New Zealand.

41. George-Palilonis, J. and Filak, V., (2009), Blended Learning in the Visual Communications Classroom: Student Reflections on a Multimedia Course, Electronic Journal of e-Learning, Volume 7, Issue 3. Retrieved from http://www.eric.ed.gov/PDFS/EJ872409.pdf.

42. Giddings, L. S., Campbell, S., and Maclaren, P., (2006), Going online to learn health sciences research methods: The student experience, Australasian Journal of Educational Technology, 22(2), 251-267. Retrieved from http://www.ascilite.org.au/ajet/ajet22/giddings.html.

43. Gilbert, J. Morton, S., and Rowley, J., (2007), e-Learning: The student experience, Oxford, Blackwell Publishing.

44. Goold, A., Craig, A. and Coldwell, J., (2007), Accommodating culture and cultural diversity in online teaching, Australasian Journal of Educational Technology, Volume 23, Issue 4. Retrieved from http://www.ascilite.org.au/ajet/ajet23/goold.html.

45. Gossman, P., Stewart, T., Jaspers, M., and Chapman, B., (2007), Integrating web-delivered problem-based learning scenarios to the curriculum, Active Learning in Higher Education, 8(2), 139-153.

46. Grabinger, S., (2010), A Framework for Supporting Postsecondary Learners with Psychiatric Disabilities in Online Environments, Electronic Journal of e-Learning, Volume 8, Issue 2.

47. Graff, M., (2006), The Importance of Online Community in Student Academic Performance, the Electronic Journal of e-Learning, Volume 4, Issue 2. Retrieved from http://www.psychweb.co.uk/research/mgg_files/EJEL2007.pdf.

48. Graff, M., Davies, J., and McNorton, M., (2009), Cognitive Style and Cross Cultural Differences in Internet Use and Computer Attitudes, Glamorgan, University of

Glamorgan. Retrieved from
http://www.eurodl.org/materials/contrib/2004/Graff_Davies_McNorton.html.

49. Gunn, C., and Hearne, S., (2009), Embedding Information Literacy Skills in Online Tutorials. Presentation from the EDUCAUSE Australasia Conference, Perth, Australia. Retrieved from
https://researchspace.auckland.ac.nz/bitstream/handle/2292/4475/4475.pdf?sequence=2.

50. Halawi, L. A., McCarthy, R. V., and Pires, S., (2009), An Evaluation of E-Learning on the Basis of Bloom's Taxonomy: An Exploratory Study, Oxford, Taylor and Francis.

51. Hardy, J., Bates, S., Haywood, D., Haywood, J., Macleod, H., Paterson, J. and Rhind, S., (2009), Learner Experiences Across the Disciplines, Joint Information Services Committee, Bristol. Retrieved from
http://www.jisc.ac.uk/publications/reports/2009/leadfinalreport.aspx.

52. Harris, R., Hall, J., Muirhead, A., McAteer, E., Schmoller, S., and Thorpe, G., (2004), Impact of e-learning on learner participation, attainment, retention, and progression in Further Education: report of a scoping study, Scottish Centre for Research into Online Learning and Assessment Glasgow. Retrieved from
https://dspace.gla.ac.uk/bitstream/1905/625/1/RW15%5B1%5D.pdf.

53. Hartnett, M. K., (2010), Motivation to learn in online environments: an exploration of two tertiary education contexts, Massey University, Palmerston North, New Zealand. Retrieved from
http://muir.massey.ac.nz/bitstream/handle/10179/2043/02_whole.pdf?sequence=1.

54. Hegarty, B., Penman, M., Kelly, O., Jeffrey, L., Coburn, D., and McDonald, J., (2010), Digital Information Literacy: Supported Development of Capability in Tertiary Environments. Wellington, New Zealand: Ministry of Education. Retrieved from
http://www.educationcounts.govt.nz/__data/assets/pdf_file/0006/80628/Digital-Information-Literacy-Research-Report-FINAL-pdf.pdf.

55. Hesse, C., (2005), Widening Participation and E-Learning: An Action Research Project, Leicester, NIACE. Retrieved from http://archive.niace.org.uk/Research/ICT/WiPE.htm.

56. Hramiak, A., (2007), Initial Evaluation and Analysis of Postgraduate Trainees' Use of a Virtual Learning Environment in Initial Teacher Training, The Electronic Journal of E-Learning, Volume 5, Issue 2.

57. Jeffries, A. and Hyde, R., (2009), Listening to the Learners' Voices in HE: How do Students Reflect on their use of Technology for Learning? Electronic Journal of e-Learning, Volume 7, Issue 2. Retrieved from
http://aapweb.pbworks.com/f/Jefferies_and_Hyde.pdf.

58. Jeffrey, L. M., Atkins, C., Laurs, A. and Mann, S., (2006), E-Learner Profiles: Diversity in Learning, Wellington, Ministry of Education. Retrieved from
http://www.educationcounts.govt.nz/publications/ict/57985.

59. Johnson, H., (2007), Dialogue and the Construction of Knowledge in E-Learning: Exploring Students' Perceptions of Their Learning While Using Blackboard's Asynchronous Discussion Board, Dunedin, University of Otago. Retrieved from
http://www.eurodl.org/materials/contrib/2007/Henry_Johnson.htm.

60. Johnson, R. D., Hornik, S., and Salas, E., (2008), An empirical examination of factors contributing to the creation of successful e-learning environments, Missouri, Elsevier Ltd.

61. Jones, S. and Lea, M. R., (2008), Digital Literacies in the Lives of Undergraduate Students: Exploring Personal and Curricular Spheres of Practice, E-Learning, Volume 6, Issue 3.

62. Ke, F., and Xie, K., (2009), Toward deep learning for adult students in online courses, Missouri, Elsevier Inc.

63. Kelly, P. and Stevens, C., (2009), Narrowing the distance: using e-learner support to enhance the student experience, European Journal of Open and Distance Learning. Retrieved from http://www.eurodl.org/materials/contrib/2009/Kelly_Stevens.pdf.

64. Kennedy, G. E., Judd, T. S., Churchward, A., Gray, K. and Krause K-L, (2008), First year students' experiences with technology: Are they really digital natives? Melbourne, University of Melbourne. Retrieved from http://www.ascilite.org.au/ajet/ajet24/kennedy.pdf.

65. Khoo, E.G. L., (2010), Developing an online learning community: A strategy for improving lecturer and student learning experiences, University of Waikato, Hamilton, New Zealand. Retrieved from http://researchcommons.waikato.ac.nz/bitstream/10289/3961/1/thesis.pdf .

66. Kickul, G. and Kickul, J., (2006), Closing the Gap: Impact of Student Proactivity and Learning Goal Orientation on E-Learning Outcomes, 5(3), Chesapeake, International Journal on E-Learning.

67. Koloto, A. H.., Katoanga, A. N. and Tatila, L. U., (2006), Critical Success Factors for Effective Use of e-learning by Pacific Learners, Wellington, Institutes of Technology and Polytechnics New Zealand. Retrieved from http://www.educate.ece.govt.nz/sitecore/content/minedu/home/educationSectors/TertiaryEducation/PublicationsAndResources/~/media/MinEdu/Files/EducationSectors/TertiaryEducation/KolotoCriticalSuccessFactors.pdf.

68. Kop, R. and Hill, A., (2008), Connectivism: Learning theory of the future or vestige of the past? International Review of Research in Open and Distance Learning, Volume 9, Number 3. Retrieved from http://www.irrodl.org/index.php/irrodl/article/viewArticle/523/1103.

69. Kushnir, L. P., (2009), When Knowing More Means Knowing Less: Understanding the Impact of Computer Experience on e-Learning and e-Learning Outcomes, Electronic Journal of e-Learning, Volume 7, Issue 3.

70. Kwan, A., Leung, C. and Smulders, D., (2004), Comparing Learning Effectiveness Based On Use Of Different Media For Delivery Of Content, Dunedin, 4-8 July. Retrieved from http://www.col.org/pcf3/papers/PDFs/Kwan_Angela.pdf.

71. Ladyshewsky, R. K., (2004), E-learning compared with face to face: Differences in the academic achievement of postgraduate business students, Australasian Journal of Educational Technology, Volume 20, Issue 3. Retrieved from http://www.ascilite.org.au/ajet/ajet20/ladyshewsky.html.

72. Lamond, H., and White, B., (2008), Issues in equivalence: Information literacy and the distance student. Paper presented at the Distance Education Association Conference,

Wellington, New Zealand. Retrieved from http://mro.massey.ac.nz/bitstream/handle/10179/680/DEANZ08White_Lamond.pdf?sequence=3.

73. Levy, Y., (2007), Comparing dropouts and persistence in e-learning courses, Computers and Education, Volume 48, Issue 2, Missouri, Elsevier Inc. Retrieved from http://www.qou.edu/english/scientificResearch/eLearningResearchs/eLDropout.pdf.

74. Locke, T., and Daly, N., (2006), Politeness and Face in Digitally Reconfigured E-learning Spaces, Studies about Languages, Kalbu Studios, Issue 8. Retrieved from http://researchcommons.waikato.ac.nz/bitstream/10289/3295/1/CEEOL_Article1.pdf.

75. Loke, S-K., Lokman, M., Winikoff, M., McDonald, J., Wass, R., Purvis, M., Zeng, R., Matthaei, C., and Vlugter, P., (2010), Lessons in designing sustainable mobile learning environments. Retrieved from http://www.ascilite.org.au/conferences/sydney10/procs/Loke-concise.pdf.

76. Long, G.,L. Vignare, K., Rappold, R. P. and Mallory, J., (2007), Access to Communication for Deaf, Hard-of-Hearing and ESL Students in Blended Learning Courses, International Review of Research in Open and Distance Learning, Volume 8, Number 3. Retrieved from http://www.irrodl.org/index.php/irrodl/article/view/423/948.

77. Lynch, G., and Paasuke, P., (2010), Impact of a Tutorial Support Management Model on Student Performance and Satisfaction in Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2010 (pp. 2040-2048), Chesapeake, VA: AACE.

78. Lynch, K., Debuse, J., Lawley, M., and Roy, S., (2009), An early investigation into factors in student's choice of technology for e-learning, Darwin, 6-9 July. Retrieved from http://www.herdsa.org.au/wp-content/uploads/conference/2009/papers/HERDSA2009_Lynch_K.pdf.

79. Lynch R. and Dembo, M., (2004), The Relationship Between Self-Regulation and Online Learning in a Blended Learning Context, The International Review of Research in Open and Distance Learning, Volume 5, Number 2. Retrieved from http://www.irrodl.org/index.php/irrodl/article/viewArticle/189/271.

80. McGrath, A., Mackey, J., and Davis, N., (2008), Designing for authentic relationships, content and assessment in unpredictable learning contexts. Paper presented at the 2008 Ascilite Conference, Melbourne, Australia. Retrieved from http://www.ascilite.org.au/conferences/melbourne08/procs/mcgrath.pdf.

81. Melrose, S. and Bergeron, K., (2006), Online Graduate Study of Health Care Learners' Perceptions of Instructional Immediacy, International Review of Research in Open and Distance Learning, Volume 7, Number1. Retrieved from http://www.irrodl.org/index.php/irrodl/article/view/255/497.

82. Van Merriënboer, J. J. G. and Ayres, P., (2005), Research on Cognitive Load Theory and Its Design Implications for E-Learning, Educational Technology Research and Development, Volume 53, Number 3, Springer.

83. Mitchell, P. and Forer, P., (2010), Blended Learning: The Perceptions of First-year Geography Students, Oxford, Taylor and Francis.

84. Ipsos MORI, (2008), Great Expectations of ICT how Higher Education Institutions are measuring up, Bristol, Joint Information Services Committee. Retrieved from

http://www.jisc.ac.uk/media/documents/publications/jiscgreatexpectationsfinalreportjune08.pdf.

85. Müller, T., (2008), Persistence of Women in Online Degree-Completion Programs, The International Review of Research in Open and Distance Learning, Volume 9, Number 2. Retrieved from http://www.irrodl.org/index.php/irrodl/article/view/455/1042.

86. Narayan, V., and Baglow, L., (2010), New beginnings: Facilitating effective learning through the use of Web 2.0 tools. Paper presented at the 2010 Ascilite Conference, Sydney, Australia. Retrieved from http://www.ascilite.org.au/conferences/sydney10/procs/Narayan-full.pdf.

87. Naughton, C., Roder, J., and Smeed, J., (2010), The 'strategic learner' goes digital: Web 2.0 and the implications of assessment when transferring from distance education to online learning. Paper presented at the 2010 Ascilite Conference, Sydney. Australia. Retrieved from http://www.ascilite.org.au/conferences/sydney10/procs/Naughton-full.pdf.

88. Negash, S., Wilcox, M. V., and Emerson, M., (2007), Synchronous Hybrid E-Learning: Teaching Complex Information Systems Classes Online, Pennsylvania, IGI Global.

89. Nesbit, T., (2008), Developing communities of practice amongst e-Learning students: A New Zealand story, The International Journal of Technology, Knowledge, and Society, 4(3), 177-186.

90. New Zealand Council for Educational Research, (2004), Critical Success Factors and Effective Pedagogy for e-learning in Tertiary Education. Retrieved from http://www.minedu.govt.nz/NZEducation/EducationPolicies/TertiaryEducation/PublicationsAndResources/~/media/MinEdu/Files/EducationSectors/TertiaryEducation/NZCERFinalReport.pdf.

91. New Zealand Council for Educational Research, (2004), Statistical Profile of Mäori in Tertiary Education and Engagement in e-learning. Retrieved from http://akoaotearoa.ac.nz/download/ng/file/group-996/n4005-statistical-profile-on-maori-in-tertiary-education-and-engagement-in-e-learning.pdf.

92. Nichols, M., (2008), E-learning in context. E-Primer series, Laidlaw College, New Zealand. Retrieved from http://akoaotearoa.ac.nz/download/ng/file/group-661/n877-1---e-learning-in-context.pdf.

93. Nooriafshar, M., (2004), A Multi-sense Approach to Information Reception and Knowledge Creation in Learning, Dunedin, 4-8 July. Retrieved from http://www.col.org/pcf3/papers/pdfs/nooriafshar_mehryar.pdf.

94. Nora, A, and Snyder, B. P., (2008), Technology And Higher Education: The Impact Of E-Learning Approaches On Student Academic Achievement, Perceptions and Persistence, New York, Baywood Publishing Inc.

95. Oh, E., and Lim, D., (2005), Cross Relationships between Cognitive Styles and Learner Variables in Online Learning Environment, Journal of Interactive Online Learning, Volume 4, Number 1. Retrieved from http://www.ncolr.org/jiol/issues/pdf/4.1.4.pdf.

96. Owens, J. D. and Floyd, D., (2007), E-learning as a Tool for Knowledge Transfer through Traditional and Independent Study at Two United Kingdom Higher Educational Institutions: a case study, E-Learning, Volume 4, Number 2. Retrieved from http://eprints.lincoln.ac.uk/2386/1/E-

Learning_as_a_tool_for_KT_through_traditional_%26_independent_study_at_two_UK_HEI-A_Case_Study_-_ELJ_-FD-07.doc.pdf.

97. Paas, F., Tuovinen, J. E., van Merriënboer J. J. G., and Darabi, A., (2005), A Motivational Perspective on the Relation between Mental Effort and Performance: Optimizing Learner Involvement in Instruction, Volume 53, Number 3, Springer, New York.

98. Petrova, K., and Sinclair, R., (2005), Business Undergraduates Learning Online: A One Semester Snapshot, International Journal of Education and Development using Information and Communication Technology, Volume 1, Issue 4. Retrieved from http://ijedict.dec.uwi.edu/viewarticle.php?id=100&layout=html.

99. Pratt, K., (2009), Tertiary Students' Changing Access to Technology: Observations from a New Zealand University, in G. Siemens and C. Fulford (Eds.), Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2009 (pp. 435-440), Chesapeake, VA: AACE.

100. Ramsay, G., (2005), Computer-mediated Communication and Culture: a Comparison of 'Confucian-heritage' and 'Western' learner attitudes to asynchronous e-discussions undertaken in an Australian higher educational setting, E-Learning, Volume 2, Issue 3. Retrieved from http://www.wwwords.co.uk/pdf/validate.asp?j=eleaandvol=2andissue=3andyear=2005andarticle=6_Ramsay_ELEA_2_3_web.

101. Renwick, J and Owen, S., (2005), The E-learner Support Project Measuring the worth of e-learner support systems: Developing a possible benchmarking method for evaluating effectiveness, Wellington, Ministry of Education. Retrieved from http://www.educationcounts.govt.nz/publications/ict/57972.

102. Rhode, J. F., (2009), Interaction Equivalency in Self-Paced Online Learning Environments: An Exploration of Learner Preferences, The International Review of Research in Open and Distance Learning, Volume 10, Number 1. Retrieved from http://www.irrodl.org/index.php/irrodl/article/view/603/1178.

103. Ross, C., (2010), Engaging distance students in learning: What matters to students, what motivates them and how can engagement in learning be fostered? Working Paper No. 10-3, The Open Polytechnic of New Zealand, Lower Hutt, New Zealand. Retrieved from http://repository.openpolytechnic.ac.nz/view.php?pid=openpoly:689.

104. Rovai, A. P., Ponton, M. K., Wighting M. J. and Baker, J. D., (2007), A Comparative Analysis of Student Motivation in Traditional Classroom and E-Learning Courses, Volume 6, Issue 3, Chesapeake, International Journal on E-Learning.

105. Santhanam, R., Sasidharan, S., and Webster, J., (2008), Using Self-Regulatory Learning to Enhance E-Learning-Based Information Technology Training, Maryland, Institute for Operations Research and the Management Sciences.

106. Sharpe, R., Benfield, G., Roberts, G. and Francis, R., (2006), The undergraduate experience of blended e-learning: a review of UK literature and practice, York, Higher Education Academy. Retrieved from http://business.heacademy.ac.uk/assets/documents/research/literature_reviews/blended_elearning_full_review.pdf.

107. Sheriffdeen, S. A. S., (2007), Challenges faced by staff and students at tertiary level in flexible learning environment: An institutional study, Unitec New Zealand,

Auckland, New Zealand. Retrieved from
http://unitec.researchbank.ac.nz/bitstream/handle/10652/1278/fulltext.pdf?sequence=1.

108.   Simpson, O., (2009), Access, Retention, and Course Choice in Online, Open and Distance Learning, Open University, Cambridge. Retrieved from http://www.eurodl.org/materials/contrib/2004/Ormond_Simpson.html.

109.   Skelton, D., (2009), Blended learning environments: Students report their preferences. Paper presented at the 22nd Annual Conference of the National Advisory Committee on Computing Qualifications, Napier, New Zealand. Retrieved from http://www.naccq.ac.nz/conferences/2009/105-114.pdf.

110.   Smith, G. G. and Ferguson, D., (2005), Student attrition in mathematics e-learning, Australasian Journal of Educational Technology, 21(3). Retrieved from http://www.ascilite.org.au/ajet/ajet21/smith.html.

111.   Stacey, E., and Gerbic, P., (2007), Teaching for blended learning: Research perspectives from on-campus and distance students. Education and Information Technologies, 12(3), 165-174.

112.   Steinkuehler, C., (2007), Massively Multiplayer Online Gaming as a Constellation of Literacy Practices, E-Learning, Volume 4, Number 3. Retrieved from http://www.wwwords.co.uk/pdf/validate.asp?j=eleaandvol=4andissue=3andyear=2007andarticle=8_Steinkuehler_ELEA_4_3_web.

113.   Stodel, E. J., Thompson, T.L, and MacDonald, C. J., (2006), Learners' Perspectives on What is Missing from Online Learning: Interpretations through the Community of Inquiry Framework, International Review of Research in Open and Distance Learning, Volume 7, Number 3. Retrieved from http://www.irrodl.org/index.php/irrodl/article/view/325/743.

114.   Sundararajan, B., (2009), Impact of Communication Patterns, Network Positions and Social Dynamics Factors on Learning among Students in a CSCL Environment, Electronic Journal of e-Learning, Volume 7, Issue 1.

115.   Tamati, D., (2008), Engaging the Māori E-Learner: Instructional Technology, Design, and Delivery, Unitec New Zealand, Auckland, New Zealand. Retrieved from http://unitec.researchbank.ac.nz/bitstream/handle/10652/1384/Diane%20Tamati%20MEd.pdf?sequence=1.

116.   Thompson, J., (2008), Students' experiences using online support sites in NZ tertiary education, Deakin University, Melbourne, Australia.

117.   Thompson, T. L. and MacDonald, C. J., (2006), Learners' Perspectives on what is Missing from Online Learning: Interpretations through the Community of Inquiry Framework, International Review of Research in Open and Distance Learning, Volume 7, Number 3. Retrieved from http://www.irrodl.org/index.php/irrodl/article/view/325/744.

118.   Tiakiwai, S. J., and Tiakiwai, H., (2010), A Literature Review focused on Virtual Learning Environments (VLEs) and e-Learning in the Context of Te Reo Māori and Kaupapa Māori Education, Wellington, Ministry of Education. Retrieved from http://www.educationcounts.govt.nz/__data/assets/pdf_file/0004/72670/936_LitRev-VLEs-FINALv2.pdf .

119.   Tyler-Smith, K., (2006), Early Attrition among First Time eLearners: A Review of Factors that Contribute to Drop-out, Withdrawal and Non-Completion Rates of Adult Learners undertaking eLearning Programmes, Journal of Online Learning and Teaching, MERLOT. Retrieved from http://jolt.merlot.org/Vol2_No2_TylerSmith.htm.

120.   Uzuner, S., (2009), Questions of Culture in Distance Learning: A Research Review, International Review of Research in Open and Distance Learning, Volume 10, Number 3.

121.   Walker, U., and vom Brocke, C., (2009), Integrating content-based language learning and intercultural learning online: An international eGroups collaboration. Paper presented at CLESOL 2008, Auckland, New Zealand. Retrieved from http://muir.massey.ac.nz/bitstream/handle/10179/1591/Walker%20%20vom%20Brocke%20Clesol%20Proceedings%2009.pdf?sequence=3.

122.   Westberry, N. C., (2009), An activity theory analysis of social epistemologies within tertiary-level eLearning environments, University of Waikato, Hamilton, New Zealand. Retrieved from http://researchcommons.waikato.ac.nz/bitstream/10289/4184/3/thesis.pdf.

123.   Wilson, D., and Sayles, F., (2007), The use of technology to create an interactive learning environment for internal and distance students. Paper presented at 62nd Australasian Law Teachers Association Conference, Perth, Australia. Retrieved from http://www.alta.edu.au/pdf/conference/published_papers/2007-%20SAYLES%20F%20and%20WILSON%20D_The%20Use%20of%20Technology_Typeset%20Final.pdf.

124.   Woodfine, B. P., Nunes, M. B., and Wright, D. J., (2006), Text-based synchronous e-learning and dyslexia: Not necessarily the perfect match! Missouri, Elsevier Ltd.

125.   Worrall, L., and Bell, F., (2007), Metacognition and Lifelong E-learning: a contextual and cyclical process, E-Learning, Volume 4, Number 2. Retrieved from http://www.wwwords.co.uk/pdf/validate.asp?j=eleaandvol=4andissue=2andyear=2007andarticle=7_Worrall_ELEA_4_2_web.

126.   Wu, S., (2010), Supporting Collocation Learning, University of Waikato, Hamilton, New Zealand. Retrieved from http://researchcommons.waikato.ac.nz/bitstream/handle/10289/4885/thesis.pdf?sequence=3.

127.   Zhang, D., Zhao, J. L., Zhou, L. and Nunamaker Jnr, J. F., (2004), Can E-Learning Replace Classroom Learning? Communications of the Association for Computing Machinery, Volume 47, Number 5, New York.

7   PARTICIPATION

Online and Blended Communities of Inquiry: Exploring the Developmental and Perceptional Differences

Authors: Akyol, Z., Garrison, D. R., and Ozden, M. Y.

Background

Learning communities are increasingly being utilised to increase and enhance learner participation in online or blended courses (Rovai, 2002; Barab, Kling and Gray, 2004; Conrad, 2005; Palloff and Pratt, 2005; Colachico, 2007). Empirical research also supports this by confirming a relationship between a 'sense' of community and student satisfaction and learning (Rovai, 2002; Ertmer and Stepich, 2004; Shea, 2006; Shea, Li and Pickett, 2006; Liu, Majuka, Bonk and Lee, 2007).

A recommended approach to building effective learning communities is using the Garrison, Anderson and Archer Community of Inquiry Framework (2000). The authors examined the 'structural' elements underpinning the Garrison et al. Community of Inquiry Framework (framework) and their impact on learner participation and outcomes i.e. social, cognitive and teaching presence.

Social presence was defined as:
- The ability of individuals to identify with the community.
- Individuals being able to communicate purposefully in a trusting environment.
- Individuals projecting their personalities as the prime mechanism in developing inter-personal relationships (Garrison, 2009).

Cognitive presence was defined as: the extent to which participants are able to construct meaning through sustained communication (Garrison, Anderson and Archer, 2001). Teaching presence was defined as "the design, facilitation and direction of cognitive and social processes for the purpose of realizing personally meaningful and educationally worthwhile learning outcomes" (Anderson, Rourke, Garrison and Archer, 2001, p. 5).

The study's main objectives were firstly to examine the interrelationships between the three underpinning elements of Garrison's framework. Secondly the study aimed to expand the current knowledge base by examining the impact of course design on the development of the framework elements as well as by illuminating the differences between online and blended learning environments.

Methodology

A mixed method approach was used on a course at one university which was offered in two different formats: online and blended. There were 16 learners in the online course and 12 in the blended. All were mature age learners and had self-reported computing skills which ranged from intermediate to advanced level.

A survey and interviews were used as the main data collection tools. These were analysed using transcript analysis. The interviews were semi-structured with the learners and unstructured with the instructors. Independent samples t-test were also used to provide more detail on some of the high level findings or to confirm significant differences between the online and blended environments.

Key Findings

The most significant finding was that there were distinct advantages in the blended environment over its online counterpart including:
- Improved attendance and grades.

- Promotion of greater group cohesion through a stronger awareness of the presences.
- Better integration that promoted higher levels of learner enquiry.
- Satisfying more learners by providing multiple forms of communication.

The other key findings were:
- The support for Garrison's assertion that the blended learning environment is particularly effective in supporting a community of inquiry.
- The importance of teaching presence in both online and blended environments. Learners in both environments would have preferred a stronger teaching presence.
- Teacher presence is both 'seen' (e.g. constructive guidance and feedback) and 'unseen' e.g. well structured and designed learning and collaborative activities. Both were prerequisites for success.
- Social presence is easier to maintain in smaller classes.
- Both the blended and online environments led to strong cognitive presence.

Future Research
Larger samples and a wider scope of courses are necessary as these findings cannot be generalised due to their small sample size, restricted demographics and restriction to one course. In addition comparisons could also be made to traditional delivery environments.

Widening Participation and E-learning: An Action Research Project

Author: Hesse, C.

Background
The intended outcomes of this project were to:
- Produce new knowledge and practical theories in the effective use of e-learning and ICT.
- Open up learning in terms of delivery and content to 'hard to reach' learners.
- Identify teacher development needs in the use of technology to support teaching and learning. 12 organisations were selected to participate.

Key Findings
1) Identify the learners' needs
There is a gap between institutional perceptions about what learners wanted and what students themselves actually wanted. Most projects showed that the key to success does not lie in e-learning itself but in how it is used. Using e-learning to meet learners' needs was the most important rule.

2) E-learning works
E-learning offers the potential for learner-centred provision by providing flexibility and an informal learning environment.

3) Organisational contexts
Institutions need to inquire into their practice and approaches in order to improve teaching practice and provision of learning.

Developing an online learning community: A strategy for improving lecturer and student learning experiences

Author: Khoo, E. G. L.

Background
New technologies have substantially changed the delivery of distance learning. For example, the internet can bring learning more directly to learners (Khoo, 2010). This has been accompanied by both a growing acceptance of distance education as a viable and acceptable form of provision and a stronger focus on learners (Rumble, 2001). The new technologies also

mean there is increased potential for both higher levels of learner engagement in the teaching and learning process and a more authentic learning environment (Bonk and Dennen, 1999).

According to Allen and Seaman (2007) online enrolments have doubled so that by 2006 nearly 20 percent of all United States (US) higher education learners had taken at least one online course. But despite this rapid growth and potential many are not convinced of the quality and effectiveness of technology supported distance education (Khoo, 2010). For example, studies have confirmed that simply providing learners internet access is no guarantee that meaningful learning will take place (Collins, Neville and Bielaczyc, 2000; Swan, 2001).

Other studies show that the pedagogies and tasks used in e-learning courses did not support effective learning or learning outcomes (Perkins, 1985; Mioduser, Nachmias, Lahav and Oren, 2000; Brown, R. E., 2001; Nitza, 2007). Others see institutions merely using the technology as an add-on without changing their supporting structures, processes and pedagogies (Brown J. S. and Duguid, 1996; Oliver and Herrington, 2000). E-learning is a major challenge for teachers because it presents them with a vastly increased and more complex array of factors to consider compared to traditional delivery (Collis, 1997; Bonk and Dennen, 1999; Palloff and Pratt, 1999; Berge, 2000; Oliver and Herrington, 2000; Davis and Denning, 2001; Mason, 2001).

New Zealand has high levels of internet access and use (Howell and Obren, 2003; UMR Research, 2007). This combined with the demographics of the learner cohort (Ministry of Education, 2002, 2008) has led to increasing uptake by institutions of technology-supported distance learning (Bewley, 2004). This has being accompanied by a marked increase in the research literature devoted to e-learning. However this tends to be dominated by qualitative case studies underpinned by a constructivist theoretical approach (Baker, Ferguson, Roberts and Fielden, 2003).

The questions that informed this research were:
1   What is the nature of online learning?
2   How can learners' learning be facilitated in online learning environments?
3   What view(s) of learning can better inform the design of successful online teaching and learning practices?
4   How were pedagogical strategies designed to complement a particular view of learning, helpful in facilitating the teaching and learning in an online graduate Research Methods course?
5   To what extent do the findings support the efficacy of the view of learning proposed?

Literature Review
Clark (1983) argued that technology was neutral in determining learning outcomes. This view is supported by the comparative literature that shows no significant difference in learner outcomes between e-learning and traditional delivery distance education courses (Russell, 1999; Bernard, Abrami, Lou, Borokhovski, Wade and Wozney et al., 2004; Zhao, Lei, Yan, Lai and Tan, 2005; Sitzmann, Kraiger, Stewart and Wisher, 2006).

The supporting pedagogy is more important in determining learning outcomes than the technology (Clark, R. E., 1983; Russell, 1999). For example, Nichols (2007a) argued that if there is adequate interaction and teacher contact e-learning has an advantage in a distance education context. However others argue that the technology is not neutral because it influences learning by impacting on the learners or their learning experiences (Ellul, 1964; Norman, 1993; Claxton, 1998; Kozma, 2001).

There is a distinction between learning with technologies and learning from technologies. Learning with technologies is where learners use them to express what they represent and know (Jonassen and Carr, 2000). In contrast learning from technologies is where they are used to

deliver pre-determined content with the express objective of learners acquiring particular skills and strategies.

The transition to the learning with technologies approach allows learners to form an 'intellectual partnership' with the course provided ICT. This partnership is more intelligent than the learner working on their own because it helps amplify their thinking (Salomon, Perkins and Globerson, 1991; Pea, 1993; Hannafin, M.J, Hannafin, K. M., Hooper, Rieber and Kini, 1996).

Literature on the role of technology in influencing learning commonly refers to its ability to enable particular aspects of distance education not previously possible. For example, technology can remove the time and place dependence of the educational interaction thereby allowing learners to undertake self-paced learning whilst balancing work and family commitments (Crossman, 1997; Ownston, 1997; Porter, 1997; Relan and Gillani, 1997; Sherry and Wilson, 1997; Reeves, 1999; Hill, 2000; Curran, 2001; Meyer, 2003).

Technology supports multiple content formats. These formats can facilitate a more authentic learning environment (McLellan, 1996; Crossman, 1997; Hannafin, M. J., 1997; Porter, 1997; Relan and Gillani, 1997; Sherry and Wilson, 1997; Herrington and Oliver, 1999; Reeves, 1999; Barab and Duffy, 2000; Hill, 2000; Oliver and Herrington, 2000).

The type of technology used is important. For example, static content that involves passive learning and is intended to achieve convergent learning outcomes is seen by learners as less satisfying in supporting their learning experiences (Hill, 1997; Hiltz, Coppola, Rotter, Turoff and Benbunan-Fich., 2000; Meyer, 2003).

Synchronous[11] and asynchronous[12] interactions are also possible using technology. Both can be used within the same course to meet different learner needs and outcomes. Asynchronous interactions are seen as particularly valuable for learners because they allow them to concentrate on the content of the discussion. This results in more thoughtful and well considered ideas (Harasim, 1987; Berge, 1997; Romiszowski; 1997; Meyer, 2003).

Technology provides access to a vastly increased range of up to date resources and allows networking with external experts and communities (Ownston, 1997; Relan and Gillani, 1997; Willis and Dickinson, 1997; Hill, 2000; Kearsley, 2000). This broadens learner viewpoints (Bonk, Appleman and Hay, 1996; Windschitt, 1998; Harasim, 2000; Dennen and Wieland, 2007).

Group working allows learners to achieve more than they could individually (Harasim, 1990, 2000; Hill, 1997). One of the major benefits for learners from e-learning is the improvements in their written work and communication that result from these being located in an accessible environment where they can easily revise them (Harasim, 1990; Levinson, 1990; Mason and Kaye, 1990; Ownston, 1997; Wegerif, 1998). Technology also allows greater participation from those who may feel constrained in face-to-face environments (Owen, 1993; Dutton, J., Dutton M. and Perry, 2002).

But technology also has its constraints. For example, there is an over reliance on text-based communication. This misses the subtleties and importance of non-verbal cues which can easily lead to misunderstandings (Shell, 1994; Heath, 1998; Cornelius and Higgison, 2000). Learners have raised concerns about their thoughts being preserved indefinitely as well as being exposed publicly. This can lead to an inappropriate concern with their writing.

The distance combined with the immediacy of communications can lead to conflict amongst learners. Learners may also experience overload and dissonance in these information rich

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[11] These are online or ICT enabled interactions that occur in real time e.g. through video-conferencing

[12] These are online or ICT enabled interactions that occur at a time of the participant's choosing e.g. contributing to an online course discussion forum

environments (Shell, 1994; Whittaker and Sidner, 1996; Hill, 1997; Marchionini, 1988; Harasim, 2000).

Asynchronous communication can lead to increased isolation (Lake, 1999; Bird and Morgan, 2003). If it is not well managed these interactions can be challenging and there may be an overall lack of cohesiveness (Schrum 1992; Harasim, 1993; Harris, 1994; Sherry, 2000).

Technical problems are a major concern for learners because it impedes or prevents interaction and communication in e-learning courses (Hill, 1997). Novice online learners and lecturers need to overcome their fears of using the hardware and software (Schrum, 1992).

E-learning courses allow learners greater opportunities not to participate (Finholt and Sproull, 1990; Kollock and Smith, 1996; Rovai, 2000). The main reasons cited for this are lack of confidence, or believing they lack competence to contribute to online discussions (Berge, 1997, 1999). This is a particular issue for non-English speaking learners (Katz, 1998).

Other learners may wish to preserve their anonymity, privacy and safety. Some feel they do not have sufficient time. In contrast others are unable to cope with the sheer volume or poor quality of online discussions (Nonnecke and Preece, 2001). The gap between active and non-active participants has an adverse effect on group learning and interactions (Rovai, 2000).

E-learning requires learners to re-examine their role(s) if they are to obtain the full benefit of the opportunities it provides. If they adhere to traditional roles and assumptions it undermines their effectiveness in e-learning environments (Rasmussen, Northrup and Lee, 1997; Carswell, Thomas, Petre, Price and Richards, 1999; Berge, 2000).

Learners need to recognise that they can and should take a more active role in their learning. This will also help provide valuable knowledge for their peers and teachers (Palloff and Pratt, 1999, 2001; Salmon, 2000; Barab, Thomas and Merrill, 2001; Leh, 2002). Learners may also take on a more active role if they make the link between this and peer-peer and student-teacher interactions which they value (Swan, 2001).

Being more active in their learning often means learners have to take on different roles and responsibilities. These include becoming knowledge generators, collaborators, coordinators, summarisers, or secretaries/scribes as well as sharing knowledge and ideas with others (Collins and Berge, 1996; Palloff and Pratt, 1999; Bonk, Wisher and Lee, 2003). They can also, where appropriate, teach other learners (Rasmussen, Northrup and Lee, 1997).

But learners need guidance to let go of their old roles and embrace these (and other) new ones (Nuthall, 1999). They also need to be made aware that the community itself is critical. For example, problems can arise if learners prioritise their knowledge building goals over their community building goals (Brown, R. E., 2001).

Other studies show that these communities mean learners report a change in their role from being passive consumers of knowledge to co-learners and contributors to a knowledge-creating inquiry with their teacher and peers (Sergiovanni, 1994; Wenger, 1998). They also show a willingness to critically evaluate the work of others and a commitment to group goals (Tinto, 1993; Palloff and Pratt, 1999; Rovai, 2002a; Bond-Hu and Fiorello, 2003; Chapman, Ramondt and Smiley, 2005).

Community members also gain confidence by being engaged in dialogue. This community participation also means they become more receptive to multiple perspectives (Bond-Hu and Fiorello, 2003; Merriam, Courtenay and Baumgartner, 2003; Liu, Magjuka, Bonk and Lee, 2007). There is also a marked increase in participants' favourable attitudes towards learning and the development of their self esteem (Salomon and Globerson, 1989).

A clear understanding of learners' e-learning participation is hindered by using interaction and participation interchangeably and not clearly differentiating between them (Khoo, 2010). For example, some see e-learning participation as the number of online contributions or postings (Poole, 2000; Peachey, Jones P. and Jones A., 2004; Davies J. and Graff, 2005). Others position participation as the quality of interactions in an online discussion forum (Moore J. L. and Marra, 2005; Vonderwell and Zachariah, 2005; Roberts, 2007).

But Hrastinski (2008b) sees participation as moving through, and being defined by, different levels or functions i.e. accessing online environments, writing, quality writing, reading and writing, actual and perceived writing, and taking part and joining in a rewarding dialogue. A focus on the number of postings misses the fact that infrequent contributors may be reading, engaging, thinking and reflecting on the discussions in a course (Romiszowski and Mason, 2004).

Focusing on quantitative data such as the number of postings also ignores the different contributing interactions to students' learning. These interactions are generally categorised as peer-peer, student-teacher, learner-content, learner-interface, and learner-environment (Moore M., 1989; Hillman, Willis and Gunawardena, 1994; Hirumi, 2002; Juwah, 2006b).

Learning communities allow teachers and learners to jointly collaborate on projects, develop shared interests and connections, exchange ideas and opinions, and have meaningful dialogue (Watkins, 2005; Sewell A. and George, 2008). They also allow novices and experts to work together to achieve similar goals (Riel and Fulton, 2001).

However learning communities are not necessarily communities of practice as they undertake and participate in different activities to promote various types of learning (Henri and Pudelko, 2003). They also have a narrower focus (i.e. teaching and learning) than typical communities of practice (Lave and Wenger, 1991; Resnick, 1991; Wenger, 1998; Johnson, 2001; Riel and Polin, 2004).

These learning communities can facilitate and support the learning process in an online learning environment (Hiltz, 1997; Palloff and Pratt, 1999; Bonk and Wisher, 2000; Rovai, 2002a; Brook and Oliver, 2003a). However students still rely on each other to achieve their learning outcomes. Without this peer support there is no online learning community (Palloff and Pratt, 1999).

Learning communities were seen as having a number of benefits in an e-learning context. These included sharing expertise to meet valued learning outcomes (Preece, 2000), allowing members to learn from and with others, and to contribute to others' learning (Woolley and Ludwig-Hardman, 2000). They also extended education to isolated learners through distance education (Daniel, Schwier and Ross, 2007).

The literature identified a number of favourable impacts on learning arising from learning communities. These included their proven success in developing learners' understanding in cross-disciplinary subject areas, and heightening cognitive capabilities such as metacognition compared to learners in traditional classrooms (Brown A. L. and Campione, 1990; Brown A. L., Ash, Rutherford, Nakagawa, Gordon and Campione, 1993; Cognition and Technology Group at Vanderbilt, 1993; Bereiter and Scardamalia, 1996).

Learner achievement is also improved through increased motivation, a commitment to participate and complete a learning task, developing appreciation for the learning process itself, and provision of peer support (Hiltz, 1997; Sherry, 2000). Learners also reported greater satisfaction with their learning and learning experiences where they felt part of a learning community (Brown R. E., 2001; Brook and Oliver, 2002; Rovai, 2002a; Richardson and Swan, 2003; Graff, 2006).

Some have argued that the value of these communities is so high that they are fundamental to the success of e-learning. This is because they play a key role in fulfilling the academic and social needs of their participants (Hiltz, 1997; Palloff and Pratt, 1999). Web-based technologies play a key role in the creation of these communities. They heighten members' perceptions of online learning as a social experience (Gunawardena, 1995; Palloff and Pratt, 1999; Schwier, 1999; Barab et al., 2001; Johnson, 2001; Stepich and Ertmer, 2003; Swan and Shea, 2005).

Asynchronous text-based communications also assist in the creation of online learning communities by helping equalise the ability and opportunity to participate (Johnson, 2001). Other features supported by web-based technologies such as accessibility, flexibility, storage, and connectivity are beneficial in facilitating communication, interaction and the documentation of a shared history among the members of the community (Dykes and Schwier, 2003).

Minimal disruptions to the technology adopted would facilitate communication and important interactions leading to the development of the learning community (Kowch and Schwier, 1999; Liu et al., 2007). But using technology does not guarantee a learning community. There is a risk that an over reliance on technology may create a virtual learning environment but not a virtual learning community (Palloff and Pratt, 1999; Schwier, 1999).

Forcing learners to participate or making it a mandatory part of assessment does not necessarily add any value (Schweir, 1999; Haythornthwaite, Kazmer, Robins and Shoemaker, 2000; Hawkes and Dennis, 2003). This can be addressed by a focus on task based learning or artefact development (Palloff and Pratt, 1999; Hawkes and Dennis, 2003; Roberts, 2007).

There are other problems with technology supported learning communities. These include the impersonal nature of communications, the lack of urgency in responding to postings, and an increase in learner workload associated with the preparation for online interactions (Johnson, 2001; Dykes and Schwier, 2003). Learners' efforts over the duration of the community may be inconsistent which means at times they may not put in sufficient effort (Salamon and Globerson, 1989).

Methodology
The learner population for the study was 14. They were enrolled in a semester long, fully online, asynchronous graduate research methods course at the University of Waikato. A qualitative research method that was interpretive in nature was adopted. To support this research method a case study approach was used. The quantitative data was collected from an online questionnaire.

The qualitative data was collected from focus groups, interviews, observations, and online transcripts. The focus groups were conducted among learners with online learning experiences at the University of Waikato to identify key issues relevant to these experiences in the context of this tertiary institution. Interviewees self-selected through the questionnaire.

The quantitative data obtained from the questionnaires in Phases 1 and 3 of the research was coded and analysed through the Statistical Package for the Social Sciences (SPSS) software. This was used to generate numerical indicators such as frequencies, percentages, means and standard deviation. The qualitative data was analysed using inductive and content analysis which included within-case and across-case for the interviews.

Observation data was coded and categorised to triangulate the data collected from the interviews and online transcripts. The qualitative data was also coded and put into pre-determined categories for analysis purposes.

Key Findings
The technology not only supported participants' access to the course but saved time and allowed them to learn at their own pace. Participants also saw the technology as providing flexibility

and convenience. The environment provided participants with a meaningful and realistic context to learn about research data collection methods. They could link their course readings to their experiences. They were able to relate the discussions to the assignment and link theory to practice as well as considering others' ideas and working towards shared learning goals.

Their participation became intellectual as they gained expertise as learners. This course increased their knowledge of research methods. The technology also had a social dimension by increasing their responsiveness and facilitating joint responsibility for their own and others' learning. They developed favourable attitudes towards the learning of research methods. Their approach to learning changed from individualistic to collaborative.

But constraints to participation were also identified. These included the difficulty of incorporating the diverse cultures and learning preferences of the participants. Some participants did not make the transition from an individualistic learning approach to a collaborative one. This hindered the full development of an online learning community. The two reasons cited for this individualistic approach were a lack of trust and shared goals among the participants. A lack of time was also a constraint on the development and maintenance of an online learning community.

Many learners who participated less performed better in their assessments or grades than those who participated more often. This is because the less frequent participators contributions were of a higher quality compared to the more frequent participators.

Limitations
The findings are not necessarily generalisable to other courses. They must also be treated with caution as they are based on participants' self-reports and observations of their online interactions and discussions. There was a lack of data from outside the course setting so the data used may not be comprehensive. Bias is possible due to the close connection between the researcher, teacher and learners.

Future Research
Explore the impact of authentic learning contexts; balancing academic and social input and member autonomy and interdependency on the development and growth of online learning communities. The suitability of online learning communities for different disciplines/subjects and levels of study should also be undertaken. Different collaborative conditions could be tested to assess how they impact on the quality and extent of learner participation.

The 'strategic learner' goes digital: Web 2.0 and the implications of assessment when transferring from distance education to online learning

Authors: Naughton, C., Roder, J., and Smeed, J.

Background
The use of information acquired outside the course and institutional boundaries to support learning is particularly problematic for providers. However this is not a problem for learners. If they can self-regulate to develop learning of their own making they require less structured ways of working because they are able to manage their networks.

This study tracked learners as their course transitioned from paper based to e-learning delivery. It focused on the 2008/2009 time period. The objective of the study was to determine students' reactions to the new learning environment and their ability to make use of the discussion forum allocated to them for the duration of the course.

Strategic learners were defined as being impersonal and only working superficially (Marton and Sälö, 1976; Biggs, 1993; Entwhistle, 1981). Typically they were looking for the most expedient

way to complete coursework and showed deference to the tutor. This was demonstrated by accepting whatever the tutor wrote or said.

Learning that implied or involved sharing was not recognised by the strategic learners as contributing towards assessments. However assessments were regarded as the most important aspect of studying. This does not appear to be compatible with how learning is commonly seen as occurring in Web 2.0 environments where knowledge is often created through emergent, shared dialogue and thinking (Lave and Wenger, 1991; Dysthe, 2007).

Literature Review

More freely available access to the internet poses challenges for learners (Roder and Hunt, 2009). Siemens (2008) argued that this has already led to a move away from a teacher-centred towards a learner-centred model. Kress and Pachler (2007) saw ownership of knowledge as a result of authors' interactions. All this implies that to thrive in these environments learners need to be critical, discursive, acquisitive, and position taking while being open to new ideas (McWilliam, 2005).

But assessment remains largely wedded to more traditional views of teaching and learning which sees the institution as the holder of knowledge. This not only reduces the scope of learning online but does not align with Web 2.0 views which value potential as well as actual learning outcomes (Davis and Sumara, 2006).

Methodology

The 21 learners that comprised the study's population sample were all New Zealand early childhood teacher trainees taking a six month degree upgrade. They ranged in age from their early 20's to early 60's. Most had distance education experience but not where it used e-learning. Learners were given an orientation course prior to commencement. A minimum of two online postings per course was required.

A constructivist grounded research approach was used (Charmaz, 2005). This involved interviews and focus groups. Interviews occurred at the five week stage and at the end of the course. Themes from the first interviews were intended to inform the approach for the second round.

Key Findings

Many participants adopted a strategic learning approach. This was influenced and constrained by perceptions of time. Many participants felt they had insufficient time to be involved at expected levels. This was largely due to most of the participants working full-time. Many participants over-valued tutor input to the detriment of learner led discussions and learning. This meant that the online discussion forums were used mainly to get assistance and for collecting information. They were rarely used for knowledge construction and sharing.

This strategic approach was also demonstrated by the fact that many participants found the less prescriptive study guide that was based on an expectation of student directed learning unhelpful. In contrast the study guides that covered every single area were seen as useful because they provided participants with clear directions on where best to focus their efforts. This was also shown in the learners comments that participation should be a mandatory part of assessment or that their postings could be 'stolen' and used by others.

This approach may have been due to participants not being aware of other possible options in their learning prior to course commencement. However it is clear that these learners did not change their approaches as a result of e-learning. It is also difficult to dissuade learners from adopting a strategic approach when it mirrors how courses are normally assessed.

Access, Retention, and Course Choice in Online, Open and Distance Learning

Author: Simpson, O.

Background

A learner's choice of course is crucial their success (McGivney, 1996). For example, there is supporting evidence, with respect to full time and distance learners, where course choice has been found to be an important cause of student attrition (Yorke, 1999; Gibson and Walters, 2002; Open University United Kingdom Institute of Educational Technology Survey, 2002).

However there does not appear to have been much investigation into how learners make their course choice. It is reasonable to assume that many learners are unaware the course they have selected is not suitable. For example, their selection may be merely based on the course title and description. This is problematic as these may be unclear, incomplete and have as one of their primary objectives recruitment rather than retention (Simpson, 2003).

A course advisor is one possible solution. But one to one support is generally too expensive and learners may be unaware of their and the course's limitations and so may not ask the right questions. Advisors are also unlikely to be expert enough to provide advice on detailed aspects of the course. Distance learners appear reluctant to ask for advice and even when they do, often do not act on it.

Key Findings

The United Kingdom's (UK) Open University used learner comments on courses as the basis for information and advice on them. This was well received by learners. It also had benefits for the institution by reducing costs. Changes to course descriptors using this method could be done in 'real time' by learners interacting directly online.

With the push in the UK to a more student led system (through their demand and choice) this approach appears to have a lot of merit. But it also has significant limitations. For example, it could not tell learners that they had the right background for a course. There could also be a problem of bias as learner comments and institutional information always represent partial views of courses.

The use of course previews was generally well received by distance learners. As these were derived from extant course materials they were relatively inexpensive to produce. But these too were limited as they cannot ascertain if a learner had the right background knowledge for the course of their choice.

The final approach used was diagnostic materials. They have long been used in open and distance learning to advise learners about their study choices. There are essentially two kinds: generic, to test applicants' suitability for higher education and course-specific, to test their suitability for a particular course. Learners could undertake external assessment or self-assessment using this approach.

Course-specific, self-assessed materials appear to be more suited to mass distance education. But there were issues with this approach as well. The assessments could be inappropriately constructed (e.g. too many yes or no answers). There was also pressure to recruit learners and this may bias the materials and approaches.

Whatever the types of diagnostic materials used there appears to have been little work published on their effectiveness in getting learners into the correct courses. The materials and approaches outlined in this study are unlikely to be sufficient because while they may tell a learner that they are at the right level for a course they may not advise that the course has the right content for them.

Limitations

The methods described here for course choice have their limitations either in terms of their cost or the partial view of courses that they provide.

Future Research

A package of approaches or perspectives may be required. How learners will react to such a package of perspectives and whether it will be too much for any one learner or whether different learners will choose those perspectives that give them the best 'feel' for a course will need to be determined by future research.

An activity theory analysis of social epistemologies within tertiary-level e-learning environments

Author: Westberry, N. C.

Background

Tools have always been used to support education and the latest set can be broadly categorised as ICT. This means e-learning should be seen in a historical rather than a transformative context (Säljö, 1999; Murphy D., Walker and Webb, 2001). However, e-learning with its more extensive use of increasingly sophisticated ICTs can now support social theories of learning. These more sophisticated ICTs are contributing to a shift to learner centred pedagogies and an emphasis on the co-construction of knowledge (Garrison and Archer, 2000; Brown and Adler, 2008; Selander, 2008; Garrison and Akyol, 2009).

E-learning has experienced rapid growth in recent years both internationally and in New Zealand (Bates, 2001; Allen and Seaman, 2003; New Zealand Council for Educational Research, 2004; Dziuban, Hartman, Juge, Moskal and Sorg, 2006; Jones C. and Cross, 2009). This is not surprising given the extensive and pervasive use of ICT by wider society (Selwyn and Facer, 2007).

Larger numbers of international learners are contributing to a more diverse higher education population (Bennell and Pearce, 2003; Lea, 2007). For example, in New Zealand, international student enrolments have increased by 10 percent (Ministry of Education, 2009). This does not include the increasing numbers of Asian and Pasifika learners who are classified as domestic students (Wensvoort, 2006). This is likely to mean that there are increasing numbers of ESOL learners in mainstream, English medium contexts. Learner centred pedagogies in an e-learning environment present challenges for these students and higher education in general (Franken, 2005; Coolbear, 2008; Johnson, 2008).

But there is limited research on how or if e-learning supports the learning experiences of ESOL learners (Biesenbach-Lucas, 2003; Campbell, 2007). The research that has been done suggests that e-learning can benefit ESOL learners. These benefits include more time for reflection which in turn contributes to deeper levels of thought. E-learning also enables ESOL learners to become mainstream members of their learning community (Weasenforth, Biesenbach-Lucas and Meloni, 2002; Morse, 2003; Campbell, 2004; Gerbic, 2005; Locke and Daly, 2006).

But other studies indicate that e-learning can be problematic for ESOL learners because they conform too much to community norms and culture, they have a lack of positive perceptions regarding it, and generally have mandatory rather than authentic interactions. The need to communicate in written English can also impose a heavy literacy load on ESOL learners which may limit their ability to participate (Biesenbach-Lucas, 2003; Elgort, Marshall and Mitchell, 2003; Yildiz and Bichelmeyer, 2003).

E-learning is also seen as problematic for Asian learners because they are seen as passive learners who are reluctant to engage in social interactions. They prefer teacher centred approaches and environments (Harris, 1995; Tu, 2001; Chiu, 2009). However Cheng (2000)

believed these generalisations were inaccurate because Asian learners expect to be active participants. While they may be uncomfortable with dialogue based interaction and peer critique Asian learners often participate more in online discussions (Biesenbach-Lucas, 2003; Campbell, 2004; Holmes, 2004; Gerbic, 2005).

Despite the increasing use of ICT in education there is still a large and persistent gap between its home and educational use. While ICT use is becoming ubiquitous in wider society it has struggled to have a significant impact on teaching practice (Somekh, 2007; British Educational Communications and Technology Agency [BECTA], 2008; Garrison and Akyol, 2009).

ICT often does not transform teaching practice because it is used merely to repackage and/or reinforce existing pedagogies and practices (Howard A. B., 2004; Blin and Munroe, 2008; BECTA, 2008; Salinas, 2008; Garrison and Akyol, 2009). This has led to many challenging the view that e-learning is either desirable and/or transforming education (Zemsky and Massy, 2004; Lai, 2005; Goldberg and Riemer, 2006; Goodfellow R. and Lea, 2007; Johnson and Walker, 2007; Convery, 2009).

Limited conceptions of online participation do not adequately represent e-learning's complexities (Hrastinski, 2008, 2009). This inadequacy is also seen in optimistic rhetoric that merely reinforces dominant beliefs that e-learning is inherently beneficial. These benefits are often in limited contexts that tend to reflect best, not actual, practice (Goodfellow R. and Lea, 2007; Convery, 2009).

For example, the research often focuses on specific teaching and learning processes and outcomes rather than the social and cultural contexts within which e-learning occurs (Davidson-Shivers, Tanner and Muilenburg, 2000; Christopher, Thomas and Tallent-Runnels, 2004; Hew and Cheung, 2008). These restricted views of e-learning related participation are being increasingly challenged by recommendations for a more holistic approach (Salomon and Perkins, 1998; Zhao and Frank, 2003; Vonderwell and Zachariah, 2005; Chambers and Bax, 2006; Somekh, 2007; Hrastinski, 2008, 2009).

Much of the existing research also ignores or underestimates the ongoing issues around access and skills of both learners and teachers (BECTA, 2008). Other studies noted a myriad of issues that can adversely impact e-learning. These included a lack of technical and pedagogical support for teachers, an absence of support for learners, insufficient faculty incentives and access to resources, and learner resistance to new ways of teaching and learning (Shaw and Pieter, 2000; Butler and Selbom, 2002; Egbert, Paulus and Nakamichi, 2002; Johnson and Walker, 2007). This has led to calls for a more critical, questioning approach to the use of e-learning (Lears, 2000; Goldberg and Riemer, 2006; R. Goodfellow and Lea, 2007; Convery, 2009).

The research question that informed this study was: how do ESOL learners and their teachers participate in interactive learning activities mediated by ICT in mainstream tertiary-level educational settings?

Literature Review
There are a number of different social theories of learning. Much of its associated research has challenged the traditional view that learning is an internal or cognitive process. This alternative view is based on an assumption that learning is actually supported through various social interactions and that these interactions occur collectively. This represents a major shift in conceptions of learning (Vygotsky, 1978; Brown, Collins and Duguid, 1989; Lave and Wenger, 1991; Greeno, 1997; Salomon and Perkins; 1998; Wenger, 1998; Littleton and Häkkinen, 1999; Barab and Duffy, 2000; Jonassen and Land, 2000; Putnam and Borko, 2000).

Underpinning these theories is the view that learning is a co-constructed process located within specific social and cultural contexts where meaning is determined by participants (Lave and Wenger, 1991; Greeno, 1997; Barab and Duffy, 2000). In short meaning cannot be separated from its originating context (Vygotsky, 1978; Barab and Duffy, 2000). Knowing and doing are regarded as inseparable rather than a separation of mind and world as is the case in traditional theory (Salomon and Perkins, 1998; Jonassen and Land, 2000; Billet, 2001).

Activity theory is one manifestation of the integration of individual and social and cognitive aspects (Engeström, 1987). This was further supported by Lave and Wenger's (1991) ground breaking work around learning communities of practice. This shifted analysis from the individual to what it means to be a community member (Barab and Duffy, 2000).

This perspective focused not only on knowledge but also identity acquisition through community participation. Learners become full participants in the community not merely subject matter experts (Barab and Duffy, 2000; Brown and Adler, 2008). This built on Lave and Wenger (1991) who contended that gaining knowledge and skills occurred simultaneously with developing an identity as a community member. As members adopt the cultural norms and practices of the expert community their identity is changed.

Co-construction of knowledge is supported by 'artefacts' such as group discourse and historical community activity (Vygotsky, 1978; Lave and Wenger, 1991). Activity theory stresses the importance of mental and virtual tools such as strategies, models, software and websites, in shaping thought. Language is seen as the unifying force which helps communities construct knowledge and meaning from these diverse artefacts (Vygotsky, 1978; Jonassen and Land, 2000; Brown and Adler, 2008).

This is underpinned by Vygotsky's (1978) zone of proximal development which is defined as the distance between what a learner can accomplish alone and what they can achieve with assistance from more capable peers (Wertsch, 1985; Barab, Evans and Baek, 2004). This external support becomes internalised as mental processes that change an individual's cognition (Salomon and Perkins, 1998; Ormrod, 2008).

This process is seen as transitory from observing to gradually adopting more mature forms of practice which shifts individuals from the periphery to the mainstream of the community (Lave and Wenger, 1991). Brown, Collins and Duguid (1989) coined the term cognitive apprenticeships to describe this process. They did not see this as merely task acquisition or repetition by members but also how they could think about their practice.

There have been many terms used to describe literacies that require interaction or use of ICT including digital literacies, information literacy and new media literacies (Coiro, Knobel, Lankshear and Leu, 2008). More recently the catch all term learning literacies for the digital age has been used to describe this process (Beetham, McGill and Littlejohn, 2009).

There is a growing body of research dedicated to the notion of literacy as social practice (Street, 1984, 1995; Barton, 1994; Gee, 1996; Lea, 2004; Lea and Street, 2006). This research rejects the view that literacy can be de-contextualised and is therefore easily transferable across multiple contexts. Rather this literature argued that literacy is a social practice, underpinned by and in agreement with, the cultural beliefs, values and ideologies of their contexts.

Participation in literacy related activities requires not only appropriate behaviour for the particular context but an understanding of the culture that underlies that behaviour. This in turn fundamentally shapes identity. This critical perspective contended that there are differing literacies in multiple contexts underpinned by particular cultural and epistemological viewpoints (Fairclough, 1992; Lea and Street, 2006).

Within this socially situated view of literacy attention has been directed towards understanding writing in academic contexts (Lea and Street, 1998, 2006; Lea, 2004). Lea and Street (1998) observed how learners adopted the practice of course switching. This practice is how learners adapt to varying expectations of different disciplines and tutors as they move through a number of different courses as part of their university studies.

This was supported by other research which suggested that learners must negotiate many text types in their higher education learning experiences (Biber, Conrad, Reppen, Byrd and Helt, 2002; Cooper and Bikoski, 2007). An increasing number of these text types are mediated by ICT. ICT mediated text is not merely a new text medium. It also involves learners having to adopt new ways of thinking about the nature of knowledge and its acquisition.

E-learning environments that can be supported simultaneously by text, video and audio potentially require learners to acquire or adopt multiple literacies to successfully negotiate them. There are a range of non-text options available in e-learning. But despite this, in practice the dominant mode is text (Lea, 2004).

To support e-learning, institutions both in New Zealand and internationally are increasingly using Learning Management Systems (Mitchell, Clayton, Gower, Barr and Bright, 2005; Papastergiou, 2006; Steel, 2009). There has also been increasing interest in the use of mobile device and Web 2.0 technologies such as wikis and weblogs (Traxler, 2008; Garrison and Akyol, 2009; Herrington A., Herrington J. and Mantei, 2009).

This heightened interest in e-learning derives largely from its perceived benefits. These include its ability to increase access to learning opportunities and its potential to meet the demands of traditional and lifelong learning (Conole, 2007).

Many countries see the adoption of computers in educational environments as critical to achieving economic advantage (Convery, 2009). As well as addressing national and education priorities e-learning is also seen as necessary to meet the needs and demands of the current 'technologically savvy' learners (Lomas and Oblinger, 2006; Pletka, 2007; BECTA, 2008).

However it is e-learning's potential to support meaningful learning experiences that is the focus of a large body of research (Becker, 2000; Felix, 2002; Garrison and Kanuka, 2004; Hammond, 2005; Tallent-Runnels, Thomas, Lan, Cooper, Ahern, Shaw and Liu, 2006; Luppicini, 2007; Joint Information Services Committee, 2009b).

E-learning's benefits include supporting higher levels of student cognition, fostering learner reflection and information processing, and levelling the playing field between participants (Newman, Johnson, Webb and Cochrane, 1997; Davidson-Shivers, Tanner and Muilenburg, 2000; Garrison, Anderson and Archer, 2000; Kamhi-Stein, 2000).

These positive aspects of e-learning were supported by a recent meta analysis conducted by the US Department of Education. Its main finding was that learners who had an e-learning component as part of their studies performed better on average than their peers in traditional delivery environments (Means, Toyama, Murphy, Bakia and Jones K., 2009).

Major factors identified in the research literature that assist e-learning participation include group size, knowledge of the other participants and prior experience with online learning (Tolmie and Boyle, 2000). Factors that constrain e-learning participation include teaching support, software, and learner attitude and behaviours (Hammond, 2005).

Effective course design is also important. This includes clear expectations around participation requirements, the provision of informal online spaces, and authentic, real-life topics (Rovai, 2007). Assessment practice is also important in effective e-learning course design

(Rimmershaw, 1999; Williams C., 2002; Oliver and Shaw, 2003; Hammond, 2005; Gerbic, 2006). This is because many learners require the tangible benefits associated with assessment to participate (Williams C., 2002; Kear, 2004).

Teacher participation is also crucial in facilitating learning in e-learning environments and in establishing more effective online communities (Weasenforth, Biesenbach-Lucas and Meloni, 2002; Williams C., 2002; Christopher, Thomas and Tallent-Runnels. 2004; Kear, 2004; Shea, Swan, Li and Pickett, 2005). But other studies found that teacher involvement hinders learner participation. This is because it can stifle learner activity and these studies believe that effective peer-peer interaction and moderation are an effective substitute (Poole, 2000; Dietz-Uhler and Bishop-Clark, 2001; Oliver and Shaw, 2003; Durrington and Yu, 2004).

Activity theory which is the theoretical framework of this thesis has undergone three distinct phases. Vygotsky (1978) focused on mediation. This is where activity and interactions between the human consciousness and the real world are mediated by cultural artefacts. These tools can be physical, virtual or symbolic (Cole and Engeströrm, 1993; Lantolf and Appel, 1994).

Leont'ev (1981) and Engeström (1987) expanded this framework to include social activities. This is where activity is influenced by collective and individual motivations and actions to meet the overall objectives. More recently the theory has been further expanded to include at least two activity systems. For example, the relationship between different spaces such as tertiary and work settings can be reconceptualised as the interaction between different activity systems (Tuomi-Gröhn and Engeström, 2003; Tuomi-Gröhn, Engeströrm and Young, 2003).

Methodology
The other theories or approaches used to inform this study included ethnography. This uses methods and techniques associated with field work (e.g. observations and interviews) but without a commitment to a cultural theory. The thesis also adopts a phenomenological approach based on a preoccupation with experience and understanding.

A case study approach was adopted because it was a useful way to analyse complex social behaviour (Yin, 1994). This thesis involved multiple cases. One of the main criteria used for selection was that the case had a tertiary education learning activity involving peer-peer interaction that was mediated by ICT. In addition this activity had to include a minimum of 10 ESOL learners.

Data was collected from observations, interviews and documents. Interviews were conducted in groups and with individuals utilising a semi-structured framework. The observations occurred in both face-to-face and online settings. Both virtual and paper documents were also used.

Using non-probability sampling small samples were used which were chosen before and during the research. But sample size was not determined statistically. The non-probability method used was convenience sampling which selects individuals for the study sample that are easily accessible to the researcher. Key themes, concerns, and issues were identified in the existing data and then revisited and explored in the subsequent collection of data. Once this was completed text units deemed relevant to the study were selected and categorised using activity theory as a form of typology.

Key Findings
Participants made learning objects meaningful by building on past meanings rather than reinventing new ones. But disagreements emerged about participant roles. For example, both tutors and learners questioned whether peer-peer interaction could result in an increased understanding of business and academic writing. For tutors this devalued the activity. This disagreement impacted on both tutor and learner engagement.

The data suggests that these learners viewed social interaction as a means to engage in limited cooperation with peers in order to write and display their own understandings to gain marks from the teacher. But these learners expressed interest in their peers work. However this interest tended to focus on engaging with them briefly to stimulate their own thoughts so they could undertake their individual posting. The online platform exposed participants to a range of experiences around the content. This stimulated their thought in various ways and enriched their learning experiences.

These findings suggest that while participants benefited from social interaction often these benefits were realised through being exposed to others' work rather than directly interacting with them. In short these learners did not actively engage in negotiating meaning with each other through dialogue. The value of social interaction tended to lie in the creation of a public display of understanding that could be viewed by the learners and tutor.

The findings indicate that the potential for participants to occupy the role of knowledge resource was often not fully realised. In many cases, participant activity reached a plateau of mediocrity which did not stimulate higher levels of thought or sustain engagement with the topic.

This was largely due to three factors. Firstly there was uncertainty from both tutors and participants around the ability of learners to act as effective resources. This weakened the credibility of the learning activities. Secondly the co-construction activities were not assessed which significantly limited their value for learners. Finally there were time constraints. Participation was influenced by the need to complete the assignments and obtain credit as soon as possible.

These learners displayed an inability to effectively critique peers' work. Social issues, such as the need to be diplomatic and congenial and the experience of being marginalized by not receiving a response, appeared to constrain their participation.

Participants also struggled without teacher input. This was particularly noticeable in these learners not demonstrating deeper cognitive engagement, with many postings being at a superficial level. This was a conscious decision by teachers who feared they would overly influence the group or encourage inappropriate behaviours.

But the findings contradict this assumption from teachers as they indicated that their input would have been valued and could take a variety of forms so that it provoked and stimulated the participants without imposing their perspectives. It is also clear that the teacher assumptions about these learners' abilities and interest in taking on teacher related roles were misplaced. These learners lacked both the interest and skills to do this.

Limitations
The e-learning environments were limited to one type based around asynchronous online discussions. There was also the problem with bias in the sample as study participants self-selected. This was compounded by the limited number and demographic of the learners. Most learners were female and Chinese. The lack of peer review and external input meant the findings were biased towards the researcher's perspectives and interpretations.

Future Research
Studies with native English speakers in a wider range of e-learning environments should be considered. A more critical perspective could be adopted including the influence of institutional views on local teaching and learning practice. Research could be undertaken into the online reading experiences of learners to better assist understanding of how social interaction is manifested in asynchronous learning environments.

Research into how teacher beliefs interact with and influence e-learning activities should also be undertaken. Finally the phenomenon of pseudo-enactment should be researched to better

understand how participants make the learning object meaningful and how this affects curriculum implementation in e-learning settings.

8 RETENTION

Student-student mentoring for retention and engagement in distance education

Authors: Boyle, F., Kwon, J., Ross, C., and Simpson, O.

Background

Some have argued that distance education is the fastest growing area of higher education internationally. However it has one fundamental weakness – high dropout rates. Support is critical in mitigating this. But what types of support are most effective?

The main research focus in recent years has been on e-learning developments (Simpson, 2005b). But the evidence from this research suggests no significant breakthroughs in learner retention through e-learning. Most learner use of e-learning in a distance education context was e-mail (Simpson, 2005a). Student-student mentoring which is one of the older forms of support is likely to still be relevant and effective in the new e-learning distance education environments.

Much of the literature on mentoring focuses on formal mentoring i.e. where a teacher supports a student or group of learners (Hawkridge, 2003). But there is much less literature on student-student mentoring. This type of mentoring can broadly take two forms: experienced learners helping newer learners (referred to in this study as mentoring) or learners supporting each other (referred to in this study as peer support).

An initiative from the United Kingdom (UK) is examined below. South Korea was not included because they are not part of this bibliography's prescribed jurisdictions. However the New Zealand initiative was not included because it did not involve the use of e-learning.

The Open University (OU) is the UK's largest distance provider. It has encouraged mentoring. For example, the OU's student association runs an online scheme that connects new learners with experienced learners. However this is more of a helpdesk function rather than an ongoing mentoring scheme. While mentoring was underused by the OU results from Asbee, Simpson and Woodall (1999) provided sufficient evidence of its effectiveness to warrant a more rigorous follow up study.

Methodology

This follow up study selected mentors and mentees by inviting a group of around 400 geographically contiguous learners to either have a mentor if they were new students, or to be a mentor if they were experienced (continuing) learners. There was an approximately 20 percent response, of which about one-half said they would like to participate, with more volunteer mentors than mentees.

Mentors were matched with new learners based on the following criteria in priority order: course, geographical location, domestic status (i.e. parent, married etc), gender and/or age where preferences were expressed. All participants were provided with an OU guideline and a questionnaire was sent after the end of the year. This had a 60 percent response rate. Most participants found the guideline useful.

Key Findings

Mentors were motivated to undertake this role largely because they wanted to make a contribution to the OU or to continue contact with them. Age and location were the key criteria in the matching process. Most contact was by telephone but email was also used. Face-to-face contact was highly valued. Contact ranged from one to five times. Where it was not made this

was mainly due to accessibility issues or because the learner did not want to impose on their mentor's time.

In other instances sufficient mentoring was received. But it tended to decline over time which may have been due to time pressures for the mentors as their workloads increased. Much of the mentoring was on dealing with issues around study including lack of confidence and concern over tutor feedback.

While all learners believed that they would have coped without their mentor's support the pass rates for the mentored learners were significantly higher (89 percent compared to 67 percent for the non mentored group). Furthermore the mentors also gained valuable skills. But they felt that being more pro-active would benefit future mentors.

While this was not a zero cost initiative its associated costs were modest and likely to be much less than if it was provided by tutors. More importantly the return on investment was large with the OU calculating about eight pounds for every one pound invested.

Cognitive, Instructional, and Social Presence as Factors in Learners' Negotiation of Planned Absences from Online Study

Author: Conrad, D.

Background

The ubiquity of the online technology and learning make it difficult for learners to have an appropriate 'time out' to deal with their external commitments and pressures. This study aimed to address or answer the following research question: How do learners experience extended absence from their learning communities?

Methodology

The study was based on a post-graduate sample at one university. Half of the study's population sample (n=18) had to take an absence from the course mainly for work and/or family reasons. An action research methodology was used that was underpinned by Garrison's Community of Inquiry Framework.

The study also took into account the literature on adult learning. This literature stressed the importance of learning motivation and learning strategies in predicting successful outcomes for students. Motivation theory is critical in this context. Some researchers tie motivation-to-learn to a student's acute awareness of the degree of their inclusion in a learning environment. Other research into online communities supports this view.

Key Findings

The three main themes from the findings were:
- The strong interdependence of cognitive, social and instructional presence.
- The importance of learners' self-knowledge.
- The impact of external and circumstantial life-situations on adult learners' ability to engage in learning.

The results of this study confirmed previous research findings that a network of strongly interconnected factors guides learners' decision-making when they are faced with the need to absent themselves from online learning. These include the need for appropriate peer support (both formal and informal), making arrangements to access the technology, and family support.

Instructors also need to support learners. However this needed to be underpinned by extensive planning and preparation by the learner. This was assisted by a learner's self-knowledge and its influence on their selection of appropriate learning and coping strategies.

A more severe and potentially disruptive result of sustained absence was learners' separation from their peers and the sense of community that had been established. A disconnect from the community interactions was the major barrier experienced by participants. Even if they could catch up they still felt they had missed the real value of the interactions by not participating in 'real time'. However this can be mitigated to a large extent by instructor presence and guidance.

Limitations
The major limitations to this study were that it cannot be generalised to a larger population and there was a strong element of self-selection bias inherent in it.

Persistence in University Continuing Education Online Classes

Author: Frydenberg, J.

Background
The literature on learner persistence has a long history. The outcome variable selected by the majority of the studies has been the completion of a two or four-year formal degree, and the learners' whose behaviour is studied are generally the 18-22 year old age group.

The independent variables examined can be grouped into three broad categories according to the literature:
- Those attributable to the 'individual persister/non-persister'.
- Those within the institution.
- Those related to the interaction between the individual and the institution (Tinto, 1993; Braxton, 2000; Tillman, 2002; Berge and Huang, 2004).

With the rapid growth of distance learning a concern has been raised regarding whether it shows a different pattern of persistence and attrition than traditional delivery. This is because dropout rates appear to be significantly higher in distance education courses compared to their traditional delivery equivalents (Parker, 1999; Diaz, 2002; Lorenzetti, 2002).

Prior academic success appears to predict persistence in online as well as in traditional delivery classes (Dupin-Bryant, 2004; Morris, Wu and Finnegan, 2005). Faculty involvement can be crucial in learner satisfaction, and this appears to predict persistence (Astin, 1977; Pascarella, Terenzini and Wolfe, 1986).

Methodology
This study described persistence data collected over two years from the University of California. The group studied was comprised of adults enrolled in continuing professional education. The unit of analysis was the individual course. Class sizes were between 10 and 25 learners. The independent variable fell under the category 'the institution,' and examined the point in time when a learner dropped out of the course.

It was a comparative study, gathering data from online and traditional delivery continuing professional education classes. These courses were different not simply in delivery mode but also in structure. The author's main focus on learner attrition was on those who dropped out after one week or more.

Key Findings
While the online component was a minor part of this course's provision there was a statistically significant difference in dropout rates with the online courses being much higher. This may be explained in part by the different course structures where learners in traditional delivery had more intensive support earlier. But in contradiction to this explanation the study found that more traditional delivery than online learners' drop out prior to the course starting or before receiving any instruction. This suggests that instruction was not the primary cause of the higher online attrition rates.

The study's data found no clearly identifiable cause behind the majority of drop outs. It is likely that external factors which were not specified by the learners were the main cause. However with traditional delivery learners there were two main reasons cited for dropping out: scheduling conflicts (22 percent) and a cancelled course (20 percent).

When the unit of analysis is the individual course, there is not the same attrition rate mentioned in Tinto (1982). The total attrition rate in this two-year study was substantially lower. There was no difference at all in attrition rates once instruction had commenced.

Future Research
The large percentage of course transfers among the online learners needs to be investigated. Which courses did they transfer to? Did they transfer to another online course or from online to traditional delivery? Of great interest to the field would be studies comparing faculty involvement and instruction in reasonably comparable traditional delivery and online classes, ideally, in complete degree programs.

Impact of e-learning on learner participation, attainment, retention, and progression in Further Education: report of a scoping study

Authors: Harris, R., Muirhead, A., McAteer, E., Schmoller, S., and Thorpe G.

Methodology
This study reviewed the academic and 'grey' literature as well as identifying relevant data sets and their appropriate variables. It was mostly informed by interviews (n = 30) with key informants and focus groups from national data gathering agencies or individuals with expertise in e-learning and/or attainment. A framework was created to assess the impact of e-learning on learner participation, attainment, retention and progression in the United Kingdom's Further Education (FE) sector.

Key Findings
It is not possible to definitively assess e-learning's impact on learner participation, attainment, retention and progression because it lacks an agreed definition. E-learning can be indirectly measured and investigated by focusing on 'soft' skills and behaviours. These include increased motivation and engagement, improved behaviour, and interpersonal communications.

The report's other key findings were:
- E-learning can have a positive effect on participation, retention and attainment, by creating a sense of engagement, personalising the learning interface, and improving communication.
- Teachers' skills did not match the available infrastructure in the FE sector with significant variability across and within institutions.
- Leadership and effective management was the key to successful implementation.

New beginnings: Facilitating effective learning through the use of Web 2.0 tools

Authors: Narayan, V., and Baglow, L.

Background
This study was based on a foundation level automotive and mechanical engineering course run by Unitec. Concerns had been raised about the low retention rates for learners in this course.

The institutional Learning Management System and a range of web services including Google docs were used. Technology support was provided to learners on a weekly basis. They were also given introductory lessons on such things as setting up a Google docs account. Savings that were generated from the communal use of equipment used in the practical component of the course and through the discarding of the course texts were used by learners to purchase a lap top computer. This learner purchased lap top computer was a course requirement.

The research questions used as the basis for this study were: What impact does the integration of Web 2.0 tools have on teacher pedagogy? How does the integration of Web 2.0 tools affect students' learning, retention and success?

Literature Review
Learners need to be able to use technology effectively so they can succeed in a rapidly changing work environment (Robinson, 2003). For many years learning was seen as an individual activity largely determined by teaching that excluded interactions and experiences (Wenger, 1998; Chen, 2002). Learning was often assessed out of context and collaboration with peers was discouraged (Wenger, 1998).

McLoughlin and Lee (2007) broadly defined Web 2.0 as "a second generation, or more personalised, communicative form of the World Wide Web that emphasises active participation, connectivity, collaboration and sharing of knowledge and ideas among users" (p. 665). Web 2.0 technologies provide an opportunity to move away from a teacher-centred transmission model to one that is more collaborative and learner-centred (Rogers, Liddle, Chan, Doxey and Isom, 2007).

As well as providing enhanced or increased networking and collaborative opportunities Web 2.0 also allows for a more personalised or customised learning experience (Bryant, 2006; Redecker, Ala-Mutka, Bacigalupo, Ferrari, and Punie, 2009).

Methodology
The methodology used was participatory action research. Learner progress and quality of work was monitored through their weblogs (blogs), an end of semester survey, and overall student success and retention at the end of the semester. The end of semester survey was voluntary for learners and 30 completed it. Data was collected from the first semester only.

Key Findings
In terms of retention only two percent of these learners dropped out compared to 46 percent when the course did not use e-learning. The completion rate was 70 percent for the e-learning version compared to 54 percent for the previous version.

More of these learners took responsibility and ownership of their learning. 86 percent of the participants said blogs assisted their learning. Participant self-esteem and confidence were improved. There was an increase in peer-peer and student-teacher interactions. 90 percent of participants stated that these interactions were made easier through Web 2.0 tools.

By identifying problems earlier additional and timely support was provided. This increased participants' motivation and confidence. Most of these learners had internet and ICT access. They expected that the internet and ICT would be available for future study.

But their use of the internet and ICT was largely superficial and for entertainment – not education – purposes. However despite this use they were able to learn key skills and competencies relatively quickly including the uploading of content.

Early Attrition among First Time eLearners: A Review of Factors that Contribute to Drop-out, Withdrawal and Non-completion Rates of Adult Learners undertaking E-learning Programmes

Author: Tyler-Smith, K.

Background
The issue of learner retention and completion rates in distance education has been investigated and being the subject of much debate for at least the last seven decades. This discussion has intensified since the introduction of e-learning and its progression from the periphery of distance education and training to the mainstream.

E-learning is increasingly replacing earlier delivery modes in distance education (Berge and Huang, 2004). While the rates vary considerably there is a high degree of consensus that attrition rates are higher for distance learners (e.g. Parker, 1999; Carr, 2000; Frankola, 2001; Diaz, 2002; Flood, 2002; Forrester, 2000 (in Dagger and Wade, 2004).

The issue of attrition in e-learning courses is important for two reasons: firstly, it helps assess the relative cost effectiveness of online delivery compared to traditional delivery. This affects educational planning and the value of the investment in distance online learning by learners, educational institutions, corporations and government agencies.

Secondly, it helps determine what approaches might increase learner engagement and the learning effectiveness of online distance learning. This affects opportunities for access, learning outcomes and the perceived value and credibility of e-learning programmes and qualifications.

Literature Review

Attrition has received limited attention in the literature (Parker, 1999; Frankola, 2001; Diaz, 2002; Martinez, 2003; Rossett and Schafer, 2003; Wang, Foucar-Szocki, Griffen, O'Connor and Sceiford, 2003; Berge and Huang, 2004). The literature is particularly sparse on the direct experience of first-time e-learners or how the first impression of e-learning might impact on a learner's decision to persist with, or to abandon online study.

A number of models have been put forward to explain learner attrition (e.g. Sweet, 1986; Kember, 1989; Berge and Huang, 2004). But despite the increasing recognition of e-learning's importance within this literature, how it specifically relates to learner attrition is unclear.

Learners' self-reported perceptions are important. These include personal motivation (Bandura, 1986; Martinez, 2003), conflicts between study and work and/or home, and also that they have obtained sufficient knowledge. Technical and instructor/institutional issues have also been put forward as possible reasons for learner attrition.

Underlying this may be a learner's inability to identify issues. These include increased levels of learner anxiety about engaging with e-learning and their sense of becoming overwhelmed by unfamiliar modes of learning (Morgan and Tam, 1999; Frankola, 2001; Berge and Huang, 2004; Muilenberg and Berge, 2005).

Of particular note here is the typical distance learner who generally needs to complete study at home (due to work and/or family commitments). They are far more likely to encounter study/work/home conflicts. These conflicts are exacerbated by their relative isolation from their peers, their instructor and institution(s) (Ozga and Sukhnandan, 1998; Whittington and McLean, 2001; Diaz, 2002; Thalheimer, 2004).

A significant contributor to learners dropping out early from an e-learning course is related to the complexity of the learning tasks that confronts them when engaging with e-learning, especially for the first time. Whether the complexity is increased or not depends on the degree to which learners experience cognitive overload brought about by the multiple learning curves that confront them at the start of their e-learning course.

This is supported by cognitive load theory which indicates the difficulties encountered in processing large amounts of new information (Sweller, 1999). This is exacerbated in an online environment as there are a range of unfamiliar formats and technologies that learners have to deal with before they can even commence the course proper (Barnett, 1999; Whipp and Chiarelli, 2004).

Key Findings

To help better understand these issues a conceptual model was developed which was based on multiple learning tasks. They were:

- Negotiating the technology (including the institutional Learning Management System and computer-mediated-communication).
- Negotiating the content.
- Becoming an e-learner.

Future Research
Early drop out by distance/e-learners needs further research.

9   ACHIEVEMENT

Teaching an Experiential and Technical course via Distance Delivery

Author: Bremer, D.

Background
This paper reported on a distance education course delivered at Otago Polytechnic by teachers who were relatively inexperienced in e-learning using a variety of online tools.

Methodology
The learners and teachers had a face-to-face orientation workshop prior to course commencement. The tools used to support the course included online tests, video and the following Microsoft products:
- Producer (which creates a video of the lecture).
- Remote Assistance (used to provide learner support).
- Virtual Personal Computer (to enable a variety of operating systems and personal computers to be used by learners).

Key Findings
Learner feedback on the course was that it was well organised with sufficient resources. The presentations were seen as useful. The completion rate for the course was 62 percent. But as the rate was only based on eight learners it is not definitive.

The main reason given for non-completion was employment issues. But for at least one learner the workload was too high. The overall feedback on the course was that more use could have been made of the online discussion forums. The teachers noted that regular contact was necessary to maintain learner motivation.

Most learners enrolled in the subsequent courses. But the reasons for this were not given which would have been useful to provide evidence (albeit limited) of e-learning contributing to learner progression.

Performance in e-learning: online participation and student grades

Authors: Davies, J., and Graff, M.

Literature Review
Some of the research literature suggests that e-learning promotes student-centred learning, wider participation and more in-depth and well considered discussions than traditional delivery (Karayan and Crowe, 1997; Smith and Hardaker, 2000). Other research suggests e-learning's increased collaboration assists wider participation by having less intimidation and time pressures than traditional delivery environments (Warschauer, 1997).

But e-learning can also lead to increased isolation (Haythornthwaite, Kazmer, Robbins and Shoemaker, 2000). This isolation can be reduced by learning communities. Online interactions are important in establishing and maintaining these learning communities (Rovai, 2002).

Methodology

The study had 122 undergraduate business degree learners. There were 70 females and 52 males. 97 were full time and 25 part time. It compared their interaction levels with their final grades and these were recorded through the institutional Learning Management System.

Key Findings

Learners with increased interactions had higher grades. Those with fewer interactions were more likely to fail. However there was no discernible link between increased interactions and the medium and high pass grades. The overall conclusion was that learner effort was more important and that a causal link between increased interaction and performance was absent.

But the findings suggest that increased interaction is a good indicator of higher work levels. It was also possible that the sense of community created may be a key factor in determining those that pass (with a low grade) and others that fail.

Peer-to-peer interactions had far less impact than teacher-student interactions. There were also increased interactions when it was voluntary rather than mandatory. It is likely that the frequency of interactions was more important in providing support. However the quality and dynamics of the interactions were more important in influencing learning and performance. But the quality not just the quantity of interactions needs to be measured to more definitively establish a link between interaction and performance (as measured by grades).

You be the examiner!

Authors: Farley, P. C., Magan, N., Charron, C. L., Broomfield, N. I and Farley, A. F.

Background

Learners were provided random access through their institutional Learning Management System to a database of typical examination questions. These covered all the major topics in the course and their associated answers. But while they represented the range of learner responses they were not an actual learner's answer.

Learners were expected to use their understanding of the topic to assess the appropriateness of the answer. They were provided a set of criteria on which to evaluate the answers. On the basis of their assessment they were provided feedback that reinforced correct understanding. If further study appeared necessary the system directed them to the relevant sections of their textbook and lecturer-provided study notes. No factually incorrect information was given in the answers.

Key Findings

Learners found the programme useful in constructing their own answers rather than memorising examples or exemplars. Of the 170 learners enrolled in the course 33 percent accessed two or more topics. Analysis of the data showed that there was a statistically significant relationship between uses of the You be the examiner! programme and learner performance in the paper.

This improved performance was not due to higher achieving learners using the You be the examiner! programme. The range of learners accessing the programme suggests that it was helpful for a wide range of academic abilities.

Integrating ICT into Higher Education: Investigating Onsite and Online Professors' Points of View

Authors: Fillion, G., Limayem, M., Laferriere, T., and Mantha, R.

Background

Since the 1990s ICT has transformed teaching and learning. The practitioner response has been to create purely online or blended courses.

The research questions used to inform this study were:

- Are their differences between learning outcomes of onsite students and of those taking the same courses online? If so what are they?
- Do students' characteristics have an influence on the relation between learning environments and students' learning outcomes, and are their differences in this influence between onsite and online students? If so, which characteristics and what differences?

These questions also helped inform the following set of hypotheses which were used as the empirical basis for this study.

1. Students in blended courses will find learning more effective than students in fully online courses.
2. Students in blended courses will perform better than students in fully online courses.
3. Students in blended courses will be more satisfied than students in fully online courses.
4. Students' autonomy has an influence on the relation between learning environments and their learning outcomes, effectiveness, performance and satisfaction and that this effect is more pronounced for students in blended courses.
5. Students' anxiety has an influence on the relation between learning environments and their learning outcomes, effectiveness, performance and satisfaction and that this effect is more pronounced for students in blended courses.
6. Students' motivation has an influence on the relation between learning environments and their learning outcomes, effectiveness, performance and satisfaction and that this effect is more pronounced for students in blended courses.
7. Students' participation has an influence on the relation between learning environments and their learning outcomes, effectiveness, performance and satisfaction and that this effect is more pronounced for students in blended courses.

Literature Review

The theoretical basis of this study was variables used by Phipps and Merisotis (1999). Their literature review outlined numerous variables that can be used in different scenarios involving ICT several of which were used in this study. They included learner performance, attitude and satisfaction.

In addition moderator variables and the overall research model developed by Leidner and Jarvenpaa (1993) were used. These variables are seen as critical in this type of research because they affect the direction and/or the strength of the relation between an independent variable and a dependent variable (Ives and Olson, 1984; Anderson, 1985; Baron and Kenny, 1986; Tait and Vessey, 1988; Doll and Torkzadeh, 1989; Hartwick and Bakri, 1994; McKeen, Guimaraes, and Wetherbe, 1994; Sambamurthy and Zmud, 1999; Venkatesh and Speier, 1999, 2000; Venkatesh and Davis, 2000; Venkatesh and Johnson, 2002; Venkatesh, Morris, Davis G. B and Davis F. D., 2003; Davis F. D. and Venkatesh, 2004).

Methodology

Learners from five undergraduate and three postgraduate courses in one faculty at one Canadian university were selected. Learners were not randomly assigned. There were 183 learners in the blended courses and 130 in the fully online courses.

An end of course survey was used to collect the data. The analysis of this survey data was carried out using a range of software including Partial Least Squares, SPSS, Qualitative Solutions and Research Nvivo.

Key Findings

Participants in blended courses performed better than their counterparts in fully online courses. But learners in fully online courses were more satisfied. Participant autonomy, anxiety, motivation and participation had an influence on the relation between learning environments,

learning effectiveness, performance and satisfaction. This influence was more pronounced for the participants in blended courses.

Integrating web-delivered problem-based learning scenarios to the curriculum

Authors: Gossman, P., Stewart, T., Jaspers, M., and Chapman, B.

Literature Review

The effectiveness of problem-based learning (PBL) is a significant and contentious educational issue. This is in part due to confusion over its terminology and the lack of conclusive evidence to support or reject it (Newman, 2003).

Many studies have linked PBL to improved learner outcomes and behaviours (Hake, 1998; Rhem, 1998; Major and Palmer, 2001; Beers, 2005; Lockhart and Le Doux, 2005; Moust, Van Berkel and Schmidt, 2005; Prince, 2005). But Kirschner, Sweller and Clark (2006) are more critical stating that the heavy cognitive load it places upon students may restrict their learning. This heavy cognitive load is due to the fact that PBL places greater responsibility on learners for what and how they learn (Mackenzie, Johnstone and Brown, 2003).

PBL tends to favour learners who are more intrinsically motivated. In contrast learners who are extrinsically motivated tend not to cope well in PBL environments (Kumar and Kogut, 2006). This is not surprising as PBL is more closely aligned with student centred teaching and learning approaches (Entwistle, 2000). PBL tends to favour intrinsically motivated students and more learner-centred approaches because its defining characteristic is that it poses a 'concrete' problem to learners so they can initiate the learning process (Gijbels, Dochy, Van Den Bossche and Segers, 2005).

The growth in PBL approaches is mirrored by the expansion of e-learning. PBL within an e-learning environment offers the opportunities for additional guidance from the teacher which reduces the learners' cognitive load.

But despite e-learning's potential to initiate and support PBL approaches it is often used in limited ways such as replicating offline content e.g. lectures (Gibson, O'Reilly and Hughes, 2002). Carlson (1998) thinks this is because of the failure by developers to consider end user needs, an underdeveloped paradigm for its use, and teacher resistance to its adoption. It may also be because existing research often focuses on e-learning's ability to promote process rather than content objectives (Watson, 2002).

Methodology

Two classes of learners were used (n=32). They were second and third year undergraduates and predominantly male (n=21). There were 19 learners allocated to the control group. They were taught using traditional delivery. The 13 in the case group used the online PBL in addition to traditional delivery. The PBL scenario was supported by a specialist software package in contrast to traditional delivery which used lectures and labs.

Learner data was obtained through a 20 item online test which was assigned to the case and control groups before and after the PBL work. In addition the students' views about learning using PBL software were obtained after they had all participated in the web-based scenario. Sixteen open questions were asked and these were measured and assessed by Likert scale responses.

They used a pre/post testing approach. Learner grades were the measure of achievement. Changes to their grades were quantified using the pre/post test scores within a case/control group experimental design. A paired t-test and chi square tests were used to analyse the data.

Key Findings

Both groups showed improvement. But this improvement was larger for the control group. However there were no significant differences between the pre and post test scores for either group. PBL was supported as a learning method by both groups.

Benefits identified by learners from the PBL approach included greater interaction, the incorporation of a visual component, and instant feedback. The problems with this approach largely revolved around the PBL itself with learners noting a lack of clarity around the task, or too simple or limited tasks and scenarios. Learners also viewed the amount of work and lack of assessment unfavourably.

Impact of a Tutorial Support Management Model on Student Performance and Satisfaction

Authors: Lynch, G., and Paasuke, P.

Background

In response to rapidly increasing enrolments Open Universities Australia (OUA)[13] developed and trialled the Tutorial Support Management (TSM) project. The main purpose of the project was to investigate a model of tutor training, supervision and task/time assignment that would support the use of multiple online tutors. These online tutors assisted in maintaining quality teaching and learning outcomes on a cost-effective basis in courses with high enrolments.

The 2008 and 2009 trial involved 22,000 undergraduate learners across four universities in different states[14] in a range of disciplines[15]. This paper focused on how the TSM improved learner outcomes and satisfaction.

Tutor support in the TSM was provided mainly through asynchronous discussion forums. This was to provide greater opportunities for reflection. Reflection has been shown to increase higher order cognitive processing that benefits all participants (Weller, 2002; LaPointe, 2008). Using tutors to facilitate student-centred learning also aligns with recent theoretical and practice based shifts away from teacher centred practices and knowledge development to more learner-centred pedagogies and knowledge constructions (Brown and Adler, 2008).

In the first year of the trial the learner: tutor ratio was 110 to 1. However this ratio was increased in the second year to 200 to 1. This was mainly because the evidence showed that over the duration of the study period the extent of learner activity in smaller groups declined to the point where a critical mass for generating discussion often no longer existed. This challenges much of the existing literature which advocates much smaller classes (Bender, 2003; Wang, X. 2008). But this higher learner: tutor ratio is supported by others (McCarty, Killworth, Bernard, Johnsen and Shelley, 2001).

Methodology

Two different Learning Management Systems were used to determine what, if any, impact the TSM model had on learner retention, performance, satisfaction, return and re-enrolment. Three year comparisons were undertaken. In addition, results and learner performance in TSM units were compared against the average results and performance of all first year undergraduate OUA units. Learner results including pass rates and grade distribution were also compared.

In addition to learner comments gathered from the discussion forums, feedback was also collected from student satisfaction surveys conducted at the end of each study period. Tutor and course coordinator feedback was gathered from online surveys and web-based timesheets. Individual and group meetings throughout the study periods were also used.

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[13] OUA is a stand-alone company owned by Curtin, Griffith, Macquarie, Monash, RMIT, universities, the Swinburne University of Technology and the University of South Australia.
[14] The states were: Victoria, South Australia, Queensland, and Western Australia.
[15] These included accounting, computer studies, internet studies, business, arts and primary education

Key Findings

The TSM model improved learner retention. The largest improvements were in courses with 350 or more enrolments. There was an average increase of almost nine percent in learner retention in these courses. This is significant because these courses generally have poor retention rates. In contrast courses with lower enrolments showed no change in learner retention.

Learners who participated on a regular basis in the TSM's discussion forums rarely failed and often achieved top grades. But this was not the case for non-participating learners. Of the courses analysed the vast majority of learners showed improvement in their achievement. Only one course showed a decline in learner achievement. Two recorded no change.

The average increase in pass rates for the courses that showed improvement was 12.6 percent. But for some learners this increase was as much as 28.7 percent. Learners also improved their grades. More learners received credits rather than passes.

From a learner perspective these groups were a noticeable improvement on the even larger traditional delivery classes. This is reflected in the higher achievement and satisfaction ratings in TSM courses. Learner engagement increased in the vast majority of TSM courses.

Learners valued the support provided by tutors who led them through activities and responded to their individual queries, even when time constraints limited the extent of their actual participation in the online forums. By the end of the trial 75 percent of learners believed that tutor use of online discussion forums assisted their learning.

E-learning in context

Author: Nichols, M.

Background

The greatest barrier to the adoption of e-learning in tertiary education is a lack of context. For example, many educators have only a limited idea of what e-learning is and this is often based on a static view such as clearly defined web pages. Other educators are concerned about the academic rigour and applicability of online discussions based on their perceptions about social media discourse. There are also a group of educators who have only experienced low-quality e-learning.

E-learning should be determined by the pedagogy not the technology. But it is also important that this pedagogy is enabled or supported by accessible, reliable and user friendly technology.

Definitions of e-learning can confuse those not familiar with the field because there are a number of terms used to describe it. These include flexible learning, blended learning and mixed-mode delivery. However it is unclear to many teachers how these different terms would translate into practice. For example, what does online interaction look like or consist of in an academic context?

This confusion may arise because e-learning's proponents often confuse its purpose and position within educational contexts and systems. E-learning is a means not a mode. It is not a separate educational system but one that is used to support or enable other educational systems such as traditional delivery or distance education.

Literature Review

E-learning can support a variety of pedagogies from well-structured and more teacher-centred to learner centred where the students take on some of the teaching roles. E-learning's uniqueness is that it can combine the existing paradigms of traditional delivery and distance education. As Dillon and Greene (2003) argued traditional individualistic distance education supported by technology can move closer to face-to-face delivery through distributed collaboration.

In addition Garrison, Anderson and Archer (2003) believe that e-learning offers one benefit that cannot be replicated in distance or traditional delivery environments: the development of a critical community of inquiry. Collaborative exchange and reflective critical discourse can be facilitated through computer mediated communication in ways that are qualitatively different to traditional delivery.

Good course design is a feature of successful e-learning (Swan, 2001). There is general agreement across the extant education literature that collaborative dialogue and communication with teachers are significant contributors to successful learning.

But learners are often hampered by the state of New Zealand's infrastructure with many either having no internet access or only being able to access it through a non-broadband connection. This means teachers, where appropriate, should consider restricting content and assessments online and provide static content offline.

The overall objective of enabling the learner to achieve their goals and perform well does not change in an e-learning environment. This means focusing on the curriculum and how e-learning can support the attainment of its objectives. If e-learning does not achieve this it is questionable whether it should be used at all.

It is important to remember that institutional, societal and political changes do not automatically lead to better student learning. In short e-learning is more likely to be successful where it is driven by educational goals or the resolving of educational problems.

Oblinger and Hawkins (2005) argue that e-learning has three major benefits for learners which are:
1. Its convenience and flexibility.
2. The reduction in distance between teacher and student through interpersonal interaction, and its ability to provide a media-rich environment and academic discourse. This provides a more effective learning experience than traditional delivery.
3. It makes education more efficient while still retaining quality.

But e-learning's benefits need to be set alongside its numerous failures and the countervailing literature which points out its problems. Successful e-learning depends on the types of technologies used and their correct application in the right context.

Study results are varied. But the literature identifies one consistent pattern: there is no significant difference in learner achievement between e-learning and traditional delivery (Zhao Lei, Lai and Tan, 2005). However this is an average and there is variability within the wider literature with some studies showing better results while others are worse. Zhao et al. conclude that learners are not necessarily worse off in distance or web-based e-learning environments. These environments can confer benefits if there is sufficient interaction and instructor contact.

Rovai (2002) for example, found minimal difference in the sense of community learners experienced between e-learning and traditional delivery settings. From the learners' perspective the ingredients of community i.e. spirit, trust, interaction and learning can be as much a feature of the virtual classroom as the traditional delivery one. Rovai notes, though, that developing a sense of community depends on the course design.

Research also confirms that learners regard IT literacy as less of a barrier than it once was. For example, Gunn, McSporran, Macleod and French (2003) state that most learners now regard a computer as 'important' or 'vital' to their university studies.

But learner retention in e-learning environments presents a more complex and less certain picture. The reasons for student drop outs are as varied as the learners themselves (e.g. Willging and Johnson, 2004). For example, Dutton, J, Dutton, M. and Perry (2002) noted that while learners in e-learning performed as well as their traditional delivery peers their retention rates were significantly lower. The main reasons cited for this are poor support structures and a lack of effective orientation (Simpson, 2002). External pressures leading to drop outs do not change in e-learning environments.

However in an interesting finding Dutton et al. found that older learners valued the flexibility and convenience of e-learning more than their younger peers (less than 22 years old) who preferred a structured, lecture-based environment. Hoskins and van Hooff (2005) suggested that learners who were active in online discussions performed better. This tended to favour older learners who were more likely to spend increased time in e-learning environments.

Diaz and Cartnal (1999) found that students who opted for an online learning experience over a traditional delivery one tended to be intrinsically motivated, independent learners. However they are not collaborative unless directed to be. Hoskins and van Hooff found that males were more likely than females to be active online participants. But others suggest that female learners do better in online environments (Gunn et al. 2003; Anderson and Haddad 2005).

E-learning's lack of success in certain contexts could be because despite the available technologies and their increased use, in these environments, there has yet to be a significant departure from traditional on-campus or distance delivery. For example, Hedberg (2006) noted that 53 per cent of students experience of e-learning was solely the provision of information, and sometimes this was only basic e.g. background.

The use of technology to create an interactive learning environment for internal and distance students

Authors: Wilson, D., and Sayles, F.

Background

The major challenges arising from teaching business law are the variety of learner skills and backgrounds including the increasing numbers who are ESOL. There is also the problem of relevance because business law courses are mandatory for some non-law qualifications. In an attempt to provide learners with different learning experiences, within institutional constraints, an interactive learning environment was created which consisted of virtual classrooms and assessment tools.

Literature Review

There are two major teaching approaches – traditional and active. The active approach is seen as improving learner knowledge building and fostering deep learning approaches. But the success of an active approach is largely dependent on learner motivation (Gibbs, 1992; Entwistle, N., Skinner, Enwistle, D. and Orr, 2000).

Svincki (2004) saw student motivation as being determined by the learners' perception of the value of the goal that had to be achieved and that they would be successful in reaching it. Learner motivation can be supported by making the topic of study more relevant and interesting. This can be achieved through ICT. For example, ICT environments can more easily incorporate visual aids which are particularly valuable for younger learners (Bruinsma, 2004; Svincki, 2004; Weiler, 2004).

Learners with high self-competence ratings are more likely to be successful than students with low ratings. One of the major influences on learner self-competence is prior success as measured by previous grades or achievement in the particular area of study (Bakx et al., 2002; Bruinsma, 2004; Frantz and Wilson, 2004).

Distance learners unlike their on-campus peers face the additional challenge of isolation. This means they have fewer opportunities to discuss and test their understanding prior to assessment. Failure in these assessments combined with the isolation contributes to their withdrawal.

To assist distance learners overcome these obstacles it is important to develop a community where they can obtain increased support through more frequent peer-peer and student-teacher interactions. This community can be effectively developed and fostered using ICT. But it is important that the ICT used, supports and enables teacher-student and peer-student interactions (Bernt and Bugbee, 1993; Damoense, 2003; Ludwig-Hardman and Dunlap, 2003; Parkinson and Forrester, 2005; Liao, 2006).

Traditional delivery is teacher centred and largely revolves around transmission of information from them to the learners (Pratt, 1999). This traditional approach has been criticised because it favours memorisation and recall over reflection and analysis (Biggs, 2003). While learner achievement is acceptable using traditional approaches evidence suggests that learners using this method demonstrate a lack of understanding of the key concepts associated with the topic (Gibbs, 1992).

To increase learner understanding an active approach is required. But whatever approach is used deep learning and increased knowledge can only occur when learners have a base level of knowledge to begin with and this is effectively achieved using traditional teaching methods.

Exploring knowledge should involve a negotiation between the teacher and their student to determine the most effective learning methods (Ramsden, 1992; Ainley, 2000). The end result of this negotiation should contain varied ways to encourage students to learn and be supported by different content sequences. This will allow individual differences between learners to be incorporated into the overarching objective of helping all learners change their understanding (Ramsden, 1992).

Methodology
The virtual classroom used for the study was supported by the authors' institutional Learning Management System. It had different components. These included an audio recording of lectures supported by PowerPoint presentations, online discussion forums in the form of bulletin boards, and online tutorials. It also supported assessments by allowing online submission of assignments, self-testing, and a personal response system using 'clickers'.

Key Findings
Learner comments revealed a high level of satisfaction with the various tools used. The different teaching methods used such as the online weekend tutorials increased learner motivation.

There were improvements in learner retention and achievement. In one paper from 2006 to 2007 for example, the percentage of learners completing the course increased from 78.26 to 92.5, while the percentage of non-completers almost halved from 25 to 13 percent, and the grade point average rose from 2.02 to 3.09. There was also a small increase in learners' course assignment grades. Learners' comments indicated that the ICT used in the course decreased their isolation.

A review of learner records as what was their prior study indicated no marked differences in academic ability. Learners' comments suggest that the use of audio technologies to support their learning may have contributed to this improved performance. But the use of the personal response system was not well received by learners. This is because it represented a change from the traditional teaching methods they were familiar with.

For learners who have traditional views on learning, being more active can create anxiety. However this can be alleviated if the rationale for the active approach is explained in a way that satisfies learners.

Limitations

These findings need to be treated with caution as they may not be attributable to the ICT component because they were only from a two year period and there was no formal pre-testing of learner ability prior to course commencement.

10 COMPARATIVE

A predictive study of learner satisfaction and outcomes in face-to-face, satellite broadcast, and live video-streaming learning environments

Authors: Abdous, M., and Yen, C-J.

Background

Central to the transformative process in universities is distance education and in particular the increasing use of institutional and learner technologies to support it. The rise of technology supported online or blended distance education is blurring the boundaries between traditional and distance delivery (Harasim, 2006; Vaughan, 2007; Laurillard, 2008; Parsad and Lewis, 2008; Amirault and Visser, 2009; Means, Toyama, Murphy, Bakia and Jones, 2009; Tapscott and Williams, 2010).

However many in higher education view e-learning enabled distance education with scepticism despite the fact that it provides greater access to non-traditional and underserved populations (Donovant, 2009). It also adds flexibility and enrichment to teaching and learning (Shin, 2002; Casey, 2008).

But despite its importance Allen and Seaman (2010) found there was a decline in the perception of its strategic importance among universities. This appears to be due to the institutional, pedagogical and workload issues associated with faculty participation (Tabata and Johnsrud, 2008).

Despite a comprehensive body of literature there is a gap related to an examination of the predictive relationships between various delivery modes and self-perceived learner-teacher interaction. To address this gap the study set out to address the following questions:

1. How will the delivery modes (i.e. traditional delivery, satellite broadcasting at a remote site or live video streaming at home or work) predict the level of self-perceived learner-to-teacher interaction?
2. How will the self-perceived level of learner-to-teacher interaction predict student satisfaction?
3. How will the self-rated computer skills predict learners' satisfaction?
4. How will the self-reported number of distance courses taken predict learners' satisfaction?
5. How will the self-perceived learner-to-teacher interaction predict the learners' final grades?

Literature Review

There have been numerous studies attempting to prove the equivalence (or better) of distance education compared to its traditional delivery counterpart (Maushak, Chen, Martin, Shaw and Unfred, 2001; Bernard, Abrami, Lou, Borokhovski, Wade and Wozney et al., 2004; Lou, Bernard and Abrami, 2006; Mullins-Dove, 2006, Bernard, Abrami, Borokhovski, Wade, Tamin and Surkes et al., 2009). These studies noted the critical importance of interaction and contact between the instructor and their learners. This is grounded in the strong pedagogical belief that interaction is the building block of both teaching and learning (Anderson, 2003).

The lack of interaction in distance education compounded by the perceived difficulty in interacting and communicating with the instructor is often manifested by a learner's perception that there is a lack of feedback from the instructor. In some cases instructors do not provide sufficient feedback or interaction. This can lead to learners feeling isolated and are among the reasons leading to their dissatisfaction and withdrawal (Ertmer, Richardson, Belland, Camin, Connolly and Coulthard et al., 2007).

But these problems in distance education are offset somewhat by its ability to increase learners' reflection and critical thinking (Epp, Green, Rahman and Weaver, 2010). Other benefits of distance education include effective online discussions and promotion of learners' critical thinking (Tianyi, Tianguang, Ring and Wei, 2007; An, Shin and Lim, 2009).

Interaction takes different forms. According to Moore (1989) there are three different types: learner-to-content, learner-to-teacher and learner-to-learner. The first helps to "change the cognitive structures"; the third category is perceived to be a valuable learning resource. Hillman, Willis and Gunawardena (1994) proposed a fourth category: learner-interface.

Learner-teacher interaction(s) are overwhelmingly seen as the most important in the literature, for both e-learning, and traditional delivery where this positive relationship has long been recognised (e.g. Bolliger and Martindale, 2004; Umphrey, Wickersham and Sherbolm, 2008). For example, Bernard et al. in their 2009 meta-analysis concluded that "designing interaction treatments into distance education courses, … to increase interaction with the material (and) course instructor… positively affects student learning" (p. 1264).

But there are dissenting voices in the literature. For example, Rovai (2002) noted that interaction in and of itself was not conducive to learning. This was taken further by Dennen, Darabi and Smith (2007) who argued that there was a threshold at which instructor involvement or interaction could inhibit or discourage learner communication and participation.

Most comparative studies show that learner satisfaction in traditional delivery and distance education contexts is roughly equivalent (Allen, Bourhis, Burrell and Mabry, 2002). This is also the case with learning effectiveness and the presentation of content (Skylar, Higgins, Boone and Jones, 2005; Larson and Chung-Hsien, 2009).

But, not all the literature agrees with this conclusion. Anderson, Banks and Leary (2002) and Kearns, Shoaf, and Summey (2004) found significantly lower satisfaction levels for distance and online learners compared to their traditional delivery peers.

Methodology
496 learners participated from one university. Most participants were under 30 years of age, female, and employed full-time. Of the respondents to the study's online survey 21 percent were in the traditional delivery component and an equal number in the live video-streaming section. The remainder (58 percent) were in the satellite broadcasting section.

The research variables used were 1) self-perceived learner-to-teacher interaction and 2) student satisfaction. They were measured on a Likert scale and the data was analysed using specialist software. This was used to undertake the study's three main analytical methods: descriptive statistics of means, standard deviations, and frequencies and percentages. These were used to inform more detailed analysis: linear regression for questions 1 and 2; and ordinal logistic regression for the other research questions.

Key Findings
Just under 50 percent in the satellite broadcasting section received an A grade. The highest grades were in the traditional delivery section (just over 50 percent with an A). An increase in the self-perceived learner-to-teacher interaction was associated with an increased probability of obtaining an improved final course grade.

The self-perceived learner-to-teacher interaction and student satisfaction were similar across the three delivery modes. Therefore delivery mode was not a useful predictor for this. But there was a positive association between self perceived learner-to-teacher interaction and student satisfaction.

When asked to rank their preferred delivery mode just under 49 percent of learners selected the traditional delivery mode. The least preferred mode which was selected by only about 20 percent of learners was the blended mode.

Participants in the video-streaming sections rated highest on computer skills. But the study's analysis indicated that this increase in computer skills was associated with a decrease in student satisfaction.

Limitations
The identified limitations were:
- The study was quasi-experimental.
- The use of final grades and student satisfaction as outcome measurements.
- Only one type of interaction was addressed.
- Self-reported data is likely to be biased.
- The findings are unlikely to be generalisable.

Future Research
To consider measures of cognitive, affective and social processes of learning and address the other interaction categories referred to above.

Academic motivation and self-regulation: A comparative analysis of undergraduate and graduate students learning online

Authors: Artino, A. R. Jnr., and Stephens, J. M.

Background
Online learning has now become an accepted, even expected part of higher education in the US (Moore and Kearsley, 2005; Larreamendy-Joerns, and Leinhardt, 2006; Tallent-Runnels, Thomas, Lan, Cooper, Ahern and Shaw et al., 2006). This assertion is supported by a survey carried out by Allen and Seaman (2008) which found that the number of learners learning online had more than doubled since 2003.

Based on these results the authors believe online enrolments will continue to outpace traditional delivery enrolments for the foreseeable future. This view is supported by Larreamendy-Joerns, and Leinhardt.

This large increase in enrolments has led to growing interest from the research community on learners' academic motivation and self-regulation in online courses. This is largely because self-regulation is seen as an important determinant in learner success in online environments (Dabbagh and Kitsantas, 2004; Azevedo, 2005; Dabbagh and Bannan-Ritland, 2005). This is in part due to the increased autonomy expected of learners in online environments compared to traditional delivery where the instructor generally has much greater input and influence.

Academic motivation was defined for the purposes of this study as "students' movement towards and engagement in learning activities." Self-regulated learners were defined as "committed participants who efficiently control their own learning experiences in many different ways" (Schunk and Zimmerman, 1998; Boekaerts, Pintrich and Zeidner, 2000). Self-regulated learners also used "an active, constructive process whereby (they) set goals for their learning based on past experiences and the contextual features of the current environment" (Pintrich, 2000).

The hypotheses for this study were:
1. Graduate students would exhibit more adaptive self-regulated learning profiles.
2. They would be more intrinsically motivated to learn.
3. They would have higher levels of academic motivation.

Methodology
194 learners from one university were selected. 55 percent were graduate students. The remainder were undergraduate students. The gender split was roughly equal over the entire sample. But there were more men in the undergraduate sample and more women in the graduate sample.

They had a mean age of just over 29 years old for undergraduates and 34.6 for graduates. A small majority of undergraduates self-reported as 'working adults'. A majority of the learners had previous experience in online courses. But there were more undergraduate students with previous online experience than graduate students.

A survey was used to collect data. This used a seven point Likert scale. Six subscales from previously developed instruments were also used. A variety of analytic techniques were employed including: exploratory factor, confirmatory factor and reliability and logistic regression.

Key Findings
Graduate students reported higher levels of critical thinking. Critical thinking and choice were statistically significant predictors of group membership. Other important factors were: online technology experience, online courses completed, task value beliefs, and procrastination.

These results partially supported the hypothesis that graduate students would report higher levels of academic motivation and exhibit more adaptive self-regulated learning behaviours than their undergraduate counterparts. This is because they had higher levels of critical thinking and less procrastination. These are consistent with effective academic self-regulation (Pintrich, 1999; Wolters, 2003).

Graduate students tended to have better learning outcomes (Schunk and Zimmerman, 2008). The fact that undergraduate students had more procrastination but greater intention to re-enrol in future courses was an unexpected finding. This is because the literature indicates that learners who procrastinate more tend to be less engaged and motivated (Ferrari, Parker and Ware, 1992; Wolters, 2003).

Limitations
The small sample size limits the extent to which the study's findings can be generalised. The study's non-experimental nature means it did not take into account the fact that the higher level of critical thinking may be attributable to the type of course rather than learner attributes supported by e-learning.

Future Research
Larger and more diverse learner population samples and more controls established in the design. Empirical testing of whether specific online interventions including adaptive scaffolding during online discussions can impact on learners' critical thinking. This could be done through longitudinal, design-based research methods as suggested by Bannan-Ritland (2003).

Time Students Spend Reading Threaded Discussions in Online Graduate Courses Requiring Asynchronous Participation

Authors: Brown, A. H., and Green, T.

Background

Learners often give two contradictory responses in relation to e-learning courses. On the one hand they value the additional learning opportunities that are possible through the provision of a more in-depth examination of the content. They also appreciate the more focused and lengthier course related discussions. But on the other hand many learners feel that too much is being asked of them and that the course does not sufficiently take into account the external pressures that they face.

The objective of this research was to determine bases for comparison between the time needed to participate in distance, asynchronous courses (delivered using internet-based course management systems) and the time needed to participate in traditional delivery courses. If possible the research would also establish which of these two courses takes more learner time.

The main objective of distance education provision has been to as closely as possible replicate traditional delivery (Anderson, 2006). But direct and robust comparisons between learner participation in asynchronous and face-to-face environments are difficult because their delivery and structure are markedly different. For example, most of the interactions in asynchronous courses take place through discussion boards and consist of instructor prompts and learner responses (often referred to as threaded discussions).

It has been estimated that these threaded discussions account for about 40 percent of the course experience (Bourne, 1998). But what is unclear is how much time learners are being assigned for course activities in asynchronous courses.

Methodology

Only courses using a Learning Management/Content Management System were used. This allowed an in-depth analysis of learner participation and time in asynchronous environments through examination of the threaded discussions. The courses were from four different institutions. All courses were at post-graduate level with a focus on instructional design and/or curriculum studies.

Five discussion threads from each course were selected because they were identified as focusing on course content and aimed for learners to spend a similar amount of time on task per week. Word counts were done. The time spent on an average discussion was established based on an average reading time of 180 words per minute.

Quantity of discourse was the primary tool of analysis. No attempts were made to ascertain the quality. Basic descriptive statistics were employed to measure and analyse the discourse in order to determine the time it takes the average learner to read the discussion text.

Key Findings

The average reading time spent for a week's threaded discussion in all six courses was just over an hour (64.39 minutes). But this did not take into account the amount of time required to compose initial messages or construct responses to the discussions. Assuming that this takes less than two hours the total amount of time spent was about three hours per week.

This suggests that threaded discussion activities used in online learning can be compared to traditional delivery contexts in terms of the time necessary for weekly participation. Furthermore, this comparison is favourable because the two situations were on a par with each other.

Limitations
These findings cannot be generalised as they were only from two instructors' courses and only related to post-graduate students in two subject areas.

Future Research
The research methods could potentially be used with larger and more diverse samples including undergraduate vs. post-graduate as well as ESOL learners. Greater consideration of the role reading level plays in reading time may also be necessary.

Online Students: Relationships between Participation, Demographics and Academic Performance

Authors: Coldwell, J., Craig A., Paterson, T., and Mustard, J.

Background
There are still definitional issues and problems that persist when discussing what e-learning is (McFarlane, Bradburn and McMahon, 2003). This report focused on one subset of e-learning - online courses. These were defined as: 'a course that has no face-to-face interaction; (and where) all communication and interactions between instructors and learners, educational content, learning activities, assessments and support services are integrated and delivered online via an Online Learning Environment (OLE)' (Deakin University, 2004).

It is important to develop a better understanding of learner activity in OLEs. This is so learners can be assisted to use them to maximise their outcomes and also to ascertain their particular contribution(s) to academic achievement. Some OLEs have inbuilt tracking tools that allow them to record the participation levels of each learner.

However learner tracking has its limitations. It can only record positive action. It cannot record what it does not see. For example, learners may choose to mark discussion postings as read when they have not done so. The tracking tool also has no way of judging the significance of a recordable action or recording when it took place.

But despite this McKnight and Demers (2003) contend that some elements of learner behaviour online can be predicted. They argue that learner tracking can be used to achieve teaching and learning goals, highlight student needs, and suggest which types of learners struggle or excel in OLEs. These tools can also be used to show access patterns in this type of environment.

Literature Review
Much of the literature on online learning stresses the importance of peer-to-peer and student-to-teacher interactions. But other research demonstrates the challenges in ensuring learner participation in these interactions with many often citing a lack of time, and a perceived lack of value, for example uninteresting questions or a lack of participation by others (Fung, 2004).

The use of tracking data in OLEs is still a relatively new and under-explored area of research. However Holley (2002) suggests that an OLE offers learners an improved learning experience compared to traditional delivery. But this assumption is largely untested because of a lack of research into whether, and how, demographic factors affect learners' participation and performance in an OLE.

There was an interesting contradiction uncovered by this literature review. On the one hand there is a significant body of research which points to the lack of participation in Information Technology (IT) education and the IT industry by women. As a result they tend to have less access to IT and fewer opportunities to use it (Gunn, McSporran, McLeod and French, 2003; Craig, Fisher and Dawson, 2005). But on the other hand Young and McSporran (2001) suggest that online courses favour women as they are generally more motivated and are better at communicating online and scheduling their time. This contradiction has not been resolved.

In regards to age little work has been done on the differences in OLE use between school leavers and mature aged students' (Hoskins and Hooff, 2005). Alstete and Beutell (2004) indicated that mature students outperform their younger peers in online learning. This suggests that younger learners may not be ready for the self-directed nature of online courses. They may need more support from instructors when it comes to the online format.

The advent of wholly online courses has contributed to a student body that has increasingly changed from a majority of local students to one that includes more international students (Lanham and Zhou, 2003). Culture was defined in this study as national culture. Differences exist between cultures in the way that students learn as well as their preferences and approaches to learning.

These differences are apparent in online learning contexts where 'Western' students tend to have increased levels of participation and success compared to 'Asian' students. This is normally explained by a 'Western' preference for learner-centred approaches in contrast to 'Asian' students who prefer more teacher-centred approaches (Conlan, 1996; Chin, Chang and Bauer, 2000).

Methodology

The study's population sample was comprised of 457 learners (the majority of whom were young males). Culture was defined through establishing a learner's nationality and citizenship. Most learners on this classification were either 'Western' or 'Asian'. A wholly online subject - the Bachelor of IT that was run for one semester was selected.

The study used learner tracking and demographic data from this course to determine whether or not a relationship existed between learner participation in the OLE and their outcomes as represented by their academic results. The impact of gender, age and nationality on participation and results were also investigated. Performance was measured and defined by the overall grade learners were awarded at the end of completing the course. Analysis was undertaken using both descriptive and inferential statistical techniques.

Key Findings

Across all four measures of participation, the high achieving cohort participated statistically significantly more, on average, than the lower achieving learners. These results suggest that a positive relationship exists between learner participation in an OLE and their academic achievement.

The differences between males and females found in the sample were statistically significant across all measures of participation with females having much higher participation. This also translated into academic achievement with women having greater success than men.

The main reason given for this, based on previous research, was that women are more network-oriented and collaborative so participation through discussion boards is more favourable to them. In contrast men tend to communicate on the basis of social hierarchy and competition. But these social cues are absent in an OLE. Other research cites females' greater ability to work independently because of their higher levels of discipline and self-motivation.

Learners who were Australian citizens participated significantly less than the other cohorts. The permanent residents had the highest participation. However in contrast to the rest of the study even though their participation rate was low Australian citizens received substantially better grades than did the international students and temporary residents. Like their high participating female peers permanent residents also had substantially better grades.

Therefore it is possible to conclude that on average for this study, learners from Asian cultures perform more poorly than learners from Western cultures in online courses. A potential reason for this could be that Asian learners in this study were inhibited by language barriers due to the

particular course requirements which were predominately based on English language discussions.

Future Research
A more detailed study, including collection of more specific cultural dimensions, is required before generalisations can be made which apply to the wider student body. Further study is also required as to why the Australian citizens had such low participation rates.

Student Success in Face-To-Face and Distance Teleclass Environments: A matter of contact?

Authors: Deka, T. S., and McMurry, P.

Background
This study was intended to assist learners who may be unfamiliar with distance learning. Learner success is commonly measured by grades and retention. On the grades measure according to the research cited there is no discernible difference between distance education, traditional delivery and on campus e-learners (Tucker, 2000; Schoenfeld-Tacher, McConnell and Graham, 2001). However variables identified as contributing to the success or otherwise of students which have been well canvassed for traditional delivery learners do not have supporting evidence for distance learners (Pachnowski and Jurczyk, 2000).

Furthermore this research does not take into account attrition rates which tend to be significantly higher for distance learners (Woodley and Parlett, 1983; Garrison, 1987; Zajkowski, 1997; Carr, 2000; Tucker, 2000). While the social and institutional barriers which contribute to this have been well documented there has been relatively little attention paid to the contribution of learning styles and/or a lack of learner confidence in this format (Garland, 1993).

In the US context distance learners tend to be older females with family commitments (US Department of Education, 2002). Distance learner success has normally been attributed to higher age and Grade Point Average (GPA) as well as being married (Dille and Mazack, 1991).

Preparedness, self-esteem, self-efficacy, and motivation to succeed have received relatively little attention although it is likely that these factors would contribute to success for both traditional delivery and distance learners. It is often assumed that distance learning has less student-instructor contact. But with the increasing use of ICT this may not be the case.

The purpose of this study was to investigate whether contact with the instructor, as well as other variables within the categories of background (i.e., age, gender), preparedness (e.g., study skills, reading comprehension), and self-esteem, self-efficacy, or motivation contribute to the success of distance learners in low-contact environments compared to traditional delivery learners.

Methodology
The population sample was restricted to four one-way tele-classes at one US university as these had an exact traditional delivery equivalent. This was also to focus the research on learners in low contact environments. The total number of learners was 176: 69 in the distance classes and 107 in the traditional delivery classes.

Of the distance learners 52 percent completed the questionnaire (n = 35 22 females and 13 males) ranging in age from 18 to 52 with a mean of approximately 26. 60 percent of the traditional delivery learners responded (n = 64 40 females and 24 males) with an age range of 18-44 and a mean age of approximately 20. The questionnaires used pertained to reading, study skills, self-esteem, and background information.

The distance learners were split into two groups based on their questionnaire scores. One group was regularly contacted by the instructor and the other was not. Success was measured by exam grades and retention rates.

Key Findings
Traditional delivery learners had much higher retention and exam grades than distance learners. Distance learners had low completion rates. Learners initiating contact with the instructor was a bigger predictor of success than instructor initiated contact with learners which had no discernible impact.

Length of Online Course and Student Satisfaction, Perceived Learning, and Academic Performance

Authors: Ferguson, J. M., and DeFelice, A.

Background
E-learning is becoming a mainstream delivery medium across the schooling and tertiary sectors (Harden, 2002). This assertion is based on the increasing references to e-learning in institutional strategic plans and the significant increases in e-learning enrolments (Allen and Seaman, 2005).

However due to different course designs it is not possible to characterise a typical e-learning course (Rovai and Barnum, 2003). An e-learning course can replicate the classroom, be self-paced or even have a mix of traditional delivery in its provision.

Even though it is important course format is often ignored in educational research (Seamon, 2004). For example, some researchers state that learner satisfaction is closely linked to course structure (Stein, 2004). But satisfaction is also strongly derived from learner attitudes and personality characteristics (Drennan, Dennedy and Pisarski, 2005).

The most common reason learners give for enrolling in e-learning courses is their extra convenience and flexibility (Watson and Rutledge, 2005). But how successfully this extra convenience and flexibility is implemented is determined by design and this is the reason for the divergence in the effectiveness of online courses (Carr, 2000). Interaction is a critical factor because it increases learner cohesion and reduces the feelings of isolation which are often experienced in online classes (Fredericksen, Pickett and Shea, 2006).

All the existing research has focused on intensive vs. semester courses in a traditional delivery setting. There is no current research on the impact the format i.e. shortened vs. full-term in an online context has on learner satisfaction or academic performance.

The following hypotheses formed the basis of the study:
1. Students in an intensive five-week online course will have different satisfaction, course communication and interaction levels than students in a full-semester online course.
2. Students in an intensive five-week online course will have different satisfaction levels than students in a full-semester online course, as indicated by their intention to take online courses in the future.
3. Students' perceived learning will be different in the intensive five-week online course than in the full-semester course.
4. There will be differences in students' academic performance levels in the intensive five-week online course versus the full-semester course.

Literature Review
According to equivalency theory, course learning experiences should be constant regardless of delivery method (Simonson, Schlosser and Hanson, 1999). Its basic premise is that learning

experiences for learners in traditional delivery and e-learning courses should be designed in order to provide equivalent learning for both groups of learners.

Equivalency in the context of this study was the comparison of course length to see if there were any differences in learner experiences and performance. Previous research on course length had mixed results. Anastasi (2007) showed that abbreviated courses do better. But other studies showed that longer courses did better (Bohlin and Hunt, 1995; Seamon, 2004).

The length of the course should influence its strategic and pedagogical approaches (Allen, Miller, Fisher and Moriarty, 1982; Brett, 1996; Scott, 2003). These differences in outcomes between the course formats raise the question of whether learners are learning the content to the same degree in them.

Methodology

A total of 75 learners from four consecutive semesters completed a survey. One of the semesters was abbreviated (i.e. 5 weeks) and the others were full versions (i.e. 15 weeks). 114 learners had their final grades from two tests and three assignments from three abbreviated semesters and four full semesters compared to measure academic performance. A t test was used to determine whether there were significant differences in learner satisfaction, communication and interaction levels between the five-week and the full-semester courses.

Key Findings

The study found that learners learned the same content in the five-week and fifteen-week courses; so equivalency theory was supported. But significant differences were found in academic performance, with learners in the five-week course showing stronger academic performance than the full-semester learners. However there were no significant differences in perceived learning.

It was found that learners in the intensive five-week course showed higher satisfaction levels with peer-peer communication than learners in the full-semester courses. But learners in the full-semester course showed higher satisfaction levels with student-teacher communication.

Based on these results hypotheses one and four were supported but hypotheses two and three were not. Some of the findings from this study support equivalency theory because perceived learning and overall satisfaction levels were not significantly different for the five-week intensive course and the full-semester course.

Limitations

The summer session learner may be different from a full-semester learner for example full-time vs. part-time or older vs. younger. The findings from this study are also limited by the fact that certain factors could not be controlled for and this was not a random sample. For example, learners' personalities and predispositions could affect responses, as well as their familiarity with the technology used and their background in the subject being studied.

Future Research

This study should be repeated with a larger number of learners in the sample and controlling for key variables such as age or study status. Another question that needs to be addressed is class size, and how this effects satisfaction, perceived learning and actual academic performance.

Learners' level of participation in the interactive parts of the online environment could also be compared to their satisfaction levels and with their connection to the teacher and to their peers. Finally studies comparing retention between learners in intensive and full-semester courses should be undertaken.

Comparing Learning Effectiveness Based On Use of Different Media For Delivery of Content

Authors: Kwan, A., Leung, C., and Smulders, D.

Background

This study was based on a survey undertaken by the Commonwealth of Learning (COL). It focused on effective writing courses for non-governmental organisations. COL was interested in establishing why paper-based distance learners were having better results than distance e-learners on effectively the same course.

The study defined learning effectiveness as being based on the perceptions of the learners themselves in terms of their assessment of their learning as well as their experience with the course materials. The main objective of the survey was to examine how technology contributed to learning effectiveness.

There are a range of views on how effective technology is in assisting learner achievement ranging from no discernible difference compared to a traditional delivery environment through to claims that it will totally transform (for the better) the teaching and learning process and experience (Chu and Schramm, 1968; Clark, 1983; Peters, 2002; Perraton, 2004). This study intended to contribute to this debate by comparing the impact of different delivery modes on learning effectiveness.

Methodology

A total of 204 learners were surveyed. This total number was split evenly (n=102) between the online and paper based courses. The number of responses which constituted the study sample was 45. Correlation analysis was used to examine the relationship between the survey variables.

Key Findings

The results suggest that learners were satisfied with the course regardless of medium. However while the e-learners were comfortable with a paper-based environment the paper-based learners were not comfortable learning in an ICT environment. Perceived learning was strongly associated with satisfaction levels.

The main reason given for the slower completion times for e-learners was that it could reflect their deeper engagement with learning outside the parameters of the course requirements. If so this would be positive as deeper and more engaged learning has been shown to have a number of benefits for learners.

But this slower completion time could also reflect non-educational distractions e.g. internet 'surfing' or difficulties meeting the technical requirements associated with the course. Furthermore until such time as laptops or other suitable mobile devices are widely available an e-learning course will lack the flexibility of a print based course in a scenario where ICT is not widely available or accessible.

Based on these results it appears that educational effect is not influenced by medium. What is more important is how well the course is constructed and taught.

Limitations

The major ones identified were the low number of participants and that it did not directly address the question of technology's impact or contribution to learning effectiveness.

E-learning compared with face to face: Differences in the academic achievement of postgraduate business students

Author: Ladyshewsky, R. K.

Background

This study consisted of a literature review and a limited research project. The review had a particular focus on the literature that compared traditional delivery with e-learning. The effectiveness of the respective delivery modes was difficult to determine because the number and importance of the variables that must be taken into account make it challenging to measure. These include the teacher's pedagogy, the course structure, and the technology(s) used (Hiltz, 1986; McGrath, 1997-98; Volery and Lord, 1999, Sweeney and Ingram, 2001).

Literature Review

There was a paucity of literature directly comparing e-learning with traditional delivery. Compounding this relative lack of literature was the fact that much of what was available only focused on small and restricted student populations within a narrowly defined area (typically one course in one institution). This limited its applicability and usefulness.

These problems notwithstanding the literature indicated that either there was no discernible difference or that e-learning increased effectiveness (as measured by academic performance) across many different teaching and learning contexts. There were also improved non-academic outcomes including increased engagement with the learning and content and higher levels of collaboration.

The role of the instructor in both contexts is critical but very different so straight comparisons are complex and potentially misleading. The role of pedagogy is crucial in determining the difference between effective and non effective e-learning (Wittrock, 1986; Alavi, 1994; Beerman, 1996; Schutte, 1996; Andrewartha and Wilmot, 2001; Brennan, McFadden and Law, 2001; Sweeney and Ingram, 2001). This view is further supported by studies that demonstrate the importance of appropriate pedagogy and support for those learners who are less experienced and/or capable in e-learning environments (Arbaugh, 2000; Richardson and Turner, 2000).

Gender differences identified in the literature tend to revolve around the level of collaboration built into the e-learning environment. Where this was absent females were largely unfavourable towards e-learning because they preferred a more interactive environment. Males in contrast tended to view e-learning more in terms of its efficiencies. Males also saw e-learning environments as a more competitive space than females.

One of the weaknesses of the literature was its potential bias. The self-selection processes used may lead to disproportionate numbers of learners being included who are both more motivated and tend to select e-learning. This influences the evaluations and research in this area.

Different outcomes in e-learning environments may also reflect individual learning styles or preferences. For example, e-learners tend to be more visual compared to traditional delivery learners who tend to be more auditory.

E-learning tends to favour learners who prefer abstract concepts and systematic thinking. In contrast traditional delivery tends to attract learners who prefer interaction and concrete experiences (Halsne and Gatta, 2002; Terrell, 2003). This may be why the e-learners when given the choice of participating in traditional delivery were reluctant to do so and face-to-face learners were equally reticent about ICT supported courses (Ladyshewsky and Nowak, 2000; Felix, 2001).

Methodology
The authors conducted a study at an Australian university's business school. A precise number of learners were not given but it was likely to be in the range of 100-400.

Key Findings
The younger age group did significantly better than their older counterparts. For learners doing both traditional delivery and e-learning their e-learning performance was significantly better. This performance also improved over time for these learners as well as those who were only using e-learning. There were also improvements in non-academic outcomes such as increased engagement and collaboration.

Well designed e-learning with appropriate pedagogy and learner support can lead to improved academic outcomes and performance. Small class sizes also appeared to be an important factor in e-learning success.

Limitations
It was not possible to make direct comparisons with total confidence due to differences in course requirements between the traditional delivery and e-learning courses. These differences included critical components such as assessments and teachers.

E-learners also tended to be more motivated which was supported by the fact that their outcomes tended to be better than for less motivated learners. Finally there were a far larger number of learners participating in the traditional delivery units.

Comparing dropouts and persistence in e-learning courses

Author: Levy, Y.

Background
The significant increase of e-learning courses in the past decade by traditional universities has raised concerns because of their associated higher attrition rates (Dirkx and Jha, 1994; Parker, 1999, 2003; Ariwa, 2002; Xenos, Pierrakeas and Pintelas, 2002; Xenos, 2004). Dropouts were defined in this study as students that did not complete. Non-completion was defined as voluntary withdrawal that acquired financial penalties.

Literature Review
Most literature finds increased attrition rates for distance and e-learning learners (Kember, 1989a, 1989b; Wilkinson and Sherman, 1990; Carter, 1996; Parker, 1999, 2003; Zielinksi, 2000; Xenos, 2004). But despite this little attention has been given in the e-learning literature to the key factors associated with these substantial differences in attrition rates (Fjortoft, 1995; Parker, 1999). This lack of attention may reflect the emerging consensus that dropping out, especially in distance education, is a complex phenomenon (Munro, 1987; Kember, 1989; Xenos, 2004).

What is emerging as an important factor in determining learner attrition is the 'locus of control'. This is the perception of learners on whether control is determined by them (internal) or others (external) (Rotter, 1966, 1989; Trice, 1985; Richardson, A. G., 1995; Parker, 1999). However others have suggested that learner satisfaction in the first two weeks is the determining factor (Chyung, Winiecki and Fenner, 1998; Fredericksen, Pickett, Shea, Pelz and Swan, 2000; Levy, 2003).

Methodology
The study focused on the e-learning courses at one institution. These courses had a total of 453 learners. A survey based on an extant model of academic locus of control and a more general one for student satisfaction was used. These were completed online by 133 learners (108 completers and 25 dropouts).

Key Findings
There was an attrition rate of 18 percent for distance e-learners compared to eight percent for on-campus e-learners. Student satisfaction emerged as a major factor. There were significant differences in satisfaction levels between completers and dropouts.

The only significant 'demographic' variables were college status and graduating term. Dropouts had lower status and significantly higher graduating terms. This suggests that less experienced learners tend to drop out more frequently than experienced students.

Reasons for these differing attrition rates include the learners' having insufficient time to successfully complete distance e-learning courses. There may also be a calculated decision to ensure a higher grade in the course. It may also be an attempt to register for the same course with another teacher in the following term that might ensure a higher perceived level of satisfaction. This in turn could lead to higher grades.

Limitations
The identified limitation of this study was the sample size for the non-completers group (n = 25). As a result, the measure of significance was impacted. There were also a wide range of learners' majors including general management, accounting, finance, and marketing.

Future Research
Larger sample sizes that focus on measuring the factors within one or two closely related subjects would add reliability to the findings of this study. Additional research could be undertaken to uncover all of the factors that impact attrition rates in online e-learning courses. This research should attempt to focus on learners that dropout and complete online e-learning courses, rather than other types of distance education.

Synchronous Hybrid E-Learning: Teaching Complex Information Systems Classes Online

Authors: Negash, S., Wilcox, M. V., and Emerson, M.

Background
This study used a blended environment where the balance of the instruction occurred through traditional delivery with the remainder taking place in the institutional Virtual Learning Environment (VLE). Advances in technology have increased the popularity of VLEs in both the educational and corporate sectors. VLEs were defined in this study as: "computer-based environments that are relatively open systems which allow interactions and encounters with other participants and providing access to a wide range of resources" (Wilson, 1996; Piccoli, Ahmad, and Ives, 2001, p. 402).

VLEs can be further sub-categorised into those where the primary delivery mechanism is asynchronous and those where it is synchronous. One of the major benefits associated with asynchronous VLEs compared to their synchronous counterparts is the learner's ability to control when and how they will engage with the instruction and course materials (Piccoli et al., 2001).

But despite these benefits asynchronous VLEs are seen to have many disadvantages when compared with their synchronous counterparts. These include learner difficulty in managing the high degree of control/autonomy. This may lead to learners feeling overburdened by the shift of responsibility and control from the instructor to themselves which can lead to difficulties in their time management.

Finally learners often feel isolated and anxious in these asynchronous environments particularly because of the lack of immediate assistance, feedback and interaction. In contrast in a synchronous VLE control and responsibility is retained by the instructor and its interactions largely reflect the more familiar traditional delivery environment.

According to Piccoli et al. the main differences between VLEs, traditional delivery and computer based training are time, place, space, technology, interaction, and control. Research has not yet been undertaken into the effectiveness of these environments and whether the differences between them impact on the student learning experience (Alavi and Leidner, 2001; Seng and Al-Hawamdeh, 2001; Alavi, Marakas and Yoo, 2002; Hodges, 2005). The available research indicates that VLEs are preferred for non complex tasks but not for complex tasks (Piccoli et al., 2001).

Therefore one of the key questions for this study was: with the advances in VLEs are they now ready for teaching complex subjects. The research hypotheses that underpinned this study were:
1. Students in synchronous blended learning environments will report higher levels of computer self-efficacy[16] than their counterparts in traditional delivery environments.
2. Students in traditional delivery environments will report higher levels of satisfaction than students in VLEs.
3. Students in synchronous VLEs with non complex courses will report higher levels of satisfaction than students in these same environments with complex courses.

Literature Review
There is a need to increase the understanding of the effectiveness of the technologies used to support blended learning (Alavi and Leidner, 2001; Alavi et al., 2002). Research has indicated mixed results on the advantages and disadvantages of blended learning. For example, Sauers and Walker (2004) found an improvement in writing skills for those in a blended learning environment compared to traditional delivery particularly for ESOL learners. McCray (2000) found blended learning increased student engagement.

But Piccoli et al. found no significant differences in performance. This was taken further by Brown and Leidholm (2002) who found that blended learning students did not perform as well as those in traditional delivery environments and this gap increased with the complexity of the subject matter.

Methodology
Three courses in computer science and information systems from one university were analysed for this study. The VLE used was the institutional Learning Management System used in conjunction with their e-learning system. The VLE's key functionality was based around video, audio, chat, virtual whiteboard, web browsing, recording, and playback technologies.

A survey was used to collect the report's data and 63 learners responded. Most of the students were under 30 years of age, male and undergraduate. They all had home computer and internet access and had high levels of computer experience.

Learners were split into two groups. One group was assigned to a 'traditional' classroom where learners attended all classes online but in a face-to-face format. The second group were put in a blended learning environment where they attended some of their classes in a synchronous e-learning format but with the majority of their attendance in face-to-face classrooms. Most of the learners were in the blended learning format. Satisfaction was measured using a five point Likert scale. T-tests were used as the main form of analysis.

Key Findings
Hypothesis 1 was not supported because the self-efficacy ratings between the two groups were not significantly different. Hypothesis 2 was not supported either because were no differences in satisfaction between the two groups. Hypothesis 3 was also not supported because there was no significant difference in satisfaction levels between the complex and non-complex courses. But despite its hypotheses not being supported this study provided preliminary evidence that VLEs can be used to teach complex courses.

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[16] This was defined for this study as their belief in their capability and ability to effectively use computers to support their learning

Limitations

The small learner sample and the restricted number and types of courses mean the study's results may not be generalisable to other courses, universities, or environments.

Future Research

The comparison of synchronous blended learning and traditional delivery with different types of courses. These courses should have more learners. The comparison of the levels of satisfaction and self-efficacy between participants in courses in VLEs that are more focused on teamwork and traditional delivery environments which concentrate on individual coursework. Finally, studies that compare blended synchronous and asynchronous VLEs.

Technology and Higher Education: The Impact of E-Learning Approaches on Student Academic Achievement, Perceptions and Persistence

Authors: Nora, A., and Snyder, B. P.

Background

The one major goal driving the significant investment by the higher education sector in e-learning is to impact and improve learners' course completion, and degree attainment. To achieve this it is critical that the lower retention and completions in distance education is addressed. Improvements will be driven by a more learner-centred approach (Taylor and Eustis, 1999). But it is unclear what role, either favourable or unfavourable, e-learning is playing in this context.

This large e-learning investment is also driven by the fact that many learners now entering higher education are familiar with the internet and computers. Finally this investment is intended to remove barriers to learner participation and engagement.

Literature Review

Cheung and Huang (2005) proposed a framework to assess internet use and effectiveness in universities. The four major areas identified were:

1. The benefits associated with using the internet as part of university education.
2. The main influences affecting this use.
3. The impact of this use on student learning.
4. Factors that foster positive attitudes towards using the internet in students.

The results of their study indicated a positive relationship between organisational and internet support, and different measures of learners' personal attitudes and perceptions. For example, those learners who thought using the internet was fun and enjoyable also perceived that there was a high level of support provided through this medium. This in turn led to the perception that the internet was a useful tool. These positive perceptions contributed to more tangible outcomes such as increased engagement, and higher levels of constructive and general learning.

Frear and Hirschbuhl (1999) reported on the relationship between interactive media, academic achievement and higher level thinking skills. Higher level thinking skills were assessed using the Group Assessment of Logical Thinking (GALT) (Roadrangka, Yeany and Padilla, 1983).

The report by Roadrangka et al. had two major findings. Learners who received an instructional intervention through interactive multimedia received higher scores on the GALT test. This indicated they had higher levels of critical thinking. Learners receiving this instruction also obtained better grades.

These findings were supported by Grabe and Sigler (2002). They found that learners using online study support tools performed significantly better in the tested examinations than those who did not use these tools. This superior achievement was also backed up by Waks and Sabag

(2004) and indirectly by Newby and Fisher (1998) who found improved learner attitudes and engagement.

But other studies have shown mixed results. For example, Kennedy's literature review (2000) in its major finding attributed learner success to factors that were external to e-learning. This review emphasised the importance of self-directed, older learners who tended to be more successful regardless of instructor input and learning environment. Furthermore it found that the association between technology and learner performance (demonstrated by their grades) was weak.

One of the major critiques of the literature showing improved learner achievement due to e-learning is the questionable rigour and conceptual soundness of the relevant studies. For example, Lane and Aleksic (2002) reported improved results despite the fact that learner performance in many areas was lower than anticipated. In another study Lesh, Guffey and Rampp (2000) relied on a highly flawed single group pre-test/post-test design. This makes it difficult to support their findings that learner attitudes and learning had improved.

In contrast, with the use of a more rigorous research design, Mentzer, Cryan and Teclehaimanot (2007) attempted to establish the differences between traditional delivery and e-learning students in their test scores and overall course grades. They randomly assigned learners to both formats and used a diagnostic survey and quasi-experimental design. Perceptual data and course evaluations were also used.

Significantly their major finding was that the e-learning students had lower final course grades than their traditional delivery peers. But there was less instructor input in the e-learning section. Learners in the traditional delivery section had much higher ratings for the course and instructor. The only difference found in respect of learner achievement or mastery of course content was that students in the e-learning section completed fewer assignments.

This improved performance by traditional delivery learners compared to their e-learning peers is supported by other studies (Snyder, 2001). But Zhu and Grabowski (2004) found no significant difference in performance between students in e-learning and traditional delivery courses.

One of the major problems in assessing e-learning performance apart from the lack of robust studies is that perceptual/attitudinal studies have been conducted separately and have not informed performance based studies. The performance based studies have also not being used to inform the perceptual studies. These perceptual studies often lack rigour and an appropriate methodological approach.

For example, Akkoyunlu and Soylu's study (2004) into student perceptions of blended learning lacked a sound theoretical framework, a specific protocol informing the open-ended questions, and multivariate analyses that allowed for inferences from the findings. The issue of whether learners' perceptions impacted on their achievement was not tested at all.

This lack of multivariate analysis also restricts the validity of Xu, Dunn and Lee's study (2000) who found a link between positive perceptions, increased internet/computer use, and improved academic performance. In contrast Ballard, Stapleton and Carroll (2004) found benefits in blended learning for students based on their perceptions. Lea, Clayton, Draude and Barlow (2001) found that learners felt that instructional technologies were an integral part of today's learning environment regardless of actual or perceived benefit.

There is an absence of literature related to the impact or influence of instructional technologies on learner persistence including re-enrolment in online or offline courses or completions. In a comprehensive study of more than 60,000 learners from over 420 US universities Laird and

Kuh (2005) used data from the US National Survey of Student Engagement to test student use of technology and attempted to establish effective educational engagement practices.

Using scales developed to measure student use of technology they tested the hypothesis that the use of IT was another type of learner engagement rather than its own category. The sampled learners all completed the online College Student Report. Their overall finding was that learners' used technology for multiple purposes that were both personal and academic including communicating with their teachers and peers.

Their other key findings included:
1. Students who used IT for assignments or classroom-related activities were more likely to report that their classes emphasised higher order thinking skills and did so more frequently than their peers who did not use IT.
2. Students who reported that their teachers either frequently used or required IT were "more likely to report frequently working in groups outside of class" (p. 220).
3. A strong positive relationship between student use of IT for academic purposes and student involvement in educational practices.
4. It appeared that certain types of IT involvement including student-faculty interaction via the internet or email outside of the class setting could be perceived as discrete engagement categories.

Limitations
The major gap in the research literature identified in this study were studies devoted specifically to theoretically and empirically driven investigations of the link between technology and performance indicators/outcomes such as grade performance, course completions and re-enrolment, persistence and graduation rates. Other research gaps identified included issues related to the de-socialisation of graduates, the effect of 'super-flashy' technology on faculty teaching and an over-reliance on, or preference for, pre-written materials on the internet.

Future Research
This should focus on the inter-relationships between technology and learner experiences, faculty-peer interactions, faculty development and the impact of these on student achievement.

Computer-mediated Communication and Culture: a comparison of 'Confucian-heritage' and 'Western' learner attitudes to asynchronous e-discussions undertaken in an Australian higher educational setting

Author: Ramsay, G.

Literature Review
Much of the literature relating to e-learning's benefits is based on the assumption of a relatively undifferentiated learner population (McCormack and Jones, 1998; Chapman, 1999; English and Yazdani, 1999; Palloff and Pratt, 1999; Badger, 2000; Gerbic, 2000; Salmon, 2000; Barab, Thomas and Merrill, 2001; Pena-Shaff, Martin and Gay, 2001; Ramsay, 2003). But this assumption does not reflect the reality that there is an increasing diversity of learners.

In the context of this study learner diversity is explored through a cultural lens. It compares Asian learners'[17] experiences and results using computer mediated or asynchronous communication with 'Western' learners[18].

Asian learners are assumed to be passive learners who are not self-directed and tend to be uncritical of course structures and institutional hierarchies (Hyland, 1994; McVeigh, 1995; Biggs, 1996; Volet and Renshaw, 1996; Brooks, 1997; Park, 1997, 2000; Reece, 1998;

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[17] These were defined in this study as being from 'Confucian heritage' countries such as China, Japan and South Korea
[18] These were defined in this study as being from countries where English was the official/predominant language such as NZ, Australia and the US

Baumgart and Halse, 1999; Chan, 1999; Littlewood, 1999; Usuki, 2001). They often place a greater emphasis on group learning, prefer clarity, and have little interest in manifestations of individualism (McVeigh, 1995; Ramburuth and McCormick, 2001).

This is clearly demonstrated by the concept of 'face' which places a premium on seeking the respect of the group (Cheng, 1986; Morisaki and Gudykunst, 1994; McVeigh, 1995; Park, 1997; 2000; Gao, 1998; Chan, 1999; Littlewood, 1999; Yu, 2003). This can lead to Asian learners being reluctant to express individual views and contribute to group discussions (Brooks, 1997).

Methodology
There were 50 learners. 34 were identified as Western and 16 as Asian. The data used to inform the research was learner responses to course-evaluation questionnaires. These responses were a mandatory part of the course requirements.

Key Findings
Computer-mediated communications were well received by learners and widely perceived by them as flexible, interesting and valuable. For Asian learners, more so than their Western counterparts, these e-discussions made them feel part of the learning community.

Asian learners also had less concerns about losing 'face' online. This may be because it provides a more equal environment where all opinions can be canvassed and discussed in relative 'safety'. The Asian learners placed a higher premium on the interpersonal benefits of e-learning in contrast to the Western learners who had a more functional focus.

A Comparative Analysis of Student Motivation in Traditional Classroom and E-learning Courses

Authors: Rovai, A. P., Ponton, M. K., Wighting, M. J., and Baker, J. D.

Background
By 2006 it was estimated that about seven percent of US degree level learners were enrolled in e-learning courses. Distance learners are more likely to be older, female and have higher incomes as well as family commitments or responsibilities. Becker (cited in Perdue, 2003) found that while distance learners expected less campus time they also required more interaction with both their peers and instructors. New media can meet these expectations by providing greater flexibility and the opportunity for increased peer-peer and student-teacher interactions.

The goal of this study was to identify the motivational characteristics of online learners and to identify differences, if any, between distance and traditional delivery learners. This would be achieved in part through the literature review below. The main purpose of the review was to ascertain what the key findings were regarding learner motivation.

Literature Review
Numerous studies have reported the difficulties in retaining distance learners who often cite family disruptions, financial costs, and lack of support in the workplace as reasons for withdrawing from their courses (Darkenwald and Valentine, 1985; Merisotis and Phipps, 1999). Zielinksi (2000) puts the withdrawal of distance learners from courses down to perceived or actual isolation which is often triggered by a lack of contact with the course instructor(s).

Learners' motivation is critical in overcoming these obstacles (Knowles, 1980; Moore and Kearsley, 2005). Feasley (1983) suggested that this internal motivation arose from the desire of distance learners to meet specific life goals. Other studies have gone further suggesting that motivation is the most important factor in learner success in distance contexts (Schwittman, 1982; Oxford, Young, Ito and Sumrall, 1993). In addition to motivation Terrell and Dringus (1999) also cited an independent learning style as being critical to the success of distance learners.

The literature defined intrinsic motivation as the doing of an activity for its inherent satisfaction rather than for some separable consequence. This is in contrast to extrinsic motivation which was defined in the literature as the performance of an activity in order to attain some separable outcome, or to satisfy external needs. Intrinsic motivation is maximised when individuals feel competent and self-determined in dealing with their environment.

Deci and Ryan (1985, 2000) see learner autonomy as being critical in developing intrinsic motivation. A teacher-centred environment discourages learner autonomy which in turn leads to poor performance (Grolnick and Ryan, 1987; Miserandino, 1996). This can only be overcome through an increase in intrinsic motivation because it has been identified as a significant predictor of persistence and achievement in distance education (Coussement, 1995; Fjortoft, 1996). E-learning through its 'novelty' factor can also assist learner motivation (Egan and Gibb, 1997).

Expectancy value theory plays an important role in predicting learner motivation (Vroom, 1964; Atkinson, 1982). This posits that people choose the behaviour which will result in the most successful outcome. These outcomes include personal, self-evaluative (i.e. meeting their own standards), or social (Bandura, 1997).

Methodology

For this study 353 (predominantly female) learners enrolled in 24 courses (12 delivered by e-learning and 12 by traditional delivery) from three universities were sampled. Course selection was based on two criteria: 1) similarity of content between the traditional delivery and e-learning courses and 2) use of experienced full-time faculty who had reputations as excellent traditional delivery or e-learning teachers.

The 28 item Academic Motivation Scale developed by Vallerand, Pelletier and Blais. (1992) was used to measure the intrinsic and extrinsic motivation of the participants. This instrument, along with demographic questions regarding gender, ethnicity, and age, was supplied to all the participants during the final three weeks of the semester. This was in order to ensure that learners would have substantial exposure to their respective courses. Item responses were based on a Likert-scale ranging from one (does not correspond at all) to seven (corresponds exactly).

Key Findings

The e-learning group exceeded the traditional delivery group on all three intrinsic motivation measures: to know, to accomplish things, and to experience stimulation. But there were no differences between the two groups on the three extrinsic motivation scales. However e-learners were more learning and/or activity oriented.

The graduate student group scored significantly higher than their undergraduate peers on the two intrinsic motivation variables related to knowing and experiencing stimulation. But the undergraduate group scored higher than their graduate peers on extrinsic external regulation.

There were no significant differences between the different ethnic groups i.e. African-American, Caucasian, and learners who classified their ethnicity as other. The e-learning instructor played a crucial role in maintaining and sustaining learners' motivation levels by planning structures and facilitating inter-personal events.

Limitations

Interpretations of these findings were limited by the narrow parameters of the study where only 24 courses at three universities located in the same urban area of Virginia were sampled. Measurement of motivation was performed using self-report instruments and convenience sampling.

But it was unknown how many e-learning courses were completed by participants before measurement. Although no attrition occurred among study participants during the semester they

were measured, no information is available regarding longer term persistence of learners and program/degree completion.

Future Research
Samples from other settings are needed for increased population validity. Research is needed to confirm the role of e-learning pedagogy, computer-mediated communication, and course design in fostering the intrinsic motivation of learners. Research is also needed to determine if better educational outcomes accompany the stronger intrinsic motivation of learners noted in online courses. Finally research to confirm and extend the findings of this study should be undertaken.

Challenges faced by staff and students at tertiary level in flexible learning environment: An institutional study

Author: Sheriffdeen, S. A. S.

Background
Flexible learning is defined by Wikipedia (2007) as a learning mode which provides learners the choices of where, when and how learning occurs, and at a pace of their choosing. But flexibility is interpreted differently by institutions. Some provide face-to-face interactions only while others utilise a blended delivery approach.

While the supporting technologies have changed flexible learning has long historical antecedents that go back to the 19th century when the first correspondence courses based on a paper based system emerged. Learners now believe that ICT allows them to complete their studies while continuing to meet their existing work, family and personal commitments.

Technology can also reduce the traditional isolation of the distance learner (Matthews, 1999). But a lack of familiarity with ICT means that these new learning environments can be challenging for some learners and teachers.

The new technologies have led to many different terms and implementations including online learning, mobile learning and e-learning. According to Regalbuto (2000) these different variations can all be encapsulated in the term 'teaching at an internet distance'. E-learning usually indicates some sort of electronic delivery normally via the internet but more recently through institutional Learning Management Systems.

Shifting to e-learning should not be driven by costs. Rather its main goal should be to provide an alternative environment for learners. M or mobile learning is similar to e-learning but more specifically focuses on the use of mobile technologies as the delivery mode.

One of the key theories in e-learning was developed by Vygotsky (1978) who stated that learners achieve better outcomes in group settings where knowledge is constructed jointly not individually. This is achieved through peer-peer, student-staff, and learner-content interactions. ICT has allowed this theory to be realised and it underpins many e-learning developments and implementations.

The research questions guiding this study were:
- What are the challenges faced by students, teachers and support staff which can reduce the effectiveness of the learning and teaching process?
- What are the learning/technical difficulties encountered by students from the various ethnic communities of New Zealand?
- How can flexible learning be made more effective if the identified challenges and difficulties are resolved?

Literature Review
Distance education is defined by Keegan (1986) as 'non-contiguous communication between student and teacher, mediated by print or some form of technology.' Early manifestations

utilised paper, radio and television (Imel, 1998, Moore and Lockee, 1998). More recent developments incorporate ICT. ICT use is normally positioned on a spectrum from no or trivial use through to a fully online environment with the intermediate step(s) of blended learning (Richard, 2005).

Harasim (1989) believes that ICT makes distance education easier for learners through real time delivery and quicker responses. Most universities globally, are utilising ICT as part of their delivery mix and are increasingly shifting their teaching and learning to an online or virtual platform (Butterfield et al., 2002; Zhang, Zhao, Zhou and Nunamaker, 2004). This is in part driven by an expectation that learners will demand e-learning to support their education and that this demand will increase over time (Young, 2002).

E-learning allows learners to up skill or complete qualifications without interrupting their work or careers (Galbraith, 1990, Gray, 2001). An online environment is also more likely to be free of bias, e.g. ethnic or racial, that may occur in traditional delivery environments (Palloff and Pratt, 1999). It also encourages critical thinking by, amongst other things, providing more time and opportunity for reflection (Ascough, 2002).

Zhang et al. (2004) saw some of the key advantages of e-learning as providing more learner centred and self-paced learning environments, being more cost effective for students, and having increased flexibility in space and time. This flexibility is particularly important for women returning to work or study after having children (Furst-Bowe, 2002). But its disadvantages include a lack of immediate feedback and a lack of comfort for some learners. This has the potential to result in higher levels of learner frustration, anxiety and confusion.

Online discussion tools are not only useful for reticent learners (Cameron, 2006) but also to facilitate and support interactions that help achieve desired learning outcomes (Kanuka and Anderson, 1998). For the right learner, supported by the right teacher and subject matter, e-learning can provide an educational environment that is a viable alternative to traditional delivery (Cooper, 2000).

But e-learning may not be as effective as traditional delivery due to low participation, learner unfamiliarity with the environment, and low performance related to quality (Kanuka and Anderson, 1998; Laurillard, 2002). To reduce learner confusion and to compensate for teacher absence and a lack of face-to-face interaction it is important that the supporting materials provide clear guidance (Hara and Kling, 2000).

While online environments have changed the roles of learners, they do not see them as a substitute for traditional classroom instruction. Palloff and Pratt (2003) saw e-learning requiring changing learner roles including a need to be more open about their non-academic life, and being flexible, humorous and honest. Learners also needed to take responsibility for the formation of online learning communities and should be willing to work collaboratively.

Motivation and self-discipline remain the most challenging aspects for learners in e-learning environments. They are seen as being critical for learner success (Clark, 2002; Howland and Moore J., 2002; Koorey, 2003). While adult learners are motivated, particularly by work or career prospects, this motivation can be lost through isolation.

In an e-learning environment adult learners often face additional challenges because of their poor computer skills (Schuemer, 1993). Distance learners are also more likely than their traditional delivery peers to have significant external commitments such as family and work (Copley and Kahl, 1983). While interactions overall may not be seen as being important for distance learners peer-peer ones can have positive impacts on their motivation (Suen and Parkes, 2001).

However Wade (1999) argued that even where distance learners are self-disciplined and motivated they are likely to have lower achievement because of their decreased self-efficacy. But Dominquez and Ridley (1999) state that adult learners' professional experience and internal focus compensates for their other shortcomings and that their achievement matches that of their traditional delivery peers.

Wu and Hiltz (2004) have also raised concerns about learner achievement in e-learning. But Althaus (1997) found (based on 142 undergraduates) that blended learning had superior achievement to traditional delivery. This was supported by Koorey (2003) who when comparing e-learning to traditional delivery found increased achievement for learners in e-learning.

In addition Wu and Hiltz suggested that online discussion can promote the skills of critical, higher order thinking and problem solving. Learners themselves according to a study by Northover (2005) were largely supportive of e-learning (66 percent) with only 10 percent having a negative view with the remainder (24 percent) being neutral.

The large increase in e-learning provision (Allen and Seaman, 2003) has led to growing concerns about its quality because of the absence of face-to-face student-teacher interactions (Weiger, 1998; Buck, 2001). These learner-teacher interactions such as their input into group assignments and student questions to them are very important (Green and Eves, 2001).

But their relative absence can be mitigated by clearly defined performance measures. These measures include mandating contact between student and teacher and ensuring that they are both trained so they can effectively participate and achieve in e-learning environments (Weiger, 1998).

Quality is more likely when learners and teachers clearly understand their new roles, and supporting materials and resources are designed and created that acknowledge the absence of face-to-face interaction (Ascough, 2002). Quality is also improved where teachers create and facilitate learner communities (Palloff and Pratt, 2000). Well run and monitored assessments are important in e-learning as there is an absence of the oversight available to teachers and learners in traditional delivery environments (Serwatka, 1999; Olt, 2002; Deubel, 2003).

Methodology
A total of 145 undergraduate and postgraduate students from the schools of Business, Nursing, Computing and Information Technology responded to the survey. The majority were domestic but there were also international students included. However, only a small majority of respondents had English as their first language. The age range of the learners was from 16 to 46+.

Qualitative data was obtained through interviews. 10 teaching and support staff were selected to take part in the interviews. Quantitative data was collected through an online survey.

The questions in the survey were broadly categorised as follows:
- Students' opinions on e-learning supporting traditional delivery.
- Their opinion on a totally online option.
- Their opinion on the advantages of online learning compared to traditional delivery.
- Their opinion on the use of the internet as the main delivery medium.

SPSS was used to analyse the survey data. The interview data was analysed using the Cohen and Manion (1994) recommended steps. Data validity was achieved through a re-analysis by the thesis supervisor.

Key Findings

Most learners (90 percent) found e-learning to be very helpful (48 percent) or helpful (42 percent). No learners expressed a negative view. The reasons for this overwhelmingly positive response included access to resources, flexibility of time, place and space, improved learning and time saving. But some reservations were noted. These included a preference for face-to-face student-teacher interactions, student capability and access to a computer.

English as first language (EFL) students were more positive than ESOL students about traditional delivery. But ESOL learners were more positive about e-learning where this was delivered using a blended approach. The main benefits cited by EFL students for e-learning were convenience, interaction, feedback and learning. They placed a high value on resources and access and to a lesser extent learning and time saving.

For ESOL students the benefits of e-learning were clarification, motivation and communication. They more highly valued the convenience, access and learning provided by e-learning. EFL learners were more negative than their ESOL peers when asked if they preferred an option with no traditional delivery so domestic students were less favourable to this scenario than international students.

International students were slightly more favourable about e-learning than domestic students. They were more likely to cite resources, access, interaction, convenience, learning and communication as its main benefits. Domestic students in contrast were more likely to note time saving, clarification, feedback, and motivation and they too preferred a blended approach.

Students who had lived in New Zealand for 10-14 years were more positive than the other resident groups about both e-learning and traditional delivery. The 15-19 years resident group were the least positive about both delivery modes. The 15-19 years resident group preferred a blended approach. They were the resident group who were most unfavourable about an option with no traditional delivery.

The main benefits of e-learning for the 10-14 years resident group were time saving and interaction. In addition to these benefits the other resident groups cited access and convenience (1-4 years), communication (5-9 years), learning, interaction and motivation (15-19 years) and resources (20+ years).

Students aged 40-45 were the most positive about e-learning and traditional delivery and 34-39 year olds the least. For the 40-45 year olds convenience was the main benefit. For the 34-39 year olds it was access and communication. For the other age groups it was learning and convenience (16-21), interaction, motivation and learning (22-27), feedback and clarification (28-33) and learning (46+).

But despite their positive attitude towards e-learning the 40-45 years age group along with the 16-21years age group were overwhelmingly negative about an option with no traditional delivery. The 16-21 age groups preferred a blended approach. Students aged 28-33 were more positive than the other age groups about not having a-traditional delivery option.

Face-to-face interactions were seen as very important (57 percent) and important (36 percent) by all age groups. Only two percent thought they were either not very or not at all important. This large majority in favour of traditional delivery commonly cited its main benefits as interaction, feedback and clarification. Less important were learning, motivation and communication.

The results when asked about whether e-learning had advantages over traditional delivery were more mixed. A smaller majority agreed this was true (12 percent strongly agree and 40 percent

agree) but a larger number disagreed than was the case with the other questions (14 percent disagree and 5 percent strongly disagree). There were also more neutral responses (29 percent).

Of the reasons cited for these responses the most common was that traditional delivery and e-learning complemented each other with both having strengths and weaknesses. The flexibility of e-learning was seen as its main benefit. However some questioned whether this additional flexibility was really a benefit. For example, at least one of the international students believed that this additional flexibility would enable them to complete their studies in their country of origin rather than travelling to New Zealand.

Having time to interact with the content was valued. But many learners also highly valued the face-to-face contact with teachers. When asked about a totally online environment the results were the opposite. Only a small minority thought this was useful (4 percent very useful and 11 percent useful). The majority thought it was not useful (33 percent not very useful and 22 percent not at all useful). The neutral numbers were also high (30 percent). The majority of learners believed some face-to-face interaction was important.

E-learning was seen by the majority of learners as supporting work and study simultaneously (23 percent very helpful and 46 percent helpful). Only a small minority thought it would not be useful (3 percent not very helpful and 2 percent not at all helpful). But a large number were neutral (26 percent). This support for simultaneous work and study was largely due to its additional flexibility which meant increased convenience and access as well as saving time.

Future Research

Comparisons could be made between different e-learning delivery modes e.g. mobile devices and traditional delivery. It should also focus on developing countries which could also examine the opportunities and challenges of marketing New Zealand educational products there. Research to better understand the difficulties of implementing virtual learning environments and a comparison between them and traditional delivery learning was also seen as useful.

Blended learning environments: Students report their preferences

Author: Skelton, D.

Background

It is important that an effective blended approach is adopted by institutions. But an over focus on the e-learning component can detract from the traditional delivery environment. However the traditional delivery environment is important because of its high value to learners and their reliance on it. This study looked at the impact on traditional delivery as institutions increasingly shift their provision to e-learning.

Its main focus was on addressing the following research objectives:
- Investigate student experiences and perceptions of learning environment factors within the online environment.
- Investigate associations between gender, age, level of study, IT and student learning environment preferences.

Methodology

The WEBLI instrument developed by Chang and Fisher (2003) was used. This consists of four scales:
1. Access - Emancipatory - virtual subject.
2. Interaction - Co-participatory – Participation, collaboration and cooperation.
3. Response – Perceived student responses.
4. Results – Scope, structure, content, learning objective.

A number of elements make up these scales. For example, number 1 includes learners being able to access materials at a time and location of their choosing and whether or not they prefer learning in an online or traditional delivery environment. For number 2 these elements have questions on individual student autonomy and collaboration with peers.

For number 3 components include learner satisfaction with the e-learning environment, its ease of use in interacting with others, how it fosters engagement and whether it was preferable to traditional delivery. Finally number 4 has clearly stated learning objectives and the suitability of the resources and comparing these to print materials. A five point scale was used to measure learner responses and the data was analysed using SPSS software.

Key Findings

Access to materials was sufficient for learners and the Learning Management System (LMS) assisted autonomy by allowing learners the freedom of when and where to access them. However even learners who were satisfied with online learning placed a high value on the traditional delivery environment. Learners generally believed that the LMS supported a form of online community within which the necessary interactions and collaboration could occur.

The LMS satisfied learner requirements for achievement. However it appears that some did not like the group work component. They had difficulty maintaining engagement over the duration of the course in the e-learning environment. Learners were not supportive of printing off course materials. However they felt that e-learning assisted their studies by providing a well organised environment that clearly linked to the learning objectives.

Females were generally more favourable about e-learning than males. This is most likely because they interacted more in e-learning environments and had a stronger preference for group work. Older learners were less satisfied with group interaction and participation. This may indicate that they have higher expectations of learner participation than the other age groups. Younger learners needed less external affirmation and were satisfied as long as the environment allowed them to complete their studies.

Learners did not prefer a fully online learning environment compared to a traditional delivery one. Learners appeared to value the traditional delivery environment regardless of whether an online one was available. There was a strong view expressed that the LMS could not and should not replace traditional delivery.

But in contradiction to this a small majority of learners were in agreement with the statement that the LMS was a reasonable substitute for traditional delivery learning. This may be because they enjoyed learning in an e-learning environment regardless of their levels of use.

Learners were happy with the materials and their linkages to the course and learning objectives. But concerns were raised about the over use of links. This led to some learners feeling overloaded, being unclear about which links to use, and as a result worried that they may be missing out on important information.

Learners did not appear to be forming communities and were not fully utilising the LMS functions such as chat rooms to create and support one. Because online interactions and participation were not a part of the assessment learners lacked interest and tended to devalue these activities. Learners were aware that to be successful they needed extra motivation and self-direction.

Limitations

The sample size was restricted in number and scope because it only focused on 50 percent of the learners in one faculty at one institution. This limits the generalisability of the findings. The learners were all on-campus learners so although they had access to the institutional LMS it was not a mandatory part of their studies.

Teaching for blended learning – Research perspectives from on-campus and distance students

Authors: Stacey, E., and Gerbic, P.

Background

ICT use is becoming widespread throughout higher education. Its use in distance education has changed the nature of the field by providing a medium for ongoing social learning. Blended learning is difficult to define due to the myriad possibilities and combinations that are now available. This variation in approach is matched by the differing levels of effectiveness within blended learning. But despite this, driven by learner choice, there is still in both on-campus and distance education a preference for a blended learning approach.

Literature Review

Attempts to describe and define blended learning have been made in many education and non-education contexts (Bonk, Olsen, Wisher and Orvis, 2002; Thorne, 2003; Dron, Seidel and Litten, 2004; Jelfs, Nathan and Barrett, 2004). Much of the literature focuses on universities combining e-learning with traditional delivery.

The difficulties of defining blended learning are demonstrated by the extensive research effort which has gone into trying to establish a coherent and agreed definition (e.g. Osguthorpe and Graham, 2003; Whitelock and Jelfs, 2003). The general consensus is that blended learning is a combination of traditional and ICT based delivery. The ICT component is normally internet based (Kerres and de Witt, 2003).

This broad definition was refined by Oliver and Trigwell (2005) who came up with seven categories including different types of media, theories, learning and pedagogic approaches as well as contexts such as work and study. This was done out of a concern that blended learning, because it was poorly defined, was becoming a catch all term.

But these broad definitions do not take into account learner perspectives. Oliver and Trigwell advocated the use of variety theory to focus on the variation in the learning experience rather than the differing pedagogical and delivery approaches as the basis for defining blended learning.

Distance education has generally attempted to combine different modes of learning where possible (Keegan, 1996; White, 2005). This along with its benefits for learners has led to the blended approach becoming more common over time within distance education contexts. The stability of the technology has encouraged more attempts to create and foster online learning communities. This has also contributed to a decrease in traditional delivery in distance education.

Garrison and Kanuka (2004) warn that e-learning should not just be an 'add on' to traditional delivery when blended learning approaches are adopted. Rather, through its ability to effectively create and utilise learning communities, it should be used to transform higher education by promoting and developing more reflective and critical learners.

But it is not a panacea for learner engagement as demonstrated by the ongoing problems and issues around online participation (Molesworth, 2004). There are also challenges in this approach with learners not being able to make connections between the course goals and the discussions through the different mediums (Ellis and Calco, 2004). However for many students blended learning adds value by reducing isolation, allowing an increase in their ability to self-pace their learning and the provision of more opportunities for reflection (Aspden and Helm, 2004).

Methodology
The paper draws on two studies – one where blended learning is the dominant mode in on-campus delivery and the other where it is the dominant mode in distance delivery. These studies were mainly qualitative. They used interviews and content analysis of online discussions as their central data sources.

The on-campus study involved 25 undergraduate business students in one course that used online discussions to complement its traditional delivery. Students were both New Zealanders and Chinese. The Chinese students were both international and recent migrants. Data was primarily collected through interviews.

The distance education study occurred in Australia and involved 31 postgraduate students in a MBA course which after an initial face-to-face orientation used e-learning as its main delivery mode. The learners in this study had an average age of 33 and were all based in the workplace. The choice of part-time, distance study was so they could balance their work and study demands. The main data sources for this study were interviews and the use of the online group conference and participation logs.

Key Findings
For the on-campus study the online component produced high levels of learner engagement. The dominant student view of the online discussions was that it assisted their learning. Having to read others' contributions was the main reason for their increased engagement and improved learning.

This was supported by the need to write for their peers in a public forum. These activities, supported by the ability to reference different aspects of the discussion and increased time to think, prompted greater understanding and reflection.

All learners could participate in the online discussions. This was not the case for the face-to-face discussions. This was particularly valuable for the Chinese students who were much more active participants in the online than the face-to-face discussions. But while the Chinese students valued online discussions the debating component of the course was not well received by them and this did not increase their motivation.

However despite these reservations the Chinese students did value the increased interaction that the online environment provided. For example, the online forum provided more opportunities for them to develop and improve their English language skills. The New Zealand students also saw benefit in these asynchronous discussions because it increased their time to think and improved the quality of the discussion and their understanding of it. These benefits were not available in the traditional delivery discussions.

The New Zealand and Chinese students tended to be more focused in their online discussions. This was because they felt that these discussions occurred in their own time and that the online forum was a learning space where it would be inappropriate to socialise. In contrast in the traditional delivery environment because it was not at a time of their choosing they felt that the discussions were an imposition that was taking place in their time and so were more likely to engage in non-educational discourse with their peers.

For the Australian distance education study students used more of a blend than the institution provided with frequent face-to-face interactions. The three different groups utilised three different approaches: fully online (but also supported by telephone and fax), blended and face-to-face only.

While costs may have been a factor in the amount of online interactions these were primarily determined by the purpose of the activity. For example, in some circumstances the learners found it more effective to use the telephone or fax rather than the institutional online forums.

Smaller groups were formed by the participants during the course and they mainly used the online space for sharing text as they collaborated to produce their assignments. But the flexibility of time and space and the ability to share discussions online were valued by the participants.

For the participants in both studies the online space was seen as more learning focused than the traditional delivery environment. An overt teacher presence was not necessary online because learners took on their roles and how they were allocated. The assessments were linked to the online group activities. This helped facilitate a learning community. Discussions outside the formal online interactions were important for overall group communication.

Questions of Culture in Distance Learning: A Research Review

Author: Uzuner, S.

Background
This review attempted to address the following research questions:
1. Does cultural hegemony exist in distance education?
2. Do conflicts resulting from cultural differences transfer from the traditional classroom to the distance learning environment?
3. If so, how do teachers and students navigate different cultures of learning in these distance learning environments?

For the purposes of this research review culture was defined as acquired behaviours, perspectives, and values that are characteristic of a particular group or community. This definition of culture was used to examine the research literature on distance learning. In particular, it aimed to demonstrate how cultural factors interact with and influence learners' learning and engagement in asynchronous learning networks (ALNs).

The intent of this review was to raise awareness about the cultural factors that may affect students' learning in ALNs and to provide guidance for teaching practice and future research. This is because cultural considerations are pivotal in determining the effectiveness of ALNs alongside technology, teachers' subject matter expertise and pedagogy, and learner motivation.

Literature Review
Learners are expected to enter into the culture of the instructor (Moore, 2006). But this can be problematic when the teacher's pedagogy does not match learner expectations of how they will be taught. These problems are likely to be exacerbated in distance contexts because of the added complexities of a learner's social and physical distance from their peers and the instructor(s) (Zhao, Lei, Yan, Lai and Tan, 2005; Moore, 2006). Many researchers to counter these problems have devised various multi-cultural or more culturally sensitive pedagogies and teaching frameworks (Boyer, 1993; Ladson-Billings, 1995; Saldana and Waxman, 1996; Gay, 2000).

Studies focused on Chinese learners tend to note the differences between them and US students. Chinese students are seen as less critical and opinionated than their US peers (Hofstede, 1980; Thompson and Ku, 2005). Other studies have noted that Chinese students need more instructor interaction. In an e-learning or distance education environment they were more likely to miss many of the dominant cultural assumptions and cues (Tu, 2001; Zhao and McDougall, 2008).

Similar findings were reported for Arab students. They also were reluctant to participate in online environments which they equated with independent learning. Their participation was also hindered by 'modesty' around their interactions (Hofstede, 1991; Al-Harthi, 2005).

These concerns were also prevalent when the focus was shifted to other cultures, where their unfamiliarity with the prevailing academic and linguistic culture negatively impacted their academic performance and success (Goodfellow, Lea, Gonzalez and Mason, 2001). Many of these learners experienced isolation, alienation, and dissonance arising out of conflict with the dominant culture (Walker-Fernandez, 1999; Shattuck, 2005).

At a more detailed level the studies also found that English speaking students valued the online environment for the time it allowed them to reflect on others' opinions. Learners from non-English speaking backgrounds valued these environments for the time it allowed them to focus on their own opinions. They also saw the lack of face-to-face contact as a significant barrier to their learning. But the English speakers were neutral and did not see this as a particular issue.

However some of the learners from non-English speaking backgrounds saw the online environment as providing a flexible, self-paced platform that provided increased opportunities to build relationships with their peers and develop their English language skills. The need for agreement from non-English speaking students may not only be cultural but also because they lack the English skills to express their disagreements appropriately (Biesenbach-Lucas, 2003; Morse, 2003; Gouthro, 2004).

The quantitative and mixed method studies tended to back up these qualitative findings (Anakwe and Christensen, 1999; Smith S. N. and Smith P. J., 2000; Gunawardena, Nolla, Wilson, Lopez-Islas, Ramirez-Angel and Megchun-Alpizar, 2001; Ku and Lohr, 2003; Lim, 2004; Selinger, 2004; Smith, P. J.,Coldwell, Smith S. N. and Murphy, 2005; Hannon and D'Neto, 2007; Wang, 2007; Edmundson, 2009; Tapanes, Smith G. G. and White, 2009).

For example, a study including South Pacific and New Zealand students found the English speaking students were open to learning from their peers and perceived many benefits from peer-peer interactions. In contrast the non-English speaking learners preferred more input from the instructor(s). They were only interested in peer-peer dialogue if it assisted their learning (Liang and McQueen, 2000).

A Kim and Bonk (2002) study found that Finnish students valued theory and reflection. However their US counterparts valued practice. Chen, Hsu, and Caropreso (2006) found that US students' fast-paced responses were seen by their Taiwanese peers as aggressive. But American students viewed their Taiwanese peers delayed participation in discussions as a sign of passivity and weakness.

Methodology

A search revealed 27 relevant studies which fell broadly into three categories: quantitative only, qualitative only and a mixed methods approach. The search was thorough. But it did not include any 'grey' literature or literature from non-peer reviewed open-access journals or literature that was not abstracted in primary academic indexes. The author acknowledged that their US background may also bias the literature that was selected. However, efforts were made to have as many different cultures and cultural contexts as possible included in the review.

Key Findings

Despite their varying contexts and foci, it was possible to identify common threads running through the literature. What was particularly notable was an emphasis on the idea that culture is inseparable from distance learning and teaching. Not surprisingly, the issues dealt with in these studies resemble those faced by traditional delivery teachers that teach culturally and

linguistically diverse learners. The reviewed studies point to the need to recognise the diversity within online communities of learners.

Limitations
Uzuner identified a number of limitations in the literature which comprised this review.
1. Inadequate sampling size that compromised generalisation to larger populations.
2. Minimal description of the sampling approaches, the defining boundaries of the population, and the criteria of inclusion and exclusion of the sampling frame.
3. A lack of hypotheses and/or definitions of the independent and dependent variables.
4. Minimal or no information about the survey instrument, pre-testing, and piloting.
5. Minimal or no information about the initial size of the sample and the final percentage that responded to the surveys.
6. Inadequate descriptions of data collection and analysis procedures.
7. Inadequate coverage in the studies' literature reviews.
8. An over-reliance on cross-sectional surveys.

Future Research
This could focus on addressing one or more of the following gaps identified as a result of this literature review. These were:
1. A lack of investigations into other cultures within the country studied e.g. for the US African-Americans.
2. An overemphasis on Asian learners and an exclusion of others, notably Europeans e.g. Germans and French.
3. Individual differences were not sufficiently taken into account. There were too many generalisations made on the particular cultures that were part of the studies.

Can E-learning Replace Classroom Learning?

Authors: Zhang, D., Zhao, J. L., Zhou, L., and Nunamaker Jnr, J. F.

Background
E-learning is increasingly seen as a solution for both workplace training and lifelong learning. In addition the demands of the new knowledge economy are driving major changes within tertiary providers. These changes, often driven by ICT, are leading to more flexible and personalised approaches to teaching and learning. These changes collectively are often referred to under the umbrella term - e-learning (Shea, 2002).

In response to this there has been a significant increase in online courses including degree level programmes. For example, in 2002 the University of Arizona had 50,000 students enrolled in its online degree and post graduate level courses. This represented an increase of 70 percent from 2001 (Shea, 2002).

E-learning was dominated by the internet during the 2001 to-2004 period. But often it did not reach its target audiences. This may have been due to poor systems and an over-reliance on text. Even when multi-media options were available they were often hindered by a lack of interactivity and flexibility.

The Learning by Asking (LBA) system (Zhang, D., 2002) used an interactive e-classroom linked to another part of the institutional system where learners could type in questions. The LBA system then linked them up with the appropriate content and resources. An intelligent learning assistant module provided a more personalised approach. This study examined the recent advances in e-learning technologies and practices and compared the effectiveness of the LBA system to traditional delivery.

Methodology

Undergraduate students that were enrolled in a variety of majors at the University of Arizona were selected. Learners were randomly assigned to either the LBA or non-LBA group. The same lecture and lecturer were used for both groups. Each group had the same time allocations for the lectures and experiments. Learning effectiveness was measured by test grades. Learners' perceived satisfaction was also measured using a questionnaire underpinned by a seven point Likert scale. A pre and post lecture test was given to assess learning performance.

Key Findings

The results of this study show that the learners in the e-classroom had significantly higher test grades than their traditional delivery peers. These differences in test scores could be due to the increased interactivity and flexibility in the e-classroom. This provided learners with increased opportunities to ask questions and to review and comprehend elements they did not understand.

But the questionnaires showed no significant differences in learners' satisfaction. Learners liked the multi-media presentation in the e-classroom and were satisfied with the self-controlled learning process. Learners thought that sufficient interactivity and flexibility were critical to an e-learning environment.

11 LEARNER SUPPORT

Personal Learning in Online Discussions

Author: Abu Ziden, A.

Background

This unpublished thesis examined how learners used online participation and interaction to support their learning. Much of the literature has examined the social construction of knowledge and learning (Levinson, 2006; Matosov, Hayes and Pluta, 2005; Murphy and Coleman, 2004; Stacey, 1999; Pumtambekar, 2006).

This study aimed to contribute to the knowledge of how individuals learn from interaction and engagement in an online discussion environment by focusing on the following research questions:

- How is personal learning facilitated through engagement in an online discussion environment?
- How is personal learning interpreted in the literature within the context of the community of learners?
- What are the relationships between a student's engagement in an online discussion environment and their personal learning?

This would help address the following two gaps in the research literature: firstly a personal understanding or construction of knowledge and secondly negotiations through discussions which inform this knowledge construction.

Literature Review

There is a strong relationship between an individual and the community they are situated in (Palloff and Pratt, 1999). But despite the importance of the individual the emphasis in the literature has been on socially based learning and knowledge construction. This is largely because there is an increasing acceptance of the validity and importance of the theory of constructivist learning. For example, according to Johnson, Johnson and Holubec (1998) the conflicts within a community stimulate cognitive development.

However individual learning and experience from participating and engaging in an online discussions environment is less explored. Personal learning is generally viewed in the literature as an individual's cognitive and knowledge construction and their attempts to make meaning

through involvement and interaction in a community and context. Some see knowledge construction as a process oriented exercise (Marchionini, 1995).

Illeris (2002) categorised learning into three discrete areas: cognitive, emotional and social. However others have stressed the importance of interaction (Wilson, 1993 (in Johnson and Aragon, 2003); Faraj and Wakso, 2001; Marcum, 2006). But constructing knowledge is more than interactions. It is also influenced by the tools used to support the interactions and the environment where they take place.

These factors can significantly guide an individual's ability to think and learn. Tutor and peer input and support is also critical in an individual's knowledge construction (Lundberg, 2004; McPherson and Nunes, 2004; Oriogun, Ravenscroft and Cook, 2005).

The literature on cognitive construction of knowledge focuses on how it is obtained through individual reflections. These are internally focused but are also influenced by external factors such as talking to other people (Vygotsky, 1978; Mercer, 1995; Jarvis, Griffin and Holford, 1998). This clearly separates information from knowledge. Knowledge is consciously constructed often in conjunction with others whereas information exists independently of the individual (Marcum, 2006).

Other individual factors are also important. These include motivation and adjustment to the learning environment (Salmon, 2000; Garrison, Cleveland-Innes and Fung, 2004). Motivation is influenced by beliefs about self (Bandura, 1997; Maggioni and Riconscente, 2003), culture (Youn, 2000) and personal attributes (Oxford and Shearin, 2004).

Intrinsic motivation can be supported through a plan or self-motivation strategy (Roper 2007). Individual goal orientation and attitude are also favourably linked to strategies used to support academic learning (Algera, 2003; Svicki, 2005).

Deep learning is related to motivation. More motivated learners generally take deeper approaches whereas less motivated learners tend not to (Jackson, 1995). These deep and surface approaches also determine, in part, learning outcomes. Enwistle (1998) differentiates deep learning from surface learning by stressing the active component of deep learning in contrast to the routine memorisation of the surface approach.

Extrinsic (e.g. a qualification), and intrinsic (a sense of satisfaction or achieving a learning goal) rewards also influence learning and the approaches to it. The intrinsic approach tends to support deeper learning (Meyer, 1995). Research also shows that pedagogical approaches can influence students learning processes.

For the purposes of this literature review individual factors were broken down into three dimensions. The first of these were personal dimensions. These cover factors such as an individual's background (Lundberg, 2003), values and social status (Hirschy and Wilson, M. E., 2003), beliefs, prior knowledge, and emotion.

According to Hirschy and Wilson social status is a broad term that can include gender, race, age, and social class. Social status is important because according to Lauzon, Gallant and Rimkus (2000) some cultures prefer oral learning environments (such as those supported by synchronous online communication) while others depend more on non-verbal cues.

The second dimension is learning process which is what an individual does to support their personal learning. The final dimension is learning outcomes. These are both quantitative e.g. final grades, and qualitative. These qualitative outcomes can be measured to a certain level (Tang, 1998).

Online communities play an important role in learning (Evans and Nicholson, 2003). This study defined an online community as one that is specifically designed for educational purposes in order to support learning processes. Personal learning within these communities is best supported by an individual's active participation, interaction, and communication with other members (Cocklin, 1993).

According to Rasmussen and Skinner (1999) the community is explicitly tied to specific programmes and links educational experiences to authentic real world contexts. This allows learners to develop multiple (as opposed to limited) perspectives on particular topics.

Community based learning can also increase opportunities for social construction of knowledge, shared experiences, and support, and contribute to a sense of belonging and involvement. This is particularly important for distance education learners (Pea, 1994; Kaptelinin, 1999; Zieger and Pullichino, 2004). But these benefits normally only accrue in communities where interactions are frequent, and the subject of negotiation (Stahl, 2006).

An important component of community creation and maintenance is the development of learners from novices to knowledgeable community members. This is underpinned by some key differences between communities and individual effort. For example, communities should be less restricted and look to improve ideas rather than progress towards one defined truth.

Communities favour collaboration over argumentation. Finally they view understanding as an emergent and constructive use of authoritative information (Scardmalia and Bereiter, 2006). This means there is a need to view knowledge advancement as a community rather than an individual effort.

Maintaining an online community requires more effort than its face-to-face counterpart (Haythornthwaite, Kazmer, Robins and Shoemaker, 2000). It also requires a strong sense of attachment from individuals if the community is to prosper and achieve its individual and collective goals (Palloff and Pratt, 1999). This attachment or involvement is underpinned by motivation. Motivated learners tend to effectively participate whereas unmotivated students tend not to (Rafaeli, 1997; Bransford, 2000; Salmon, 2000).

Learners' motivation can be encouraged by both tutors as well as more experienced and knowledgeable peers. According to Holmberg (1997) a personal relationship between tutor and learner is critical. This relationship is supported by good and clear communication. Other effective tutor strategies include e-moderating, coaching, facilitating, leading, and good course design (Murphy, Drabier and Epps, 1998; Amiegh, 2000; Lauzon, Gallant and Rimkus; 2000; Salmon, 2004; Lai and Pratt, 2005). The extensive literature on tutor strategies is in stark contrast to the lack of literature on learner strategies.

Methodology
The courses used for the study were two semester long courses (one introductory and one advanced) at the University of Canterbury. 12 learners participated in the study in the first semester and six in the second. The theoretical frameworks and approaches used for this study were grounded theory, interpretive hermeneutics, constructivism (individual) and social constructivism (group).

Interpretive hermeneutics focuses on the inter-relationships between the individual and the group with a strong emphasis on the role of language in both written and spoken forms in a learner's knowledge construction. Grounded theory is an approach that develops a theory based on the data collected rather than applying a pre-determined theory to the data.

Data was collected via interviews with learners, student and researcher journal entries, online discussion transcripts, and relevant course documentation. The online discussions were those

held via the university's Learning Management System in relation to these courses. Participation in these discussions was five percent of the total grade with each individual post equalling about 0.5 percent.

A case study approach was used. Analysis was done through looking for patterns and comparing and contrasting the online discussion and interview transcripts.

Key Findings
There were four identified approaches for participants in terms of their engagement and visibility in online discussions: lurker, bully, regular participant, and non-engaged. These different approaches are linked to the following levels of engagement: less engaged, engaged, and highly engaged.

Visibility was broadly categorised in this context as: less visible, visible, and highly visible. Learners who were less visible participated less in the online discussions and highly visible participants participated more. But these approaches do not necessarily indicate engagement with learning. For example a 'lurker'profile while highly engaged in learning is less visible in online discussions.

Lurkers tended to reflect on others' postings before responding and referencing these within their own posts. They only participated when they were ready and when they felt it was appropriate. This is reflected in their participation patterns. For large parts of the discussions and interactions they were less visible. But when they created their own post they would become visible or highly visible.

In contrast the bullies were active and responded quickly to others' posts. They were labelled as bullies because they often used a confrontational or aggressive approach towards their peers. But despite this approach they played an important role in initiating and progressing discussions.

Regular participants tended to do the minimum necessary to obtain the grades. However in some instances they decided that the grades were not worth the effort, so chose not to participate. While they were normally passive the bullies could provoke them into more active participation. They appeared to adopt a flexible approach based on perceived need and value. This determined their involvement (or otherwise) in particular discussions.

In contrast non-engaged learners did not participate at all, even to get assessed. They appeared to have no specific learning strategies. However non-engaged learners may simply have had technological issues hindering their access and participation. But like the regular participants they could on occasion be provoked into a more active role by the bullies.

This demonstrates the importance of bullies as they actively contributed to changes in approach from the other participants by making them more involved than they might otherwise have been. Lurkers and bullies were seen as being more engaged in learning than regular and non-engaged participants.

But none of the participants had a high number of postings with all being either non-active or moderate in this context. Moderate met the requirements while non-active did not. The reasons for the non-active participants lack of postings was generally because they viewed it as too time consuming. Other reasons cited included a belief there were too many topics and the marks were not worth the effort.

However this was not consistent throughout the semester. Participation patterns revealed that learners posted more than the requisite some weeks but no or less postings in other weeks.

These findings support the literature which stresses the importance of motivation and learner strategies.

Limitations
The results were not derived from an in-depth learner perspective which limits the usefulness of the identified approaches. These should ideally be constructed from first person experiences. It is also likely that the identified roles do not cover the entire spectrum of individual approaches and engagement in the learning process in an online environment.

Future Research
Examining the different roles tutors and learners adopt in online discussion and how they move from one role to another. How they move from one role to another to optimise their learning would be better understood if research was undertaken on the role of interventions.

Additional research is needed to differentiate lurking and bullying so they can potentially be used as individual learning strategies. Analysis of other interaction types and their implications for personal learning is required to expose individual preferences in respect to participation in online discussions. For example how individuals perceive their roles and how (or if) online discussions contributed to their learning.

Group and Class Contexts for Learning and Support Online: Learning and affective support online in small group and class contexts

Authors: Anderson, B., and Simpson M.

Background
Attrition rates for distance learners are high compared to their on-campus peers (Ryan, 2001). But online environments can help create a sense of community that can reduce these higher attrition rates (Wrightson, 1998; Yorke, 2004). The size of the community is important (Fahy, Crawford and Ally, 2001). However, it is more important, if these communities are to be effective, that they are underpinned by appropriate, frequent and quality peer-peer and student-instructor interactions.

Methodology
132 learners comprised the study's population sample. Their online interactions that were the focus of this study took place in a course that was part of a Bachelor of Education (Teaching) degree. The particular course surveyed was delivered using a blended learning approach with learners still getting print resources. But they were not required to attend campus.

As an indicator of engagement in the online component, message count data was obtained during the programme. This only related to Learning Management System communications not personal or non-institutional communications. These online discussions were a part of the course requirements.

An end-of-year survey was undertaken in each year of the programme, and again after it had been running for six years. The survey focused on the extent to which learners perceived the nature and characteristics of the online aspects of the programme had contributed to their learning, and afforded affective support. Data from the last two surveys undertaken were used to inform this study.

Key Findings
Learners recognised the opportunities for learning collaborations with others that were built into the course material. Of most importance was the fact that a majority of learners were in strong agreement that, through collaboration with their peers, they were exposed to new points of view about the concepts and ideas expressed in the course material.

Small discussion groups and the class discussions that involved lecturers were the favoured learning interactions. The data clearly showed that it is individual not group exchanges that learners see as being of most importance for their learning.

But learners' views on the level and appropriateness of the interactions showed much more variation. Learners perceived the role of the teacher within whole class discussions as being more directive than facilitative.

Asynchronous communication meant that the number of messages to be viewed by learners built up while they were offline. This made message reading a lengthy task. In addition, the paced nature of the discussion required commitment from learners in order to ensure timeliness in communication. This led to tension between reflection and the pace of discussion. Learners developed strategies to deal with this. Of these selective reading of messages was the most prominent.

Learners perceived affective support as one of the outcomes of the online interactions. They placed importance on the different methods of online communication as discussion spaces through which they might receive this support. Learners made clear distinctions between the avenues through which learning and affective support was provided. Most notable here was the large decrease in the importance of the course discussion site as an avenue for affective support in contrast with its role in learning support.

There was a clearly evident increase in the use of personal email as an avenue for affective support in contrast with its reduced role in learning support. Finally, this study clearly identified the importance of small groups to the learners, since these groups featured prominently. But these small groups caused some concerns among the learners, the main one being the non-participation of some of their peers. They also stressed the difficulty of getting to know a large number of their peers online.

Profiles in Self-Regulated Learning in the Online Learning Environment

Authors: Barnard-Brak, L., Lan, W. Y. and Paton, V. O.

Background

Self-regulated learning refers to those active and volitional behaviours on the part of individuals. These behaviours include goal setting, time management, task strategies, environment structuring, and help-seeking (Woolfolk, Winne and Perry, 2000). They fulfil an important dual purpose. Firstly they assist educators and institutions differentiate among individuals with respect to academic achievement. Secondly they enhance academic achievement outcomes for learners.

Iterative may be a better way of describing the process in which self-regulated learning skills and strategies develop. The term cyclical implies that individuals must be involved in a prescribed cycle of personal, behavioural, and environmental events before self-regulated learning skills and strategies can develop. But individuals can also adjust, modify, or change their self-regulated learning skills and strategies by the interaction of two of these factors e.g. personal and behavioural factors or personal and environmental factors.

The purpose of the current study was to examine whether profiles or types of self-regulated learning skills and strategies exist. Examining self-regulated learning skills and strategies in the online learning environment is particularly important because it requires individuals to be more autonomous in their learning, the prerequisite of which is being able to self-regulate.

Methodology
This research consisted of two separate studies. The first study had 279 learners from one south-western US university enrolled in online public degree programmes. Most were female with a mean age of 34. The second study also had the same online degree programmes with a similar gender distribution to the first study. But the second study had less learners (n=197) and a higher mean age of 38. Both studies had a good range of ages and disciplines represented.

They used a questionnaire and Likert rating scale. Their data analyses were performed in MPlus. Values for missing data were handled using multiple imputation techniques including Bayesian estimation. A structural equation modelling approach was used to estimate unobserved heterogeneity through categorical latent variables. This was done to ensure a person-centred, as opposed to a variable-centred, analytical approach.

But there were a range of other statistical fit methodologies used. These were employed to discern whether profiles for self-regulated learning skills and strategies existed. Analyses were conducted across both study samples to cross-validate their findings with regard to any profiles for self-regulated learning that were discovered. In the second study they examined, in addition, the association of an individual exhibiting a certain self-regulated learning profile (as determined by latent class membership) with academic achievement as measured by their Grade Point Average (GPA).

Key Findings
In both studies, individuals belonging to the class one profile had the lowest level of self-regulated learning skills and strategies. This profile consisted of individuals who were non-self-regulators or minimal self-regulators in their learning. At the other end of the spectrum, individuals belonging to the class four profile (composed of 'super' self-regulators) had the highest level of self-regulated learning skills and strategies.

Individuals belonging to the class five profile who tended to have the characteristics of competent self-regulators appeared to have a moderate to high level of self-regulated learning skills and strategies. The studies' results suggest that competent self-regulators do the bare minimum in terms of utilising self-regulated learning strategies and skills in order to achieve their desired outcomes.

Establishing self-regulated learning profiles for classes two and three was more difficult because they were disorganised in the manner that they utilised self-regulated learning skills and strategies. Individuals belonging to class two appeared to more frequently use goal setting and environment structuring as self-regulated learning strategies and skills. But they had much less use of the self-regulated learning strategies and skills of time management, help seeking, and self-evaluations.

This suggests that individuals belonging to this class two profile of self-regulated learning skills and strategies were not concerned with self-regulation in a proactive sense. This is because they were not necessarily concerned with following through with the use of time management, help seeking, or self-evaluation to support their learning.

In contrast individuals belonging to class three appeared to more frequently use the self-regulated learning skills and strategies of time management, help seeking, and self-evaluation compared to goal setting and environment structuring. But individuals belonging to this profile were also not using self-regulation in a proactive sense. This is because these learners were not necessarily concerned with goal setting or structuring their environment appropriately to support their learning.

The study's results indicated statistically significant differences in GPA according to the class or profile of self-regulated learning that an individual belonged to. Super and competent

self-regulators had the highest GPAs and there were no significant differences between them. The higher achievement of competent self-regulators is most likely due to their ability to sufficiently navigate and figure out their learning environment.

The other profiles had the lowest GPAs. Like the more successful profiles there were no significant differences between them. These results indicated that minimal and disorganised profiles of self-regulated learning are both associated with similar, poorer academic outcomes. These results also suggest that disorganisation in self-regulated learning strategies and skills were as detrimental to a learner as non-existent or minimal self-regulation.

Limitations
For the samples in both studies, the mean values for the participants GPAs may be considered high compared to the overall college student population. Learners with higher GPAs may enrol in online courses at increased rates as a result of having a stronger belief that they can achieve in courses delivered at a distance or by other non-traditional delivery modes.

Future Research
A better range or diversity of learners in terms of academic achievement is required. The results of the current study should be replicated with respect to learners in other domains and learning environments. Finally it should also examine other cognitive factors, such as epistemological beliefs (e.g. Pintrich and Zusho, 2002; Barnard, Lan, Crooks, and Paton, 2008), which may be associated with the profile of self-regulated learning to which an individual belongs.

Online Self-Regulatory Learning Behaviours as a Mediator in the Relationship between Online Course Perceptions with Achievement

Authors: Barnard, L., Paton, V., and Lan, W.

Background
In a survey of US chief academic officers the number one barrier they cited preventing widespread adoption of online learning was the lack of learner discipline (Allen and Seaman, 2006). This view is supported by research that shows that learners who have superior or increased self-regulation had better learning outcomes than students who had less (Schunk and Zimmerman, 1998; Zimmerman and Schunk, 2001).

Examples of self-regulatory behaviours in learning include goal setting, and environment structuring. The literature also makes clear that positive learner perceptions of online course communication and collaboration were favourably associated with academic achievement and outcomes (Howland and Moore J. L., 2002; Lee and Gibson, 2003; Fisher and Baird, 2005).

The purpose of this study was to ascertain whether self-regulatory learning behaviours in online courses could be considered as mediating the relationship between learner perceptions of online course communication and collaboration and academic achievement. This would be achieved by examining the particular contribution of communication and collaboration to these behaviours and outcomes. The study also attempted to establish if a 'virtuous circle' exists where favourable associations lead to learners engaging in the appropriate behaviours and if these in turn lead to improved outcomes.

Methodology
The study had 204 learners with a mean age of 38. 36 percent were male. While the participants came from a wide range of locations there was a bias towards graduate and postgraduate students.

For the outcome variable of academic achievement, the current, cumulative Grade Point Averages (GPAs) of the participants were obtained from the university. Learners who participated in the study had GPAs that ranged from 2.00 to 4.00, with a mean of 3.73. To

measure self-regulation in online learning, a short form of the Online Self-Regulated Learning questionnaire was employed.

Learner perceptions of the online course communication were measured using an 11-item scale with a Likert-type response format with values ranging from strongly agree (5) to strongly disagree (1) (Rose, 2006). Higher total scale scores indicated more favourable perceptions and lower scores less favourable perceptions. The authors employed structural equation modelling as an advanced statistical means of examining the mediating relationships using specialist software that included MPlus and SPSS.

Key Findings
The study's results indicated that learner self-regulation in online learning may be considered as positively mediating the relationship between student perceptions of online course communication and collaboration and achievement. The results also provided evidence of the existence of a 'virtuous circle' where positive associations in turn lead to learners using appropriate behaviours and achieving improved outcomes.

For example, as online self-regulatory learning behaviours increase, the relationship between perceptions of online course communication and academic achievement also strengthens. The results also suggested that learners must first have positive perceptions of online course communication and collaboration. This is so they will engage in self-regulated learning in the online classroom to a sufficient degree so that it may positively influence academic achievement.

Limitations
There was a risk of significant bias in this study. This is because learners who have better outcomes and improved perceptions of the course including its communication and collaboration may have self-selected to participate. An insufficient sample size did not permit the multi-group modelling of this mediating model which would have allowed the properties of the model to be assessed across groups.

Future Research
This should be based on multi-group modelling. For example, this would allow the exploration of gender differences in this mediating relationship. In addition there is a need to re-examine this mediating relationship of self-regulation in online learning between learner perceptions of online course communication and collaboration and academic achievement so as to further validate this study's findings.

Emotional Intelligence as a Predictor for Success in Online Learning

Authors: Berenson, R., Boyles G., and Weaver, A.

Background
The innovative use of technologies potentially means that traditional delivery can be replicated in distance and online learning environments. Learners are viewing e-learning as being increasingly beneficial. These benefits include time saved and the ability to take more courses. But e-learning's reliance on writing as its primary communication tool has many disadvantages. These include learner isolation, difficulties around motivation, and effective engagement with the course's ICT (Hill and Rivera, n.d.).

Success in online learning is most likely a combination of technical, personal, cognitive, motivational, and psychological factors. But despite the importance of the personal element, learning theory views intellectual and emotional intelligence as polar opposites (Imel, 2003; O'Regan, 2003).

However adult learners need to be emotionally comfortable for effective learning to take place. Attending to emotions in the classroom allows both instructors and learners to manage their

feelings. It also provides useful methods to address difficulties that could deter learners' success (Gates, 2000).

Literature Review
There is little useful, empirical research relating to learner profiles that could be used to increase the chances of success for online learners (Wang and Newlin, 2000). The research has also not focused on intrinsic characteristics such as self-motivation and persistence (Gallagher, 2002). Intrinsic characteristics are often related to and influenced by emotional pre-dispositions.

Some of the literature shows that emotional intelligence has been linked with predictors of success in online environments that include persistence, internal locus of control, and self-efficacy (Wang and Newlin, 2000; Kemp, 2002; Irizarry, 2002; Albritton, 2003; Parker, 2003; Holcomb, King and Brown, 2004). But despite its importance most of the literature's focus has been on learner ease with technology and their satisfaction with particular programmes rather than their emotional characteristics (Gallagher, 2002). This study aimed to address these deficiencies by focusing on whether emotional intelligence (including persistence and personality type) is a predictor of Grade Point Average (GPA).

Methodology
The study examined two semesters. 82 learners from a wide range of ages (18-57), ethnicities, and courses enrolled at a two-year community college were selected. However the gender distribution was limited with the overwhelming majority of participants (81 percent) being female. There was a roughly even mix between experienced and novice online learners.

Tests provided online were used to measure the participants' emotional intelligence, personality and resilience. Data was also collected on a range of other variables including age, gender, and the number of completed online courses. The GPAs were self-reported. They used an inter-co-relational research design. This included the use of inferential tests and regression modelling.

Key Findings
The main finding of the study was that emotional intelligence was the primary predictor of academic success in online courses. This was further strengthened if combined with personality. Older participants had more emotional intelligence.

The key findings in terms of learner profiles were that individuals who required an external locus of control were more likely to be aggressive (i.e. being rigid and needing control), and tense. They were less likely to succeed in online environments where time delayed communications are often the norm. In contrast learners with an internal locus of control and strong self-efficacy tended to be more resilient which was critical to their success in online environments.

Limitations
Because of the study's limited population sample and scope these findings must be treated with caution.

Future Research
This should consist of:
- Further investigation into the triangulation between personality traits, emotional intelligence and GPAs.
- Significantly expanding the population sample.
- Examining the correspondence between online instructors' emotional intelligence and personality and their students' emotional intelligence.
- Measuring the emotional intelligence and personality of instructors because of the significant role that they play in the online success of learners.

E-portfolio Assessment in Higher Education

Authors: Bhattacharya, M., and Hartnett, M.

Background

Portfolios are commonly used to assess learner work. They provide not only a collection of evidence for assessment but also of learners' reflection and progress. This allows them to potentially be used to support lifelong learning. The electronic or e-portfolio is the digital version.

E-portfolios have many advantages over their paper based counterparts including the ability to store more information and provide a more interactive experience through the use of multi-media. But there are challenges with their use. These include the time it takes to develop and maintain them, mastering the technology to use them effectively, and privacy issues.

For the purposes of this study e-portfolios' learning and showcasing functions were the focus. In particular the study aimed to demonstrate how they can be used for lifelong learning purposes through the collection of evidence, the process of reflection, and the recording of learners' progress.

Methodology

The data was derived from formal and non-formal education settings as well as informal contexts. Formal was defined broadly as evidence supporting the attainment of an award or qualification. Non-formal also had an education focus but occurred outside an institution and was not necessarily about qualification attainment. Informal did not have an education focus but demonstrated evidence of skills from a variety of sources including work.

For each of the study participants (n=14) a mean reflection level was given for the six categories. These were highlighted as areas where the learner scored well, where further support was required, or where they can be encouraged to reflect using specific guidelines. The group aggregate mean reflection level achieved for each category of the rubric was also calculated and it provided a clear summary of analysis results.

The analysis of learner reflections focused on evidence and the process of learning. Using a matrix model these reflections were put in the following categories based on the extant literature:

- Metacognition and progression.
- Conceptualisation and implementation.
- Cooperation and collaboration.
- Critical thinking and decision making.
- Evaluation and modification.
- Creativity and innovation.

Key Findings

The learners' focus when writing self-reflections concentrated on the conceptualisation and implementation, critical thinking, decision making, and the evaluation and modification categories. This was most likely because learners were asked to evaluate the learning process and demonstrate higher order thinking skills.

But most of the participants had at least one response in the cooperation and collaboration category. These responses generally recorded favourable experiences of working within a group environment. The metacognition and progression as well as the other aforementioned categories also made references to these favourable group work experiences.

To go from murkiness to clarity: How do course members perceive the teacher's role in an online learning environment?

Author: Brooks, D.

Background

E-learning is an increasing component of distance education because of its ability to support or enhance it. Its growing prevalence is demonstrated by some universities requiring learners to engage in it. However e-learning is also used to support or enhance traditional delivery. But there have been some major failures most notably the United Kingdom's e-University.

In addition e-learning is also becoming a more common delivery mode for the professional development of teachers. But some teachers believe that e-learning is not a suitable method or mechanism for their professional development. Many other teachers are unclear how to use e-learning effectively to enhance their teaching practice and learning outcomes for their students. But despite this many of them are now using an online learning environment.

Lu and Jeng (2006/2007) raised questions about the learning effectiveness of e-learning courses compared to their traditional delivery counterparts. They noted that much of the literature focused on undergraduate students who were concerned with grades rather than how much they learn. There is also a lack of data or research on the effectiveness of e-learning professional development programmes for teachers.

The purpose of this study was to find out how teaching practitioners viewed the use of e-learning in their professional development and the role of the teacher in this environment. The learner related research question was: What do course members, who are undertaking professional development value and what key learning experiences contribute to sustaining learning?

Literature Review

It is important that teachers use professional development to become lifelong learners (Capper, Fitzgerald, Weldon and Wilson, 2000; Vrasidas and Glass, 2004). This is best achieved by doing it on an ongoing basis rather than through irregular short duration courses. To be effective professional development should be grounded in the practitioner's own work and tailored to their needs.

Professional development should also provide opportunities for reflection (Capper et al., 2000; Schlager and Fusco, 2004). Finally professional development should also assist in linking not only research and practice but also learning from others' ideas and knowledge (Capper et al., 2000) as well as allowing the acquisition of relevant knowledge and skills (Poskitt, 2005).

Timperley, Wilson, Barrar and Fung (2007) developed a model to show how learning processes lead to particular outcomes.

Process one:

Cueing and reiterating prior knowledge leads to it being consolidated and studied.

Process two:

Becoming aware of new information or skills and integrating these into an individual's current values and beliefs system leads to new knowledge being adopted or adapted.

Process three:

Creating discord with current values and beliefs leads to differences being accepted or rejected. This may lead to current values and beliefs being repositioned or reconstructed.

Timperley et al. (2007) believe there are seven components which are important for professional development and that impact positively and substantively on learner outcomes. These components are:

- Providing sufficient time for learning.

- Engaging external expertise.
- Engaging teaching practitioners in the learning process.
- Challenging problematic discourses.
- Providing opportunities to interact with other teaching practitioners.
- Ensuring content is consistent with the wider policy and research trends.
- Having a leader in provider-based professional development.

The tasks and assignments in professional development programmes need to demonstrate clear alignment to learning outcomes. The important factor is that teaching practitioners engage in a variety of activities that encourages them to learn to apply their new understandings and skills (Timperley et al., 2007).

Learning communities are also seen as important in professional development programmes. The teacher is the key to the management and success of an online learning community (Leach, Harrison, McCormick and Moon, 2004; Duffy, Kirkley, del Valle, Malopinsky, Scholten, Neely, Wise and Chang 2006). Leach et al. argued that while a peer group could lead to increased levels of learner satisfaction it could also distract them from learning and lead to an inappropriate focus on superficial discussions. Peer groups also had a detrimental effect on learners who were focused on their tasks because they often found collaborative activities distracting.

According to SalJohn (2003) the focus for ICT professional development should be on instructional strategies, course member needs, and addressing issues such as using technology to improve learner achievement. E-learning is important in a professional development context because it means the programmes can be flexible. For example, it can allow self-paced learning at a place and time of the student's choosing. It can also provide for just-in-time access giving freedom to register for a course at any time (Duffy et al., 2006).

An asynchronous ICT environment provides the opportunity for increased reflection through learners having more time to consider and compose their responses to discussions (Dede, Ketelhut, Whitehouse, Brett and McCloskey, 2006). However this may be countered by a tendency from learners to just pass the course rather than having deep engagement with the content or their peers. A lack of experience can hinder learner progress (Means, Toyama, Murphy, Bakia and Jones, 2009).

Technology has put an increased onus on learners. This is largely driven by the need for them to develop or have relevant cognitive skills in order to achieve their learning outcomes. Learners in these technology supported environments are also being expected to take less direction from teachers and focus on creating their own understanding.

Learners need to be able to adjust to change and make sense of unlimited information (Capper et al., 2000). But teachers still play a number of crucial roles including assisting learners to develop strategies so they can recognise authentic information.

Retention is lower in e-learning courses (Kember, 1989). But other studies dispute this finding by showing no significant difference in retention rates (Fredericksen, Pickett, Pelz and Swan, 2000).

Reasons for learners dropping out include individual motivation, a lack of IT skills and knowledge about e-learning courses, and insufficient teacher feedback or support (Choy, McNickle and Clayton, 2001). Other factors could be the available infrastructure. Irons, Jung and Keel (2002) showed higher satisfaction with e-learning courses among urban learners due to their access to superior ICT infrastructure e.g. broadband.

Duffy et al. argue that there are four design features that are crucial to the effectiveness of professional development in an online environment. These features include:

- Ensuring the materials and learning experiences are relevant to the course members.
- Creating an online learning environment that supports and scaffolds learners' engagement and reflection.
- Providing learning opportunities that offer ease of access and flexibility.
- Designing a model of online professional development that is sustainable.

Interaction is important in an e-learning context (Capper et al., 2000; Job-Sluder and Barab, 2004). But having more interaction does not necessarily lead to high quality learning experiences (Schlager and Fusco, 2004). This was supported by Derry, Seymour, Steinkuehler, Lee and Siegel (2004) who criticised discussion lounges for having a low level of challenging discussions amongst educational practitioners. This was because participants often equated criticism with personal inadequacies.

Greene and Magliaro (2004) similarly found learners prioritised their contributions to chat rooms rather than reading or responding to discussion lounge threads. To achieve high quality learning experiences through interaction teachers' must support learners so they can become reflective practitioners.

While experience with technologies may not contribute to learning performance it can affect learner satisfaction. However of more importance are authentic, frequent, and positive teacher-student interactions. These have a major bearing on learner satisfaction in e-learning environments (Fredericksen et al., 2000). But there are others who think the teacher should take a less active role and focus on mentoring learners and monitoring their progress (Hewitt, 2004).

From a learner perspective an easily accessible and usable course (e.g. one that has good navigation and visual cues) with appropriate support and with links to resources and their peers is important (Lin and Gregor, 2006). This easy access includes an ability to do so at a time of the learner's choosing. If the course components in an e-learning environment are not organised in a meaningful way they are more difficult to understand (Fahey, 2004).

Learners should be able to approach the lesson with a clear view of the content so they can gauge whether they have achieved the learning outcomes at the conclusion of the lesson. If the learning outcomes are able to be translated into lesson content and resources this will help learners achieve their goals (Davis, 2004).

Methodology
One course was used which was delivered totally online over one semester. Five learners participated in the study. Most of the course's learners were from New Zealand but there were also international students e.g. Japan and Korea. Their age range was from 21 to 60. They all had prior online course experience. The study's data was collected from a questionnaire, online course interactions, email exchanges, and telephone interviews.

The analytical and data collection framework used was interpretive research which involves intensive participation in a field setting and collecting data from its activities. The sources of data for interpretive research are from real-world situations and are descriptive. This is followed by the researcher synthesising and interpreting the meaning of the data by analysing it inductively with generalisations reached from collecting or observing multiple specific instances (Gay and Airasian, 2000).

Within this framework this study also used a case study approach. Thematic analysis was used to categorise the data for the case study.

Key Findings

Participants valued the interactions and increased connection with each other that was possible in an e-learning environment compared to its traditional delivery distance education counterpart. Some felt that more guidance in the online environment would be useful for less experienced or inexperienced learners. This additional guidance could be built into the course website.

Good design of the website assisted in creating a sense of familiarity for participants. This was supported by clear learning outcomes. This design allowed some learners to take more control of their learning.

More time was also necessary for learners to adjust to an e-learning environment. However learners valued the flexibility of being able to study at a time and place of their choosing. The resources and functionality were of benefit to learners as they allowed different, more flexible, and deeper engagement with the content than was possible in a traditional delivery environment.

Authentic assignments and activities significantly enhanced the learning experience. Being able to comment on their peers work was also identified as a major benefit by course members as it enabled them to think in depth about their own and each other's work.

Teacher support was readily available and this was valuable for the learners who needed it. This value was greatly enhanced by the timeliness with which it was provided. This often took the form of teacher-student and student-teacher emails. Regular teacher-student emails helped learners keep on task and feel more connected to the teacher and the learning. Student-teacher emails also helped the learners by providing guidance and ensuring that they were on track. These emails also helped students consider different approaches to their learning.

The discussion lounge interactions were seen by participants as important. But they could also hinder learners as some felt that they could not make a meaningful contribution to the discussions. Others were concerned about feedback from their peers particularly where this was of a critical nature.

However following teacher models helped alleviate these concerns and saw participants more confidently engage in online interactions as well as becoming more reflective learners. These interactions also widened the perspectives of participants by exposing them to different ideas, opinions, beliefs and knowledge.

All participants commented on how the teacher being part of the discussions was important. For example, the teacher could not only clarify particular learner queries but also coordinate the feedback so it not only informed the learning of the originator of the query but other participants as well. These teacher contributions were more valuable if the learners considered they were meaningful and based on their own thoughts and experiences.

Peer feedback was a critical element for course members. Reflecting on other's work also assisted student learning by exposing them to different possibilities. It also allowed increased and enhanced engagement with the course content and made the learning tasks more authentic.

Beauty and blended learning: E-learning in vocational programs

Author: Brown, M.

Background

This study set out to determine how blended learning used to support course essential vocabulary, affected learners. The main objectives of adopting a blended learning approach in this course were to assist learners to better understand the technical terminology in order to meet the safety aspects and determine the appropriateness of particular beauty therapies. Learners'

distance from campus and their family commitments were also important factors in deciding to adopt a blended learning approach.

Literature Review

Much of the e-learning literature is based on constructivism – where learners construct knowledge for themselves (Lefrancois, 1997). However the literature also shows that minimal teacher guidance is not successful (Mayer, 2004; Kirschner, Sweller and Clark, 2006). Klahr and Nigam (2004) showed that direct teacher input leads to increased learning. Increased levels of learning support are also required for low achieving learners (Clark, 1989).

Considerations critical in traditional delivery remain important in an e-learning environment (Ko and Rossen, 2004). For example, support of learners is required in both environments. It is also essential regardless of delivery mode that learners master the basics so they can engage meaningfully through building further knowledge and connections (Gunn and Harper, 2007).

Methodology

Ten second year students with e-learning experience who were enrolled at the Waikato Institute of Technology were selected. A case study approach was used. This was supplemented by face-to-face interviews with learners and their tutor and the programme manager.

Key Findings

All of the participants valued the flexibility the course offered. This flexibility allowed the participants to use the online environment in differing ways. These included lesson preparation, review and assessment.

The tutor and programme manager felt that the course had favourable effects on the participants' ability to apply theory to practical lessons. But only two of the learners explicitly linked the use of the online course to an increased knowledge of vocabulary and basic concepts that helped them in their theory and practical lessons. Furthermore two of the ten learners did not use the online course at all.

But despite these contradictory results the overall finding was that the different ways learners engaged with the online course made a difference to their overall retention of vocabulary and their ability to discuss this with understanding in the practical classroom. This suggests that building blended courses that are able to be used in various ways for different learners is valuable for increasing learning.

Limitations

The results of this study may be selective, biased or subjective. This is due to the difficulty in cross-checking the results with other studies. The small scale of this study was another limitation. There may also have been a potential conflict of interest as the researcher was also the course teacher so learners' responses need to be treated with caution.

Exploring the R2D2 model for online learning activities to teach academic language skills

Authors: Cartner, H. and Hallas, J.

Background

This study focused on one paper at the Auckland University of Technology. This paper was intended to support learners develop academic English skills so they would be better placed to succeed in university study. This approach is well supported in the literature. This is because studies have shown that learners who use academic language and concepts to read, understand and respond clearly both orally and in writing, are more likely to be successful in their university studies (Hyland, 2000; Carson, 2001; Zhu, 2004; Coxhead, 2006; Nation and Gu, 2007).

Learner evaluations of the paper had requested that in future iterations it had more of a technology focus to improve their skills. In redesigning the course the authors wanted learners to have more control of their learning and provide real-world contexts. These learner and teacher objectives were achieved by using the R2D2 model.

The R2D2 (Read, Reflect, Display and Do) model (Bonk and Zhang, 2008) was informed by various theories: Kolb's learning cycle (1984), McCarthy's 4MAT system (1987) and Fleming and Mills VARK (1992). The common thread with all these models was to facilitate a shift from traditional delivery to blended learning and from teacher-centred to student-centred learning.

However it is important that the diversity of learners and their experiences are taken into account. To achieve these objectives the R2D2 model uses a number of key learning activities in a blended learning environment.

Methodology
33 learners (two-thirds of the paper's cohort) completed a survey. The age range of the learners was 16-35 with the majority being 25-39. They were all international students with most being from China. A survey was used to gather data about students' perceptions of the learning activities based on the R2D2 model.

Key Findings
Using the audio files to check their pronunciation and then posting their results online assisted learners by facilitating their metacognitive reflection skills. It also assisted their development as autonomous learners because they used this as an opportunity to evaluate their own thinking and learning without being specifically instructed by the teacher.

Learners obtained skills in presentations using the technology and they thought this would benefit them for further study and possibly employment. This suggests that the model helped increase the reflection and practical skills of learners which are often neglected in blended learning environments. But some learners did not enjoy this activity because of concerns around the technology. There were also concerns about the sound of their voice and this being exposed to others.

Limitations
Only one data gathering tool was used to identify how useful the R2D2 model was when applied to a blended and constructivist learning environment.

Future Research
It would be useful to compare qualitative data with activity rubrics and learner outcomes.

Student Experiences of Technologies Final Report

Authors: Conole, G., de Laat, M., Dillon, T., and Darby J.

Background
This final report relates to the UK's Joint Information Services Committee's learner experiences of e-learning project.

Methodology
The project adopted phenomenographic and ethnographic approaches. These were used to examine individual learner approaches through particular cases and describe their personal backgrounds and (learning) contexts in which they integrated technology into their learning.

Data was collected from three sources: an online survey, learner audio log diaries and interviews. 427 valid entries were received from the online survey. They were sorted by subject centre and whether or not they were a qualitative or quantitative response. The responses were then analysed using SPSS software.

The learners' audio logs and interviews also used a subject centre categorisation approach. Particular entries were identified using coded numbers. The in-depth case studies of individual learners also used their audio log and interview data. The selection for the case studies was based on learners' survey responses and availability.

Qualitative analysis was undertaken through carrying out a broad descriptive analysis across all the available data to try and establish general patterns. These patterns were then further analysed to see if there were differences between the participating subject centres. Finally the qualitative data was then organised and coded according to emerging patterns. The results were ranked, proportioned or directly quoted to support the quantitative findings.

Key Findings

Across all subjects the learners made extensive use of personally owned technologies to complete coursework, and to communicate with their peers and teachers. These technologies included mobile phones, laptop computers, personal digital assistants and USB memory sticks.

But the study also revealed that learners were using a range of standard packages in creating and presenting learning artefacts and assignments, and for manipulation of textual and numerical data. These standard packages included Microsoft Word, PowerPoint and Excel.

The key picture that emerged was that learners were appropriating technologies on an 'as needs' basis to meet their own personal, individual requirements. This involved learners combining the use of general ICT tools and resources with institutional or course tools and resources.

For locating information the internet was unequivocally the first port of call for learners – with extensive examples across the project of learners using search engines, dedicated subject-specific sites, and e-journals to find relevant information to support their studies. The project also indicates that learners adopted sophisticated methods to find, integrate, and synthesise information using multiple sources of data.

The above findings point to a profound shift in the way in which learners are working and suggest a rich and complex inter-relationship between individual learners and the ICT tools. This profound shift is summarised in the key factors below:

1. **Pervasive and integrated**: Learners were using technologies extensively to find, manage, and produce content, and to support all aspects of their study. They reported that technologies provided them with more flexibility in terms of being able to undertake learning anytime and anywhere.

2. **Interactive**: Learners' perception of the nature and inherent worth of content is changing. Learners expected high quality interactive materials. They preferred 'byte' sized and condensed forms of information that could be easily reviewed anytime, anywhere, and be able to be stored on handheld devices. Content was no longer fixed and valued. It was a starting point, something to interact with, to cut and paste, and to adapt and remix.

3. **Changing skill set**: Learners were demonstrating new skills in terms of harnessing the potential of technologies to support their learning. These included developing new forms of evaluation skills and strategies (searching, restructuring, validating). This enabled them to critique and make critical decisions about a variety of sources and content. Learners were becoming sophisticated at finding and managing hybrid forms of information drawn from a multitude of traditional (e.g. text books), existing (e.g. Google search engines) and emerging (e.g. weblogs and Wikipedia) sources.

4. **Transferability**: Learners saw the personal computer as their central learning tool. They were used to having easy access to information and therefore had an expectation of the same for their courses. There was evidence of the transfer of practices from their use of personal technologies (e.g. MSN chat, Amazon, e-bay and Skype) to their learning context.

5. **Changing working patterns**: The use of these tools was changing the way they gathered, used, and created knowledge. There was a shift in the nature of the basic skills from lower to higher levels which was necessary to make sense of their complex, technologically enriched, learning environment. Learners did not see the technology as anything special. It was just another tool to support their learning.

Future Research

1. To establish if the report's methodologies captured learners' perspectives over a longer time frame.
2. A broader coverage of the higher education and/or other parts of the sector both inside and outside tertiary.
3. Compare actual learner use with expected use in terms of course design and teachers' expectations.
4. A more in-depth longitudinal study which follows learners throughout their tertiary (and potentially even into their working) careers.
5. Do a comparative study based on subject areas.

Quality in e-Learning from a Learner's Perspective

Author: Ehlers, U-D.

Methodology

A large scale survey was undertaken in two phases. Firstly, a qualitative inventory was gathered from the data of interviews with 56 learners who had considerable experience in the field of e-learning. This inventory formed the basis for a quantitative research phase in which learners answered a questionnaire on their quality preferences for e-learning (n=1994). The data was then analysed using multivariate statistics - principal component analytical and cluster analytical methodology.

This data and analysis was used to construct e-learner profiles based on students' preferences for the identified quality fields and their supporting dimensions. These quality fields included tutor support, technology and course structure.

For tutor support the associated dimensions included interaction centeredness, moderation of learning processes and individualised learner support. The technology quality field's associated dimensions included adaptivity, personalisation, and availability of content. The associated dimensions for course structure included personal support of learning processes, tests and exams.

Key Findings

Grouping students' preferences for these quality fields and their associated dimensions led to the construction of four distinct learner profiles: the individual, the result-oriented, the pragmatic and the avant-garde. The learners in the individual profile were content oriented. In contrast the learners in the result oriented profile were independent and goal focused. However learners in the pragmatic profile were needs oriented while learners in the avant garde profile were interaction oriented.

The quality preferences of students in the individual profile included individualised learning scenarios and self-directed learning. The learners in the results-oriented profile also had a

preference for individualised approaches. But their differences with the other learner profiles included a preference for work integrated learning.

The learners in the pragmatic profile also had a preference for individualised approaches but wanted facts based tutor support. The learners in the avant-garde profile were the most collaborative in their preferences e.g. virtual groups and discussion and communication. In an interesting contrast to learners in the pragmatic profile they preferred their tutor support to be learner oriented.

These differing preferences suggest that future quality development in e-learning should be based on an individualised not generic approach. These individualised approaches could best be supported through addressing the quality preferences for the learner profiles developed for this study.

Students' Experiences of E-Learning in Higher Education: The Ecology of Sustainable Innovation

Authors: Ellis, R. A., and Goodyear, P.

Background
This book was written to assist higher education teachers and managers understand how e-learning relates to, and can be integrated with, other student experiences of learning. To achieve this goal the book reported on research outcomes that located e-learning within the broader context of higher education and in addition:
- Placed e-learning in the context of the student's entire learning experience which reflected the need to integrate it within this.
- Reported research on students' experiences with e-learning conducted by authors in the US, Europe, and Australia.
- Synthesised key themes in international research and summarised their implications for teachers and managers.

Key Findings
The so-called 'Net Generation' does not have radically changed needs or expectations. It is simplistic to assume that there is a homogenous set of expectations and needs among a generation and that there is a sharp discontinuity between generations. The available survey data from Australia, UK, and the US shows clearly that first year university students varied considerably in their experiences, habits, and preferences.

Universities need to change because ways of working with knowledge were changing not because students learned differently. The available evidence indicated that learners expected some separation between social and educational uses of digital media. They saw ICT as integral to managing complexity and were frustrated when universities failed to deliver.

Learners liked the flexibility of ICT. However they did not like ICT when it was used badly nor did they want it to be a substitute for access to, and interaction with, their teachers. Learners needed to be assisted to understand their learning needs, and to obtain confidence and skill in managing their learning.

E-learning needs to be understood in relation to the whole of the student experience of learning at both course and degree level. The introduction of e-learning tools, methods and resources adds further complexity to the challenges learners saw themselves facing and they wanted teachers to acknowledge this. Learners also tended to be consistent across both online and offline contexts in their intentions and strategies. Learners needed to be supported to deal with the relatively novel challenges of e-learning in an integrated and coherent way.

More research is required on the inter-relatedness of the differing parts of the learner experience in order to gain a more in-depth understanding about which aspects were more likely to account for high quality learning outcomes. Other variables that could be included in further investigations included student perceptions of internet resources, and their role in a community of learners.

E-learning in higher education: some key aspects and their relationship to approaches to study

Authors: Ellis, R. A., Ginns, P., and Piggott, L.

Background

E-learning is being introduced as a fundamental part of the student learning experience in higher education. E-learning is no longer only core business for those universities primarily or exclusively focused on distance education. Its affordances are also being systematically integrated into the student learning experience by predominately campus-based universities.

Evidence of this widespread uptake can be seen in reputable research journals and on the websites of national bodies responsible for leading teaching and learning in higher education. Examples of these include the websites of the Higher Education Academy in the United Kingdom, Educause in the United States and the Learning and Teaching Council in Australia.

But despite this growth more focused explorations into how key aspects of e-learning are associated with the students' traditional delivery experience of learning are relatively sparse. There is comparatively little research into how both online and traditional delivery contexts play a relational role in helping learners achieve their learning outcomes.

This study investigated how e-learning was used to support the traditional delivery experience of third year business students at the University of Sydney. In this paper, e-learning was defined as information and communication technologies used to support learners improve their learning (Higher Education Funding Council of England, 2005).

Research shows that variation in the way learners approached their learning was related to how they perceived their context, what they thought they were learning, and the quality of their learning outcomes (Prosser and Trigwell, 1999; Ramsden, 2002). This study adds to this research by considering associations between student approaches to learning and their experience of e-learning.

The focus of this study was on four aspects:
1. Interactivity which was defined here as student-student interaction.
2. Approaches to e-moderating.
3. Issues related to course design.
4. Workload awareness.

The concept of e-moderation was broadened for the purposes of this study to include online communications and student-teacher interactions. These interactions were not necessarily part of a structured discussion in a small group. They included online feedback from the teacher about class activities and matters relevant to learning such as learners' submitted written work.

The concept of course design in this study focused on associations between the traditional delivery and online contexts of the students' learning experience and how the design of the online materials and activities helped the students to learn and understand the whole experience. Workload was defined as the amount of online work additional to the work the learners were expected to do in class.

The research questions underpinning this study were:

- What are some of the key aspects of the student experience of e-learning when it supports a traditional delivery experience?
- How are the parts constituted?
- How do these parts relate to student approaches to study?
- Is there any relationship between variations in the student experience of e-learning, approaches to study, and their achievement?

Methodology
130 third-year students studying government as part of their undergraduate business degree participated in the study. The main data collection method used was a questionnaire. Three types of statistical analysis were used. Factor analysis was used to look at the structural relationships among the items of the questionnaire, as there were expectations that a smaller number of underlying constructs may explain learners' responses to individual items.

Pearson correlation coefficients were used to investigate the strength of the relationships between pairs of constructs that were identified through the grouping of the items. The cluster analysis was at the level of the learners. These looked for subgroups that were identified on the basis of the similarities of the variables being investigated.

Key Findings
At the variable level, significant correlations were identified amongst the e-learning, approaches, and outcome variables. Significant, strong, positive correlations were found between all the e-learning variables and students' perceptions of the quality of the e-learning experience.

Significant, strong, positive correlations were found between the deep approaches, the e-learning variables, perceptions of the quality of e-learning, and learner achievement. At the subgroup level, significant differences were found among learners in terms of their perceptions and approaches to study and their achievement.

These differences were consistent with the results suggested by the analysis at the variable level. This analysis suggested that learners who had unfavourable perceptions of the quality of teaching, course design, interactivity, and workload tended to approach their studies in a comparatively poor way and tended to have lower achievement in their e-learning component.

It Is not worth learning if it is not remembered: designing e-learning to increase memory

Authors: Engelbrecht, P. C., Makany, T., Meadmore, K., Dudley, R., and Dror, I. E.

Background
This study focused on the key role e-learning can play in assisting learners' long-term memory.

Methodology
76 learners (65 females and 11 males) took part in the study. Small notebook type personal computers were used. Eight content pages related to memory were presented in three different layouts. A questionnaire was designed to assess information retention. Learners were assigned to groups based on layout and complexity. These groups had equal representation in regards to gender and age. They were re-tested after a two week delay.

Key Findings
Simpler layouts with less complexity had noticeably improved results compared to complex layouts. This was also reflected in the time differential. The simpler layout outperformed the more complex arrangements across the time spans measured. This difference between short and long term could be because the complex arrangements took more time to process. An alternative explanation was those involved in the complex arrangements spent less time on the questionnaire than those working in the simple layout.

The main conclusion was that simpler online layouts and navigation reduces learners' cognitive load. This frees up more of their cognitive resources for knowledge acquisition. However the lack of difference in learners recall over time between simple and complex layouts suggested complex layouts were better for long term memory retention. These complex layouts should be considered if long-term memory retention is the intended or desired outcome.

The Determinants of Students' Perceived Learning Outcomes and Satisfaction in University Online Education: An Empirical Investigation

Authors: Eom, S. B., Wen, H. J., and Ashill, N.

Background
Distance education is being transformed by e-learning. The primary objective of this study was to investigate the determinants of students' perceived learning outcomes and satisfaction in university e-learning courses. The important contributing factors identified for the success of e-learning systems were: learners' self-motivation and learning styles, instructor knowledge, instructor interactions, facilitation and feedback, and course structure (Peltier, Drago, and Schibrowsky, 2003).

Methodology
The data collection instrument used for this study was a quantitative survey which measured student satisfaction and their perception of learning outcomes. The sample population was learners from one US university who had taken at least one online course. The survey questions were based on a literature review.

Key Findings
All six factors i.e. course structure, self-motivation, learning styles, instructor knowledge, facilitation, feedback and interaction—significantly influenced learners' satisfaction. This was in accordance with the findings and conclusions from the literature on learner satisfaction. Although learners were satisfied with their e-learning experience they believed they did not learn more or have a better quality experience than when they were studying in a traditional delivery course.

But only learning styles and instructor feedback affected students perceived learning outcomes. There was no support found for a favourable relationship between interaction and learners perceived learning outcomes. This could be due to the fact that the courses were designed to increase support and reduce isolation not improve learning outcomes per se. A well designed online course may reduce the need for student-instructor interactions.

There was no relationship between the online course structure and learners perceived learning outcomes. This could be due to learners placing a premium on the quality of engagement rather than the usability of the site. If they received meaningful feedback from the instructors this would have more impact on their learning outcomes and reduce the importance of content. Contrary to other research findings no significant relationship was uncovered between learners' self-motivation and perceived learning outcomes.

The results of the study indicate online courses are not a universal innovation applicable to all types of instructional situations. Its findings suggest online courses can be a superior mode of instruction if they are targeted towards learners with specific learning styles (i.e. visual and read/write) and there is timely and appropriate feedback of various types from instructors. Instructor feedback was critical to a course's success and needed to be incorporated into its design and delivery.

Future Research
Additional work is required to uncover why these findings contradict much of the existing literature. There could also be a focus on better measurement instruments. Exploring in more

detail the relationships between course structure, self-motivation, interactions and learners perceived learning outcomes should also be considered.

Sharing Resources and Experiences Across the Cultural Hemisphere

Author: Gardener, D.

Background

New Zealand learners will obtain personal and professional benefits by being exposed to different cultures, groupings and practices particularly where collaboration with overseas learners can occur seamlessly through the use of an accessible online platform. The aim of this study was to broaden learners' cultural understanding and collaborate with a group of students outside their immediate learning environment.

E-learning is heavily dependent on accessible and reliable technology. But it also requires an environment that is based on an integrated design rather than a directory of disconnected and fragmented collection of materials (Tu and Corry, 2003). Collaboration is increased where participants share common understandings and experiences (Palloff and Pratt, 1999). Achieving these aims means that designing an e-learning course is far more challenging and time-consuming than its traditional delivery counterpart (Garrison and Anderson, 2003).

Methodology

There were 32 learners in total (15 from New Zealand and 17 from overseas). The study used a common assignment within one graphics design course at one institution. The supporting technology was provided and managed through the institutional Learning Management System.

Key Findings

Learners demonstrated an ability to critique their peers work. They also contributed to the discussion forums and utilised the available functionality including sending private messages. The videos to a certain extent helped replicate the level of interaction that synchronous online education provides. Learner grades were higher and their evaluations showed that they viewed the experience positively.

The overseas and New Zealand learners had almost identical participation. This may have been influenced by the desire of the respective groups to obtain better achievement and outcomes than their peers in the other group. The content of the course including archived discussions and videos was a valuable resource that in an online environment would be available for future cohorts.

Blended Learning in the Visual Communications Classroom: Student Reflections on a Multimedia Course

Authors: George-Palilonis, J., and Filak, V.

Background

An increasingly important component of blended learning courses is multimedia. But its full potential is often undermined by trying to make it fit traditional delivery processes and pedagogies. This study directly addressed learners' enjoyment of and engagement with the selected course, as well as their perceptions of the learning experience.

This was to be achieved by:
1. A comparison of learning outcomes between a blended approach and a traditional delivery course plan.
2. An examination of issues of engagement, attachment, and enjoyment for students enrolled in both versions of the course.

3. An analysis of the effectiveness and efficiency of a variety of multimedia tools as primary course content.

Literature Review

Blended learning has produced many positive results because it offers opportunities for personalisation, self-direction, variety, and learning communities (Ausburn, 2004). This means increased learner engagement and satisfaction compared to a traditional delivery course (Cooner, 2005).

Learners more often used active learning strategies in a blended environment (Collis, Bruijstens, and van der Veen, 2003). According to Hughes (2007) blending online learning with targeted classroom sessions can improve retention and identify 'at risk' learners, particularly in largely online programmes.

But one of the risks associated with blended learning is that it becomes merely an 'add on' to traditional delivery rather than a full integration with it (Garrison and Kanuka, 2004). Osguthorpe and Graham (2003) noted that it was important to ensure that the blend involves the strengths of each type of delivery mode and none of their weaknesses.

Universities provide blended learning because it offers learners greater control over their learning experience as well as increasing interaction. This approach also extended the reach of the course beyond the institution (Fearing and Riley, 2005; Larkin and Belson, 2005). This has led to a massive increase in blended learning. For example, the American Society for Training and Development listed blended learning among the top ten trends to emerge in education (Rooney, 2003).

Methodology

171 learners from one course at one university in the mid-west region of the US were selected. The course was selected as it had a traditional delivery and blended version. The majority of the learners were in the blended version.

The study used two data sources. The first was comprised of weekly journals kept by learners. The objective of these journals was to gauge learners' feelings about their progress in the course and obtain information on the respective learning methods they used. The second was a survey administered to learners at the end of the semester which was focused on the complete course experience. Questions addressed learners' overall feelings about what they learned and the effectiveness of the learning methods in their respective courses.

Journal entries yielded 13,552 statements for analysis. A majority of these were from the blended delivery section. The data was cleaned using mean substitution to replace missing data points. No more than five percent of any one variable or any one case was replaced in this manner. Any case missing more than five percent of its data was removed.

The data was coded resulting in a Cohen's Kappa of .88, making this a reliable set of codes. To better assess the changes over time a Chi-square analysis was conducted which paired the three expectation variables within the time frame in which they were stated.

Key Findings

Overall, learners were less negative in the earlier stages of the class than near the end. But the number of favourable statements was more than five times larger than the number of unfavourable statements. The blended learners were significantly less negative in their emotional statements. They also expressed more positive emotional statements than expected.

In terms of satisfaction with their performance in the class, participants were primarily favourable. Regarding their instructors, the favourable statements far outnumbered the unfavourable ones.

There was a noticeable demarcation between learners who highly feared the technology and were anxious about its impact on their ability to succeed in this new course format and those who felt confident in their ability to do well. But this was only an issue in the initial stages of the course. As they progressed through the course this became a non-issue. This is most likely because there were very few problems identified by learners with the technologies used.

The survey found that overall the learners in both versions of the course reported a high level of technological acumen and a strong interest in using digital tools to learn. Blended learners felt they put in more effort compared to their traditional delivery peers. But they also had higher enjoyment levels.

Future Research
Modifying the multimedia teaching and learning tools, making improvements as deemed necessary, and repeat the study.

Going online to learn health sciences research methods: The student experience

Authors: Giddings, L. S., Campbell, S., and Maclaren, P.

Background
The virtual classroom is seen as having a lot of potential for the health sector (Atack and Rankin, 2002). This is in part due to its flexibility which is important for these particular learners because many of them work full-time. But these virtual learning environments often challenge learner assumptions about the teaching and learning experience.

The paper that formed the basis of this study provided learners with an overview of the variety of research approaches available to assist them in their practice. The paper was offered both onsite and online. The onsite version was done through traditional delivery over a 14 week semester, with fixed assessment points. In contrast the online version, allowed for self paced learning with monthly intakes and a six month time period for completion.

Literature Review
Studies have highlighted that learners need to change their views of teaching and learning when they study in an e-learning environment (Kearsey, 2000; Stephenson, 2001; Howland and Moore, 2002). But the majority of learners do not enter e-learning to change these views but rather for the flexibility of time and place that it offers (Browne, 2003). As a result learners new to e-learning can become frustrated when their assumptions about teaching and learning are challenged.

This means that meeting learner expectations is important because as Howland and Moore point out learners used to relying on teachers "may feel abandoned without high levels of feedback and interaction (from them)" (p. 188). To cater for diverse student learning styles and increase their engagement effective feedback and interactive content are recommended (Bocchi, Eastman and Swift, 2004). Effective learning strategies such as frequent use of interactive quizzes are essential for scaffolding within the learning (Howland and Moore, 2002; McLoughlin, 2002).

But skilled facilitation remains the most important factor in not only structuring the learning experience but engaging learners by encouraging independent learning and supporting their retention (Browne, 2003; Bocchi et al., 2004; Simmons, Jones and Silver, 2004). Browne also emphasises that even in an e-learning environment pastoral care is important. Learner satisfaction is closely linked to their engagement in the learning process (Bocchi et al., 2004).

The most commonly used technologies in e-learning according to Yoon (2003) are: pre-recorded and streamed video, audio, chat groups, live virtual classes, and simulations. But they are only effective if they facilitate learners' interactions and are user friendly and reliable.

For example, technical problems appear to be a consistent frustration for learners (Daugherty and Funke, 1998; Atack and Rankin, 2002; Browne, 2003).

However technical issues are likely to remain a problem for the foreseeable future (Howland and Moore, 2002). The most effective remedy for this is the availability of skilled support. It is also helpful if learners have basic computer and internet skills prior to commencing an e-learning course. Therefore preparation of learners prior to their commencement is a key variable in successful online study (Yoon, 2003).

Learners' meaningful learning experiences require strong organisational support built around a team approach (Chou and Tsai, 2002; Yoon, 2003; Bocchi et al., 2004). This support includes access to library and learning resources along with technical support (Yoon, 2003). Learner support appears to be linked to student satisfaction (Bocchi et al., 2004).

For online learning to be effective close collaboration between teachers and other key staff including instructional designers, system developers, and technical support staff is required (Yoon, 2003). However learner characteristics are important if they are to be successful and satisfied in an e-learning course. These include self discipline, motivation, time management, and organisation skills (Bocchi et al., 2004).

Methodology
The quantitative data used was learner emails and online evaluations. The QSR NVivo program enabled the retrieval, sorting, and grouping of this data. Statistical software, including SPSS and Excel was used to analyse the quantitative data from the learner evaluations. Descriptive statistics were applied. The qualitative data was analysed using an analytical inductive content analysis process.

Key Findings
87 percent of the learners chose the course for its flexibility, with the large majority valuing the ability to be able to study without taking time off work. Learner satisfaction increased over the duration of the course. Initially many had been nervous about using the technology with only 16 percent being very confident in their (self-reported) computer skills.

It was the completion of relatively simple but interesting online tasks at the beginning of the paper that increased the learners' confidence and their eventual engagement with the programme. As the technology problems receded or disappeared learner concerns shifted to issues that related to the actual research paper such as the jargon used.

Learner satisfaction was closely related to the overall facilitation of the course. Timely and useful feedback supported by regular, personalised teacher-student interactions was important. This study highlights the critical importance of early personal communications between the online learner and the teacher to keep students engaged.

82 percent of learners found the computer based activities easy or very easy to use. 93 percent found the quizzes helpful or very helpful for their learning and 72 percent said the same thing about the web references. The two main factors that enabled learners to manage disruption to their studies were the availability of the teacher and flexible assessment time frames. But the virtual classroom does not suit everyone. For example, many learners expressed concern with the site navigation.

e-Learning: The student experience

Authors: Gilbert, J., Morton, S., and Rowley, J.

Background
There has been considerable interest in e-learning across the education sector and workplace and this is matched by its growth (Roussos, 1997; Crook, 1998; Morgan, 2001; Sambrook,

2001; Imel, 2002; Department for Further Education and Skills, 2003; Hughes and Attwell, 2003). This growth in supply is driven by a set of assumptions or beliefs including that e-learning can improve learner access to education and training, improve the quality of their learning, and be cost effective (Alexander, 2001).

The research objectives were to:
- Contribute to the literature on the student experience of e-learning.
- Make explicit the criteria used by students in their evaluation of e-learning.
- Provide perspectives on student learning processes and habits in e-learning.

Literature Review
There are a number of frameworks that can be used to support a quality e-learning experience. The key components of these frameworks are technology, pedagogy, and organisational context (Garrison and Anderson, 2003; Jochems, Van Merrienboer and Koper, 2003). Other authors such as Britain and Liber (2000) and Pang and Hung (2001) used concepts such as cybernetics or activity theory as the basis for their analysis and evaluation of e-learning environments.

Topics canvassed in the literature include online communities (Ng and Hung, 2003), factors that influence learners' use of online learning (Collis and Moonen, 2001), and the social dimensions of e-learning (Nicol, Minty and Sinclair, 2003). But despite a wealth of literature significant shortcomings have been identified.

These include a lack of a credible evaluation (Hughes and Attwell, 2003) and learners' perceptions of e-learning environments and how these may hinder or assist them (Chen and Macredie, 2002; Moore and Aspden, 2004). Imel (2002) stated that much of the current e-learning offerings failed to meet learner expectations.

Methodology
One e-learning module with 19 learners was assessed. Most of the learners were novice e-learners and studying through distance education. The data was collected through an end of module questionnaire.

Qualitative data or comments were analysed using an iterative process informed by the grounded theory approach (Strauss and Corbin, 1990; Miles and Huberman, 1994). The researchers first conducted an independent analysis of the comments. On a pair-wise basis, these analyses were compared with each other by the third member of the team.

After this process each researcher amended their analysis. The researchers then determined a consensus analysis. This consensus analysis was the basis for the reporting in the results section.

Key Findings
The module was seen by the learners as directly relevant and applicable to their work. Discussion forums and learner support were the most frequently cited methods used to improve the learning process. The main improvements suggested by learners were to the quality of the delivery platform, increased access to up to date materials and resources online, and support for managing their workload.

Most learners followed the assigned path for the materials. But a minority did this is in a self-directed way using the core text as a guide. However, most learners did not access all the materials or resources. The flexibility afforded by online access was seen as valuable by some of the learners.

Learners in these contexts were more self-directed about how they used the course materials and resources and how they interacted with each other and their assigned activities. But despite this and the popularity of the discussion forums many learners were reluctant to be first contributor

to the discussions. Learners would have liked greater teacher input. Their main concern was the lack of clarity about the exact nature and extent of the teacher's contribution in an e-learning context.

Future Research
1. How do learners engage with e-learning materials and activities, and what impact do different learning strategies and tactics have on their learning success?
2. Are e-learning processes dependent on individual learner differences, as represented by learning styles and preferences, or can they be explored at a group level, with a focus on groups' profession, and study discipline?
3. How can learners be supported in the development of their notions of their own and their teacher's roles in e-learning environments?
4. How can understanding of peer-to-peer interactions in the learning process be enhanced in order that it can be facilitated more effectively in multi-channel learning environments?

An Evaluation of E-Learning on the Basis of Bloom's Taxonomy: An Exploratory Study

Authors: Halawi, L. A., McCarthy, R. V., and Pires, S.

Background
Despite its increasing popularity e-learning has issues when it comes to accreditation (Skylar, Higgins, Boone and Jones, 2005; Kartha, 2006). To determine the effectiveness of e-learning researchers need to evaluate both the quality of learning and how effective the delivery medium is.

The main research question was what relation exists among individual-related factors, instructional factors, and e-learning through WebCT?[19] This was to be addressed through the following hypothesis: that a positive relation exists among individual-related factors, instructional factors, and e-learning.

Bloom (1956) developed a taxonomy used by researchers to categorise learning system objectives. It positions behaviour in three categories that affect the process of learning in different ways. These are, in no particular order: cognitive, affective, and psychomotor. This taxonomy has not been thoroughly investigated in an e-learning context. This could be due to the difficulty of evaluating e-learning environments.

In addition to these three main categories outlined above Bloom's taxonomy was further broken down into discrete objectives. For example, the six objectives under the cognitive category are (in order):
*   Knowledge (with a focus on memorisation, recognition and recall of information).
*   Comprehension (with a focus on organisation of ideas, interpretation of information, and translation).
*   Application (with a focus on problem solving, use of particulars and principles).
*   Analysis (with a focus on finding the underlying organisation, and the division of a whole into components).
*   Synthesis (with a focus on a combination of ideas to form something new or creating something unique whether verbal or physical).
*   Evaluation (the highest level of the taxonomy with a focus on making judgements about issues and resolving disparities or disagreements).

The affective category is the way individuals deal with things emotionally, such as feelings, values, motivations, and attitudes. The psychomotor category is the area of physical movement,

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[19] WebCT is a widely used Learning Management System

coordination, and use of motor skills. This taxonomy was revised and modified by Anderson and Karthworthl (2001) into a set of knowledge levels: remembering, understanding, applying, analysing, evaluating, and creating. These taxonomies have been increasingly used in the development and evaluation of online courses (Boyd and Murphrey, 2002; Chyung, 2003; Vidakovic, Bevis and Alexander, 2003).

Previous studies have uncovered varying results. Vidakovic et al. concluded that their particular learners had low motivation levels and their background in mathematics was not strong. As a result, they determined that e-learning was not effective for pre-calculus study. However, other studies show no significant differences between learners in traditional delivery and online courses (Piccoli, Ahmad and Ives, 2001; Skylar et al., 2005; Kartha, 2006).

Methodology
The study's sample population was comprised of 51 students who were undergraduates, slightly more likely to be female, and enrolled in business related courses. The study took place in one university in the south-eastern region of the US.

The authors used a model of e-learning which was delivered through their institutional Learning Management System using Bloom's (1956) and the Anderson and Karthworthl (2001) taxonomies. For data collection they used questionnaires based on Morss and Fleming (1998) and Kartha (2006) and a survey. Regression analysis was used to interpret and report on the questionnaire and survey data.

Key Findings
The study indicates that individual and instructional factors did not have a significant effect on e-learning. While their hypothesis was unsupported, in an important finding they established the validity of e-learning as a tool using Bloom's taxonomy. This means that this taxonomy can be used to evaluate other e-learning environments and that it is likely that those environments (assuming they were similar to the one in the study) will be effective.

Limitations
It used only a small number of undergraduate students who were all involved in a single course at one university campus.

Motivation to learn in online environments: an exploration of two tertiary education contexts

Author: Hartnett, M. K.

Background
Distance education has considerably expanded in recent times (Scott, 2005). This is in part because it provides opportunities to meet the needs of a growing and increasingly diverse learner population (Rumble and Latchem, 2004; Moore and Kearsley, 2005).

E-learning adds value to distance education by providing learners with the flexibility to study anywhere at a time of their choosing (Bates, 2005). This allows people previously excluded from tertiary education to participate (Mason, 1998). Other advantages often cited for e-learning are the vastly increased access to, and availability of, resources and experts (Harasim, Hiltz, Teles, and Turoff, 1995).

Motivation is critical to success in e-learning environments (Sankaran and Bui, 2001; Bekele, 2010). But this is not a consensus view with others arguing that this assertion requires further investigation (McCombs and Vakili, 2005; Jones and Issroff, 2007; Artino, 2008; Keller, 2008; Bekele, 2010).

This study explored the nature of the motivation to learn for students in e-learning environments by addressing the following research questions:

1. What is the motivation to learn for pre-service teachers in e-learning distance environments?
2. How does the motivation to learn of pre-service teachers relate to their participation in e-learning distance environments?
3. In what ways do social and contextual factors relate to pre-service teachers motivation to learn in e-learning distance environments?

The theoretical framework that underpinned this study was based on a self-determination model. This puts learner motivation on a continuum that has three different levels which are (in order): not motivated, extrinsic motivation, and intrinsic motivation. It also posits differing types of regulation from none to internal.

Extrinsic motivation is controlled by a variety of external regulatory methods. Intrinsic motivation is associated with individuals who are autonomous and self-determined. In contrast not motivated individuals lack autonomy and are not self-determined.

Literature Review

Two important concepts in distance education are transactional distance (Moore, 1990) and learner control (Garrison and Baynton, 1987). Moore defined transactional distance as being the psychological separation frequently experienced by learners in distance education environments. Poor course design and low levels of interactions increase this separation (Garrison, 2000). However, good course design and high interaction levels are difficult to achieve simultaneously (Dron, 2007b).

The greater the separation the more responsibility is placed on the learner (Moore and Kearsley, 2005). Autonomy is associated with independent, self-directed learning. Autonomous learners need less interaction and can cope with poor course design better than their less autonomous peers (Garrison, 2003; Moore, 2007).

The term learner control was coined by Garrison and Baynton (1987). This term refers to learners attempts to strike a balance between independence (freedom from external pressures and constraints), power (capability to effectively engage in learning), and support (teacher and resource availability for learners). Teacher support enhances learning rather than detracting from it. Learner control recognises that there are internal and external dimensions to learner autonomy.

E-learning distance models are immature. They tend to be ICT supported enhancements of existing models (Mayes and de Freitas, 2004; Ally, 2008). Constructivism is an influential theory in this context. At its core is a belief that learners can and should be in control of their learning (Dalgarno, 2001). This learner generated knowledge can be individual (Piaget, 1977) or group-based (Lave and Wenger, 1991; Wenger, 1998). Constructivism also acknowledges the importance of motivation ((McInerney and Van Etten, 2004).

The influence of constructivist theory has seen particular emphasis placed on the development of online learning communities (Palloff and Pratt, 1999; Rovai, 2000, 2002b). Successful online learning communities are underpinned by effective peer-to-peer interactions. These interactions are also critical in determining the success or failure of an e-learning course (McIsaac and Gunawardena, 1996; Rovai, 2002a; Rovai and Wighting, 2005; Shea, Swan and Pickett, 2005; Swan and Shea, 2005).

There are a number of different factors required for successful peer-to-peer interactions and learning communities. These include course structure (Vrasidas and McIsaac, 1999; Anderson, T., 2008a), class size (Vrasidas and McIsaac, 1999), prior experience (Juwah, 2006), instructor immediacy (Whipp and Chiarelli, 2004; Shea et al., 2005; Jones, A. and Issroff, 2007), and personal agency (Anderson, B., 2006).

Peer-to-peer interactions are also important in learners' knowledge construction (Hirumi, 2006; Mishra and Juwah, 2006). Juwah argued that for learner participation and effective peer-to-peer interactions learners must know how to use technology and understand how to learn. This includes an understanding of the importance of self-regulation. Much of the evidence relating to learner-to-learner interactions derives from the transcripts of asynchronous environments including discussions boards and chat rooms (e.g. Gunawardena, Lowe, and Anderson, 1997; De Wever, Schellens, Valcke, and Van Keer, 2006).

Teaching presence and the facilitation of effective teacher-learner interactions in e-learning has been the focus of considerable research (e.g. Rourke, Garrison, and Archer, 2001; Thorpe, 2003; Pena-Shaff and Nicholls, 2004; Shea et al., 2005; Mayes, 2006; Mishra and Juwah, 2006). This research also deals with how to encourage and develop learner motivation in e-learning environments. Interactions with content are also important from a motivational perspective (Stipek, 2002; Anderson, T., 2006).

E-learning participation and possible relationships with learner achievement is a growing area of research (Picciano, 2002; Rovai and Barnum, 2003; Pena-Shaff and Nicholls, 2004; Webb, Jones, Barker, and van Schaik, 2004; Hoskins and van Hooff, 2005; Schellens and Valcke, 2006; Zhu, 2006; Gerber, Grundt, and Grote, 2008; Andresen, 2009; Beer, Jones, and Clark, 2009).

Intrinsic motivation is an important characteristic of e-learners and one that they tend to exhibit more of than their on-campus counterparts (Stevens and Switzer, 2006; Rovai, Ponton, Wighting, and Baker; 2007; Shroff, Vogel, Coombes, and Lee, 2007; Styer, 2007; Cercone, 2008; Huett, Kalinowski, Moller and Huett, 2008; Wighting, Liu, and Rovai, 2008). This could be because the e-learning environment compels learners to be more intrinsically motivated (Martens, Gulikers, and Bastiaens, 2004).

Some argue the technology used in e-learning is itself intrinsically motivating because of its challenge, curiosity and novelty factors (Malone, 1981; Lepper and Malone, 1987). But when the novelty factor wears off learners can become frustrated with technical issues (Keller and Suzuki, 2004).

Motivation tends to be approached in the literature from a design perspective (e.g. Keller and Suzuki, 2004; ChanLin, 2009; Zaharias and Poylymenakou, 2009) or on the basis that it is a relatively stable personal characteristic of the learner (e.g. Bures, Abrami, and Amundsen, 2000; Waschull, 2005; Yukselturk and Bulut, 2007; Wighting, Liu and Rovai, 2008). But the environment is also influential in determining and supporting learners' motivation (Stipek, 2002; Turner and Patrick, 2008).

The learner focused studies tend to fall into two camps. Those that attempt to identify factors behind higher attrition rates (Rovai, 2003; Mulienberg and Berge, 2005; Levy, 2007; Pineau, 2007) and studies focused on attempting to identify characteristics that predict learner success (Lim, D. H. and Kim, 2002; Kerr M. S., Rynearson, and Kerr M.C., 2006; Simpson, 2006; Yukselturk and Bulut, 2007).

Self-efficacy is defined as the belief in one's abilities or capabilities to successfully perform a task within a particular context that has yet to be undertaken. This is critical to predicting learner success and satisfaction in an e-learning environment (Young-Ju, Bong, and Choi, 2000; Yi and Hwang, 2003; Holcomb, King, and Brown, 2004; Artino, 2008). Self-efficacy is influenced by prior experience (King, Harner, and Brown, 2000; Holcomb, King and Brown, 2004).

But more recent studies using self-efficacy have not predicted learner achievement outcomes (Xie, DeBacker and Ferguson, 2006; Bell, 2007). This could be because the increasing use and

familiarity with technology means most learners now have self-efficacy in an e-learning context.

Wanting to demonstrate competence in relation to others when combined with learning goals can lead to optimal motivation (Harackiewicz, Barron, Pintrich, Elliot, and Thrash, 2002). However studies have also shown that performance orientation can lead to minimal participation that is geared largely towards completion of assessment related tasks and activities (Bures, Abrami and Amundsen, 2000).

For example, Dawson, Mcfadyen, and Lockyer (2009) found that learners who were performance oriented focused mainly on administrative related activities. In contrast those with a learning goal orientation were more likely to participate in discussions that were related to learning and sharing.

E-learning studies have shown that higher engagement occurs when learners are personally interested in the topic (Schallert and Reed, 2003). However Lim and Kim (2002) found no significant link between learners' interest and their learning. Learner interest can also vary over the duration of the course (Moos and Azevedo, 2008).

Intrinsic motivation, which is predicated on learners' perceptions of autonomy, is possessed in larger quantities by distance learners when compared to their on-campus peers (Stevens and Switzer, 2006; Huang and Liaw, 2007; Rovai, Ponton, Wighting and Baker, 2007; Wighting et al., 2008; Shroff and Vogel, 2009). This often leads to an assumption that intrinsically motivated learners are more likely to choose e-learning and succeed in it (Yukselturk and Bulut, 2007). But McCombs and Vakili (2005) argue that this assumption is not accurate.

Methodology

Two courses with 12 and nine learners respectively were used for this study. There were 19 females and two males. A qualitative focus was adopted which was supported by a case study approach. Data was collected using questionnaires and semi-structured interviews. Archived online data in the form of usage statistics and online discussion transcripts were used. Finally aggregated usage and achievement data was used.

The qualitative data was analysed using the Nvivo software package. This analysis was used to allocate 'scores' based on how motivated a learner was (or was not). The quantitative data was analysed using SPSS.

Using these scores with the quantitative data, non-parametric Spearman rho correlation coefficients (Siegel and Castellan, 1988) were calculated to determine whether any significant relationships existed between learner motivation, participation and achievement. Mann-Whitney U two-tailed tests of significance (Cohen and Lea, 2003) were used to establish differences in learner motivation between the case studies and how representative the study sample was of the overall cohort.

Key Findings

Learners with higher levels of intrinsic motivation also tended to be more motivated. They also felt they had greater autonomy. They were more engaged in their learning with higher satisfaction levels. In contrast learners who were extrinsically motivated tended to be not motivated or less motivated. They had less belief in their abilities.

However, most learners including those who were more motivated mixed varying levels of intrinsic and extrinsic motivation. For example, completing assessments tended to be driven by extrinsic motivation whereas achievement was more closely linked to intrinsic motivation. Motivation was positively influenced if participants believed the tasks and activities were relevant. But motivation was decreased where the tasks and activities were seen as irrelevant.

Motivation was positively linked to increased learner participation. When this participation was more active there was a positive correlation with higher achievement. Increased and active participation is most likely because more motivated learners saw value in online participatory activities such as discussions and worked better in groups. But less motivated learners were less clear about the benefits and often felt constrained in online group activities. These findings were more prevalent for learners studying solely in distance education environments.

Motivation was negatively influenced if the marks for the assignment were too high and the supporting technology was too difficult to use. Difficulties in using the technology were more of an issue when learners needed to meet deadlines. Another concern raised by these learners was that their workload was too high.

Individual perceptions on the level of challenge in course tasks and activities were shown to be associated with competence and motivation. Those learners who felt the tasks and activities were sufficient or extended them (but not beyond their perceived abilities) performed better. But where the tasks and activities were seen as beyond a learner's perceived abilities or where the guidance provided was regarded as unclear their performance was negatively impacted.

Learners' motivation tended to decrease where there was a perception that there was a lack of choice and input into group decisions and tasks. This lack of input also manifested itself in perceptions that some were contributing more than others in group work and discussions. Overall these factors which also included activities that lacked relevance led to feelings of disempowerment and loss of control which negatively impacted on learner motivation. But where learners felt they had increased choice and input their motivation increased.

Learner competence was positively impacted through the perceived type and quality of teacher feedback. Teachers also needed to be available for their students. This included assisting with their queries. Timeliness of teacher responses was important in establishing if learners believed they were available or not. Course design was important with clear guidelines being necessary for improved learner performance.

Learner performance was adversely affected where there was a perceived lack of support and/or feedback from the teacher. This was often exacerbated when learners had low self-efficacy. This steadily decreasing teacher input often occurred because of deliberate course design. This was based on an assumption that learners no longer required a significant teacher presence because they were gaining or already possessed the requisite capabilities.

Peer support was important, particularly if the collective expertise available within group learning situations was to be effectively utilised. This collective expertise also positively impacts on group self-efficacy. Connection to the group is an important factor in determining individual motivation. These feelings of connection were enhanced where learners and teachers were seen as friendly and caring and generally supporting each other. Learners were more important than teachers in this context.

Learners' contributions being valued also positively impacted on feelings of connection. Modelling inclusiveness and respect was critical in developing and maintaining effective groups. Factors that undermined connection to the group were a lack of and/or unsatisfactory communications. This often led to disagreements. These factors were compounded where learners did not sufficiently interact with the wider group.

Limitations
The findings cannot be generalised and are therefore not transferable to other contexts because of the small sample size and case study approach. The findings must be treated with caution as statistically significant relationships are difficult to find in small samples. Longitudinal changes

in motivation were not explored. It took a narrow view in study setting and did not sufficiently take into account external influences on motivation such as work and family.

There were a number of limitations identified with the literature on motivation reviewed for this study. The two major ones were, firstly, it tends to overlook the dynamic and responsive nature of the motivation to learn (Turner and Patrick, 2008). Secondly contemporary motivational theories have only been used in limited ways. An example of this has been the tendency of the literature to view intrinsic and extrinsic motivation as a simple dichotomy with the focus tending to be solely on intrinsic motivation.

Future Research
Undertake additional motivational related studies using this study's self-determination theoretical framework and model. These studies should include wider tertiary and external environments and factors. Research is necessary to measure or establish how or if learners' motivation changes over time.

E-Learner Profiles: Diversity in Learning

Authors: Jeffrey, L. M., Atkins, C., Laurs, A., and Mann, S.

Background
This Ministry of Education funded research project identified three significant trends that are emerging in New Zealand's (NZ) tertiary education system. They are: the changing face of the student body, rapid technology developments, and new educational goals.

These trends pose significant challenges for NZ Tertiary Education Organisations. This is because they must simultaneously find appropriate ways of meeting the varied needs of their diverse learners; integrate new technology into the teaching process, and up-date curriculum goals to address societal expectations of tertiary graduates.

The composition of the student body has altered dramatically in the last twenty years, largely as a result of NZ Government policy to achieve increased and more open access to higher learning. These policies meant that about half of NZ learners were in full-time tertiary study. However their average age has increased and there were more women than men. The increased diversity of this student body is reflected in the wide range of ethnicities represented and their larger numbers (Ministry of Education, 2004).

However the retention rates are not so encouraging, with many of the non-traditional learners also being the most likely to fail or not complete (McKenzie, 2005; Scott, 2005; Benseman, Coxon, Anderson, and Anae, 2006). However technology offers the potential to extend the role of lecturers and improve learning outcomes for these diverse learners. But little work has been done to date on how this might be accomplished. Furthermore while some learners have welcomed technology into their learning experience, others have resisted its introduction.

Methodology
The sample population used in the study was 1,811 learners. These learners were from a wide range of ethnicities, ages and disciplines. There was also a diverse range of organisations represented comprising six universities and private training establishments, and five polytechnics. A combination of printed and online questionnaires was used. The questions were identical in both formats. Anovas and t-tests were used to measure differences between learners.

Key Findings
The study's results produced three distinct learner profiles. These were cognitive voyagers, strategic competitors and multi-media collaborators. Strategic competitors were the largest group of learners with approximately 34 percent of the student body high on this learning profile. These learners were characterised by a driving ambition to succeed. They were hard-working and disciplined in their study. They had a strategic approach to learning.

Only about 12 percent of the tertiary population were high on the cognitive voyagers learning profile. These learners understood learning to be a personal journey during which they engaged in reflection and debate to socially construct knowledge that has meaning for them.

About 20 percent of learners were high on the multi-media collaborators learning profile. These students preferred learning visually. They also showed a preference for content to be presented in small 'text-bites' because they disliked reading long academic passages. They also preferred to work collaboratively with other learners.

While traditional delivery was preferred over online delivery, differences in age were apparent. Only 60 percent of learners up to and including 23 year olds liked traditional delivery, compared to 69 percent of learners aged 24-41 and 72.3 percent of learners 42 and above. Traditional delivery was disliked by 10.7 percent of learners under 23, 7 percent of learners between 24-41 and 6.7 percent of those aged 42 and above.

Courses without traditional delivery were disliked by 28.2 percent of learners under 23 years old, 20 percent of the 24-41 years old age group and 29.5 percent of the 42+ age group. These courses were liked by 34.9 percent of learners under 23 years old, 40.4 percent of 24-41 year olds and 39.4 percent of the 42+ age group.

Blended courses (a mixture of online and traditional delivery modes) fared better in this context: 13.9 percent of those under 23 disliked them but 51 percent liked them; 10.8 percent of 24-41 year olds disliked them but 51.8 percent liked them; and 17.1 percent of the 42+ age group disliked them but 47.4 percent liked them.

Textbooks and study guides were the most important source of information for study (used often by 82.4 percent of learners), but only marginally more so than the internet (used often by 77.4 percent). In contrast library resources, both the printed and online versions, were considerably less used (used often by 54.2 percent for the printed versions but only 44.9 percent for the online versions).

Limitations
The study failed to get greater representation of learners engaged in sub-degree programmes (they make up approximately half the tertiary population). Because of their large representation in this type of provision this meant that Māori were also under-represented in this study. This under-representation by Māori is also the result of non-participation by wānanga in the study.

Future Research
Identify appropriate treatments, either as matches or mismatches, to learning orientations.

Listening to the Learners' Voices in HE: How do Students reflect on their use of Technology for Learning?

Authors: Jeffries, A., and Hyde, R.

Background
Despite a large increase in e-learning related investment by the UK's higher education sector there has been comparatively little research conducted into the learners' voices in this context. This paper reports from the Joint Information Services Committee funded STudents' Reflections on Lifelong e-Learning project. This project sought to build a picture of learners' journeys across a study period of 18 months.

Methodology
54 learners (34 female 20 male) aged from 18-52 years and from a wide range of ethnicities formed the population sample for this project. Data was obtained from diaries of learner volunteers at approximately six monthly intervals and an online profile which was also optional for students.

This data was supplemented by telephone interviews carried out with the learner volunteers who had provided the first set of diaries. These interviews used Beetham's 'Interview Plus' methodology. This updated and reflected Bloom's stimulated recall methodology (Bloom, 1953).

Finally data was sourced from four learner focus groups which were selected on a voluntary basis following the provision of the second set of their reflective diaries. These groups were conducted to pick up on specific points from the diaries, and also to encourage group interaction on specific areas where clarification was needed about the learners' voices. Concept maps and Nvivo software were used to analyse the data.

Key Findings
As learners' progressed through higher education they were more frequently using and adapting the available technology. They were also becoming increasingly dependent on it. For example, there was an increasing reliance on the internet for researching background material on essay topics.

As learners progressed in their learning they placed a higher premium on flexible study time. This was mainly because it allowed their external commitments to fit around their study. In terms of preferred technologies those made available through the institution e.g. podcasts and Learning Management Systems were extensively used. But personal technologies were also commonly used. These personal technologies included mobile phones and social software/media e.g. Facebook.

These findings suggest that learners use institutional and personal technologies to support their academic and social lives. Technology has become for most of these learners an integral and ubiquitous part of their lives regardless of the programme of study in which they are enrolled.

Dialogue and the Construction of Knowledge in E-Learning: Exploring Students' Perceptions of Their Learning While Using Blackboard's Asynchronous Discussion Board

Author: Johnson, H.

Background
This research focused on learners' perceptions of learning through online discussions. It aimed to understand how learners constructed knowledge through online dialogue that took place in the University of Otago's Learning Management System.

The author constructed a framework around the learners' thinking and interactions which were key components in their knowledge construction. Knowledge construction here was about passing knowledge on which had built on previous postings and discussions. Flexible learning was defined for this study as the ability to have discussions at a time of the participant's choosing, as well as the ability to link to multiple sources of information in different formats.

Literature Review
According to Robyler and Edwards (2000) there has been a massive increase over the last decade in technology supported learning. Moore and Anderson (2003) believe that e-learning provides greater flexibility and an increase in the quality of the educational experience. The basic assumption underpinning this research is that discussion or dialogue is a valuable educational tool and is helpful in students' learning (Wilen, 1990; Larson, 2000; Laurillard, 2002; Winiecki, 2003).

Methodology
Eight undergraduate students (five female and three male) comprised this study's population sample. Data was collected through semi-structured interviews. Discourse analysis and phenomenography were used to analyse the interview transcripts. Based on the interviews

different ways of perceiving online learning were identified and grouped into four broad categories: practical experience, interconnection, expressing own thoughts and flexible learning.

Practical experience for the purposes of this study referred to learner use of the technologies to support their learning and the associated skills acquisition that often went with this use. Learners' expressing their own thoughts was defined as learning through doing.

Key Findings
Interconnections were seen as the key drivers of logically structured, interconnected ideas. Having access to other ideas and perspectives was crucial in constructing knowledge through the framework's interconnections category.

Flexible learning allowed a more efficient transfer of ideas through peer and lecturer postings and discussions. Learners' knowledge construction was influenced by their peers' ideas. However while this type of knowledge construction was more prevalent than in the expressing their own thoughts category it was less than in the interconnections category.

However the overall participation rate and depth of the dialogue was limited. This may have been due to the low percentage of assessment allocated to this task. Learners believed higher marks would encourage increased participation. It could also be due to the lack of online learning experience amongst these learners. Learners used peers' postings to help form their own ideas. But they were not overly influenced by them as they still stuck to their own ideas.

Narrowing the distance: using e-learner support to enhance the student experience

Authors: Kelly, P., and Stevens, C.

Background
Distance is the problem with distance education in the United Kingdom (UK). There is no significant demand for distance teaching methods. Learners choose the UK's Open University (OU) primarily because it is the only, the most affordable, or the most convenient mode of higher education available to them.

There is also a gap between rhetoric and reality. Institutions often use language they think most likely to appeal to learners' such as 'open learning', or 'flexible study'. But many learners hear the less appealing 'isolated learning', or' remote learning'. This is not surprising as most schooling and workplace training is social, usually group based, delivered face-to-face, and led by a teacher or trainer.

There have been a number of attempts to establish a theory of independent learning (Wedemeyer, 1981; Homberg, 1995). But in recent years the predominant theories related to knowledge construction have shifted from the independence of learners to the critical importance of social networks, communities and other similar environments (Wenger, 2000; Wegerif, 2007).

In the past, the OU attempted to provide an equivalent face-to-face teacher led support as part of their system of supported open learning. But this created a paradox because while it was designed and intended for the distance learner, from the outset it included a considerable amount of support that was local, face-to-face, and teacher-led.

So while learners valued this face-to-face contact and support, attendance at its sessions fell dramatically due to their external commitments. It was hoped that ICT would bridge this gap between institution and learner by providing support for students where they could access it in a location and time of their choosing. Web 2.0 tools and systems expanded these possibilities

(O'Reilly, 2004; Macdonald, 2008). This also tied in with the increasing use of online environments for teaching and learning by the OU.

To achieve this objective of increased learner support using ICT the OU launched two major projects: The Learner Support Framework and the Personalised Integrated Learning Support Centre for Excellence in Teaching and Learning (PILS CETL). The Learner Support Framework was designed to support learners from registration on their first course to completion of their studies. To help address equity and access issues the OU also set up a digital divide project.

The main aim of the PILS CETL project was to personalise and integrate learner support within the context of subject pathways and programmes of study. Tools provided by the OU to support these projects included e-messages, online forums and, subject-specific websites. The e-messages included a welcome to study, initial study skills advice, a mid-course progress check, information about residential schools, and support for exam revision, study planning, and an end of course review.

Key Findings

The majority of new learners were comfortable with the technology because they used similar tools in daily life. Although computing help guides were available, new learners taking part in the getting started forums found them easy to use without any special training or the assistance of these guides.

E-support had significant cost advantages over printed materials and many learner queries were straightforward and could be answered through email or online forums. Learner support through the subject-specific websites became more personalised and relevant. It was also more effective and efficient because the OU was able to better target learners. The projects have also reduced learner isolation and made them feel more connected to each other and the OU.

Closing the Gap: Impact of Student Proactivity and Learning Goal Orientation on E-Learning Outcomes

Authors: Kickul, G., and Kickul, J.

Background

The e-learning market was tipped to surpass US $4 billion in 2005. This major investment has led to a massive increase in the supply of e-learning with up to 90 percent of US public colleges are offering at least one online course along with a 20 percent increase in e-learning enrolments in 2006 alone (Eduventures, 2003). But despite this increase there has been limited systematic research undertaken to examine the value of using these technologies to facilitate learning and learner satisfaction.

This rapid emergence of online learning as a significant proportion of US higher education provision has created new, more student-centred learning approaches. These may be affected by a person's goal orientation characteristics. Online learners are faced with the difficult task of completing their tertiary education while at the same time using a delivery medium that is in its infancy and prone to operational difficulties. Dealing with this successfully requires learners with high learning goal orientations.

Dweck (1986) posited two primary types of goal orientation: performance and learning. Performance goal orientation is where an individual attempts to prove their competence by seeking positive feedback and avoiding criticism. In contrast an individual with a learning goal orientation attempts to prove their competency through the acquisition of new skills and knowledge for the sake of learning as well as to demonstrate mastery of a situation.

The proactive personality was defined for the purposes of this study as one that takes action to influence environmental change (Bateman and Crant, 1993). Learners who possessed a proactive personality would be inclined to perform well in an online course where the learning paradigm has shifted from a teacher to a learner-centred environment.

In practice this tends to mean learners assume the initiative for their learning and the teacher becomes a coach or a guide in the educational process. However it is the combination of both learning orientation and proactive personality that is likely to be most effective in a learner-centred e-learning environment.

The purpose of the study was to understand the underlying learner factors and motivations that determined their assessment of learning and fulfilment within an e-learning environment. It examined learners' proactive personality as well as their learning goal orientation in influencing their perception of quality of learning and overall course satisfaction. E-learning was defined as learning taking place through the internet and the use of technologies such as discussion boards, video streaming and chat rooms.

The study sought to confirm or disprove the following hypotheses:
1. Students with a high learning goal orientation will have more favourable perceptions of the quality of their learning and overall satisfaction with e-learning.
2. Students with a high proactive personality will have more favourable perceptions of the quality of their learning and overall satisfaction with e-learning.
3. The interaction of learning goal orientation and proactive personality will influence students' perceptions of the quality of learning and their satisfaction. That is, students with a high learning goal orientation and proactive personality will have more favourable perceptions of the quality of their learning and overall satisfaction with e-learning.

Methodology
The study's sample population was comprised of 241 undergraduate and post graduate students. They were studying Health, Health Services, Nursing, Professional Arts, Administration, and an MBA programme through distance education at a private university in the mid-western region of the US.

A questionnaire was used based on Bateman and Crane's (1993) five item scale. The perceptions of the quality of learning and overall satisfaction were assessed by ratings of traditional delivery and online courses using the Relative Percentile Method (Goffin, Gellatly, Paunonen, Jackson, and Meyer, 1996).

Analysis of variance was used to analyse the data. Both "proactive personality" and "learning goal orientation" were used as the study's independent variables and "perceived quality of learning" and "satisfaction" were its dependent variables.

Key Findings
There were significant differences identified between proactive personality groups (high vs. low) regarding quality of learning and overall satisfaction. Learners that had higher learning goal orientations and proactive personalities also had increased levels of perceived learning and satisfaction with their online class. Learning goal orientation was a key factor in influencing learning and satisfaction. But proactive personality was more important in enhancing students learning.

Future Research
The context of learning, IT issues, and the instructor/learning design (Alexander and Blight, 1996; Alexander, 2001) should be investigated from both a quantitative and qualitative learner perspective. Examine practical ways universities and management educators can develop new

e-learning courses that address the challenges of meeting key learner requirements when they have differing preferences, needs, and motivations.

Connectivism: Learning theory of the future or vestige of the past?

Authors: Kop, R., and Hill, A.

Background
Connectivism is gaining increasing acceptance as the most appropriate learning theory for e-learning (Downes, 2005; Siemens, 2005). This theory is based on a network/community model of knowledge acquisition. In practice this involves individuals in communities interacting with each other and with external relevant networks to obtain knowledge. Connectivisim stresses that the important learning skills are the ability to seek out information whilst filtering out secondary or extraneous information (Siemens, 2008).

Literature Review
Connectivism's main strength lies in the fact that it bases its learning activities and theories on the internet which is becoming ubiquitous. But both Downes and Siemens also stress that the network does not necessarily have to be online or through ICT.

But is connectivism, despite the statements of its supporters, actually a learning theory? Some argue that it does not meet the key criteria for a theory including its ability to 'map out' an entirely new framework (Miller, 1993). Others think that connectivisim is more accurately described as revisiting older theories and making adjustments to reflect the new digital environments (Verhagen, 2006; Kerr, 2007a).

Connectivism has other limitations. These include that it does not address or adequately explain knowledge transfer (Kerr, 2007b). According to Verhagen connectivism is best positioned at the level of pedagogy and curriculum not as a stand-alone learning theory.

But despite these limitations connectivism aligns well with the move towards learner-centred environments where teachers act as guides or facilitators rather than in a directive and/or coercive role. This shift to student-driven learning could ultimately remove the teacher and institution altogether from the learning experience. However networks that removed both teachers and institutions alike but fostered knowledge development would still need to be diverse, open, autonomous and connected (Downes, 2007c).

But this view has being challenged with some criticising the lack of extension or challenge if learners are entirely in control of their own learning (Freire and Macedo, 1999; Norris, 2001). The literature makes clear that for learners to prosper in a personalised learning environment of this nature they would need high levels of confidence, autonomy and discipline (Kop, 2008).

Key Findings
Adult educators who are not well versed or comfortable with ICT could potentially lead to learners exiting from traditional delivery based education and forming their own learning networks to meet their learning needs. There is no guarantee that these learner-led networks would include teachers and institutions. Connectivism is not a discrete learning theory. It is best viewed as an important contributor to the emerging pedagogies which are shifting from teacher to learner-centred.

The Relationship Between Self-Regulation and Online Learning in a Blended Learning Context

Authors: Lynch R., and Dembo, M.

Background
Online learning is becoming more prevalent and growing rapidly, particularly in distance education (Bates, 1995, 2000; Kearsley, 2000; Edelson and Pittman, 2001). Self-efficacy was

defined in this study as individuals' judgments of their abilities to plan and carry out the necessary behaviours to achieve specific goals. Blended learning was defined in this study as courses that were delivered 75 percent online and 25 percent through traditional means.

The study outlined a theoretical framework which was based on five attributes identified in the distance education literature as important elements of distance learner success:
1. Motivation (Bates, 1995; Holmberg, 1995; Keegan, 1996; Pintrich and Schunk, 1996; Moore, 1998; Olgren, 1998; Kearsley, 2000; Schrum and Hong, 2002).
2. Internet self-efficacy (Joo, Bong and Choi, 2000; Schrum and Hong, 2002; Wang and Newlin, 2002a, 2002b).
3. Time management (Zimmerman and Risemberg, 1997; Gibson, 1998; Palloff and Pratt, 1999; Phipps and Merisotis, 1999; Roblyer, 1999; Kearsley, 2000).
4. Study environment (Zimmerman and Martinez-Pons, 1986; Whipp and Chiarelli, 2001).
5. Management and learning assistance management (Henderson and Cunningham, 1994; Holmberg, 1995; Hara and Kling, 2000; Wang and Newlin, 2002a, 2002b).

Methodology
94 learners from a large number of ethnicities and with an age range of 18-41 studying at one course at one university were selected for this study. The criterion variable for their online academic performance was their final grade expressed in percentage terms. The other relevant data was obtained through a questionnaire. The data was analysed by inferential and descriptive analysis within a non-experimental correlation research design using non random sampling.

Key Findings
This particular learner population and the nature of the course were identified as the most likely major influences on the study's outcomes. As a result the self-regulatory attributes selected by the authors as having a measurable impact on academic performance did not in this particular case.

But the study's results did demonstrate a strong correlation between self-efficacy and academic performance as demonstrated through grades. Learner autonomy (or independence) was a critical success factor in distance learning delivered online. This was strongly influenced by the key self-regulatory attributes selected by the authors.

Future Research
This should include a broader learner population with more emphasis on demographic variables and additional components of motivation not included in this study. Different course types should also be compared and contrasted e.g. blended vs. online, structured vs. less or unstructured to better assess the impact of the self-regulatory attributes discussed above on academic performance.

Designing for authentic relationships, content and assessment in unpredictable learning contexts

Authors: McGrath, A., Mackey, J., and Davis, N.

Background
E-learning has considerable potential to support professional development and life-long learning. To enhance learning opportunities e-learning should focus on authentic tasks. The learner should genuinely engage in course activities where the task and situation are integral to cognition and learning (Brown, Collins and Duguid, 1989). The expectation is that this learning will align with learners' work and personal interests, and be situated in real contexts (Ally, 2004; Anderson, 2006; McConnell, 2006).

But ensuring these objectives are met is difficult because the learning experiences are often ill defined and complex, may involve collaboration, and frequently lead to unpredictable and

diverse outcomes (Herrington, Reeves and Oliver, 2006). Teachers often lack the expertise to develop and manage these types of learning experiences (Sorensen, 2005).

Methodology
A case study approach was used on four e-learning courses. The data used for this study was from interviews, surveys, focus groups, and the course sites and outlines. Analysis was done manually and categories derived. Triangulation was used as a procedure to support validity of the data collected (Stake, 1995). Agreement among data (convergence) as well as inconsistencies and contradictions (divergence) were found and used as a way to uncover new issues and interpretations.

Key Findings
Learners' understanding of best practice in e-learning improved. Open student-teacher communication provided for flexibility as well as authentic and meaningful learning experiences. Learners valued the opportunity to choose learning and assessment activities that related to their real life contexts. They identified authenticity as a key enabler to help them make relevant decisions about their learning. Authenticity also promoted learners reflections and helped them make deep connections between virtual and real contexts.

In addition authenticity motivated them to work independently. This was important because learners with a high level of personal motivation and commitment were more likely to clearly define their learning goals and achieve them. In contrast learners lacking personal motivation and commitment were more likely to be unclear about their learning goals and have a strong focus on credit acquisition.

As learners completed their courses they increasingly adopted a more considered approach that facilitated the development of their learning goals. Flexibility was important because it was valued by learners. But it was important that flexibility was not provided at the expense of good course design. Learners had a strong preference for courses that provided clear frameworks and guidelines within which to work.

But there were problems with this approach. These included learners finding it difficult to initiate activities within the community and assume leadership roles in group/community tasks. Learners also found it difficult to keep track of the collaborative activities and the knowledge and outcomes generated within the community, and to manage time constraints within groups. This is because some learners needed more time than others to explore issues, experiment with the technology, or solve problems.

Open assessment where learners had to provide supporting evidence that demonstrated how they had met the learning outcome also proved challenging. Learners needed considerable support, guidance, and mentoring in order to supply appropriate and relevant evidence in the correct formats. But these problems were offset by the value placed on the accessibility and availability of shared expertise and knowledge and peer-peer and student-teacher support.

Research on Cognitive Load Theory and Its Design Implications for E-Learning

Authors: van Merriënboer, J. J. G., and Ayres, P.

Background
Cognitive Load Theory (CLT) is increasingly influencing e-learning (Kirschner, 2002; Paas, Renkel and Sweller, 2003, 2004). CLT has as its basic assumption that individuals possess a working memory with very limited capacity for novel information but they have an unlimited long term memory which stores cognitive schemas that vary in complexity and automation (Miller, 1956; Sweller, 2004).

This long term storage and the ability to automate complex schemas is where knowledge and expertise derives from, not from the incorporation of new material. These cognitive schemas also allow for the significant expansion of working memory. But this expansion is limited by novel, disorganised information. This is because the working memory must process this novel, disorganised information whilst the cognitive schemas are derived from the long term memory.

Literature Review

Cognitive load is categorised in the research literature in different ways. Intrinsic cognitive load is determined by the interaction between the nature of the materials being learned and the level of expertise of the learner. High levels of interactivity without the supporting cognitive schemas can make it difficult for learners to understand the materials.

In contrast, extraneous cognitive load is associated with processes that are not directly necessary for learning and can be altered by instructional interventions. For example, visual or auditory overload leads to additional extraneous cognitive load. But this can be alleviated through course design and teachers' pedagogies and practices (Penney, 1989). Finally there is germane cognitive load which deals with the processes directly relevant to learning including the construction and automation of cognitive schemas.

CLT theorists have argued that these different categories of cognitive load are additive (Paas et al., 2003). This means that the main instructional principle of CLT is (within the limits of total available processing capability) to decrease learners' extraneous load and increase their germane load. This has led to instructors increasingly taking into account learner expertise when they are manipulating intrinsic and germane cognitive load.

This has led in turn to greater emphasis being placed on adapting teaching to meeting the needs of individual learners (van Merriënboer and Sweller, 2005). The level of expertise and the desired learning outcomes are also important in the success of interventions. But these instructional interventions could be detrimental for low verbal ability learners (Wallan, Plass and Brüncken, 2004).

E-learning's cognitive load may be too high for novice learners and as a result seriously hinder their learning. Conventional methods to reduce this load are often unsuccessful. If this load is to be reduced it is important to introduce sequencing methods early in a student's learning.

The literature is placing more emphasis on actual courses. This has seen an increased focus on the importance of learner motivation, constructing appropriate schemas, and then automating them (Moreno and Valdez, 2004; Wallen, Plass, and Brüncken, 2004; Clarke, Ayres and Sweller, 2005; Paas, Tuovinen, van Merriënboer, and Darabi, 2005; Schnotz and Rasch, 2005).

But these methods whilst useful for novice learners may have no favourable (and in some cases unfavourable) impacts when applied to more expert learners (Kalyuga, Ayres, Chandler and Sweller, 2003). This can be mitigated by continual assessment of learner expertise (van Gog, Ericsson, Rikers and Paas, 2005; Kalyuga and Sweller, 2005; Morrison and Anglin, 2005).

Teachers can also increase the automation and construction of schemas by adopting more variable practice. This varied practice can be used to provoke learners into developing appropriate cognitive schemas or creating tasks that require active interaction with the materials.

Many e-learning applications are built around complex learning tasks. These are characterised by a large number of interacting elements. This is because of a belief that multi-media is superior to sole media (Moreno and Valdez, 2004). But these more complex multi-media environments mean that even after the removal of all sources of extraneous cognitive load, the element interactivity of such materials may be too high to allow for efficient learning.

To alleviate this problem with multi-media environments, a progression from simple to more complex materials in manageable chunks is suggested. Appropriate feedback from instructors is also needed to reduce the potentially adverse impacts of interactivity.

But Clarke, Ayres and Sweller indicate that these measures are only important if the more complex, combined task(s) represents a high level of element interactivity for the target group. These measures could be detrimental if this task represented a low level of element interactivity for the target group.

Motivation is critical in e-learning retention (particularly in a distance context). It is also important because it appears that lower task involvement is matched by lower mental effort and performance. In contrast higher task involvement has associated higher mental effort and performance. Efforts to increase motivation may be especially important to increase the germane cognitive load of learners (Paas et al., 2005).

Developing communities of practice amongst e-Learning students: A New Zealand story

Author: Nesbit, T.

Background
There has been extensive research about the role of communities of practice (COP) in knowledge sharing and management (KM). However the aim of this paper was to establish if a COP from the KM field can be applied within an e-learning context.

Methodology
This consisted of three phases: a literature review, interviews with a range of e-learning practitioners, and establishing linkages between the literature and the experiences of the interviewees.

Literature Review
There are two different approaches to information management: information based and interaction based (Iverson and McPhee, 2002). Strongly linked to the interaction approach is the COP. A COP has three elements. They are: mutual engagement to share knowledge, supporting resources for negotiating meaning and finally negotiating shared objectives.

Negotiating shared objectives is important in giving the COP coherence and purpose (Wenger, 1998). Creating shared objectives through negotiation can be achieved through stories, jargons, theories and forms.

Both tacit and explicit knowledge are important in a COP (Polanyi, 1996). Tacit knowledge can become explicit through externalisation in a COP (Nonaka and Takeuchi, 1995). The social interactions that enable this externalisation process are supported through knowledge networking and the creation of a COP (Skryme, 2001).

But the best learning or sharing of tacit knowledge requires social interaction which must take place in a traditional delivery environment (Nonaka and Takeuchi, 1995; Harris and Niven, 2002). This is because a more personal orientation is necessary to support and develop a learning community.

Achieving this personal orientation in an online environment is more challenging because of the difficulties in establishing effective interactions and supporting a community that has a shared sense of purpose. For example, the increasing use of electronic communication can contribute to learner alienation because there is less contact that is personally oriented and potentially more emphasis on a businesslike approach (Matheson, 2008).

Knowledge networking includes the design of a knowledge sharing workplace and practicing skilful dialogue and storytelling to encourage tacit knowledge development and sharing. But this is more challenging in a technology based environment because knowledge is stored when the context of the person who may need it is unknown (Nesbit, 2004).

Bloom's taxonomy described in Clark (1999) positioned learners and learning on a continuum. At the lower levels of this continuum learning was more about recall. In contrast at the higher level applying skills and knowledge to specific contexts is emphasised. However all levels are better supported where social interaction occurs within a purposeful community. This is easier to achieve in a traditional delivery setting compared to an online one.

Key Findings

Learners need to have chosen to enrol in a course or have some other form of mutual engagement such as shared experiences to enable the development of a community of practice. Social interaction that has a traditional delivery component is important for supporting communities in an online context. Learners need to be familiar with the supporting technology(s) for communities to emerge.

They also need to have a passion for the particular topic so merely enrolling is insufficient. This stronger engagement is also highlighted by more successful communities being comprised of learners wanting to extend and deepen their expertise. This is consistent with the research literature in regards to the important components in developing and maintaining a COP (Nonanka and Takeuchi, 1995; Wenger, 1998; Skryme, 2001; Harris and Niven, 2002; Iverson and McPhee, 2002; Matheson, 2008).

A Multi-sense Approach to Information Reception and Knowledge Creation in Learning

Author: Nooriafshar, M.

Background

Multi-media are an efficient way to transfer and/or receive information. This study aimed to ascertain learner preferences in a multi-media context.

Methodology

There were 100 US and Australian business students surveyed.

Key Findings

Most learners had a favourable view of using multi-media to support their learning. They preferred using the full range of tools. The most popular category of multi-media technologies had an interactive component. Learners also reported that using multi-media to support their learning took less time than text-based learning and had a positive impact on their understanding. This was particularly true for those learners who had considerable computer experience.

A strong ICT background should assist learners maximise their e-learning experience. Multi-media align well with the 'default' learner preference of using multiple senses for knowledge acquisition.

Cross Relationships between Cognitive Styles and Learner Variables in Online Learning Environment

Authors: Oh, E., and Lim, D.

Background

There has been a substantial increase in the number, and sophistication, of e-learning systems (Adam, Awerbuch, Slonim, and Yesha, 1997; Sofres, 2001; Jung, 2001; Levis, 2002). But despite the massive investment in these systems and their potential for increased educational

benefits there are still many controversial issues related to the effectiveness of online instruction. For example, can it meet the diverse requirements of learners?

In this study learner variables were defined as the factors that affect learning behaviours and outcomes of online learners. These factors included learning styles, attitudes towards ICT, technical competency to use online learning technology, experience with online learning, and preference of online delivery methods. Learning behaviours were defined as learners' active and/or passive interaction habits and patterns with learning materials, teachers, and peers.

Literature Review
Cognitive styles are the information processing habits of individual learners (Keefe, 1991). Several studies have concluded that addressing different cognitive styles is crucial if e-learning is to be effective (Blickle, 1996; De Raad, 1996; Vermunt, 1998). But others have indicated that cognitive styles have no impact if the learner is in an online environment (Truell, 2001; Wang, Hinn and Kanfer, 2001).

Methodology
Quantitative methods and associated data analysis were used. 104 undergraduate and post-graduate students were sampled across a range of courses at one university. The instrument used was the group embedded figures test. This consists of three sections with 25 items: the first section contains seven items for practice, and the second and the third sections each contain nine items for scoring.

The researchers also developed a learner attitude survey. Learners who had experience in both traditional delivery and e-learning were placed into the e-learning cohort.

Two cognitive styles were adopted for this study and utilised in a compare and contrast approach: field independent and field dependent (Witkin, Moore, Goodenough and Cox, 1977). A field independent person tends to perceive surroundings analytically, separating objects discretely from their backgrounds. In contrast a field dependent person tends to perceive things in a relatively global fashion, being easily influenced by a prevailing field or context (Witkin, Oltman, Raskin and Karp, 1971).

Key Findings
Learners' cognitive styles did not correlate with their preferences for instructional delivery mode. Their attitudes, online learning experience, or technology competence was also not significantly related to their cognitive styles. But learners who were experienced in online learning and competent with technology had a positive attitude to online learning and preferred it.

In contrast learners who had no or only partial online learning experience expressed concerns about a lack of engagement with classroom activities and an absence of feedback and interaction with teachers and peers. In an interesting finding all participants preferred reading a paper copy and taking lecture notes as a key learning strategy. This suggests a significant failure of online learning whereby students who prefer online learning are forced to apply inappropriate learning strategies when participating in it.

Limitations
Only one university was used. The other limitation noted was the size and makeup of the sample population.

Future Research
Research into the relationships between learner characteristics and online learning content presentation modalities is needed.

E-learning as a Tool for Knowledge Transfer through Traditional and Independent Study at Two United Kingdom Higher Educational Institutions: a case study

Authors: Owens, J. D., and Floyd, D.

Background

While learners may be familiar with internet technology some argue that they often lack the specific skills that would enable them to use it more effectively for educational purposes (Gladstone, 2000). For example, according to the 2005 Oxford internet survey most people went online to check emails or make purchases, while a significant minority used it to play games or look for jobs.

In contrast only a small minority (21 percent) used it for distance learning purposes. This was less than the number of learners downloading videos. The survey also indicated that 20 percent of learners read less as a result of the internet.

But despite this limited use of technology for educational purposes increasingly learners, teachers and institutions are coming to see e-learning as part of their daily business and even in some contexts as a value add (Gladstone, 2000). To assess their effectiveness learning technologies can be evaluated against intended outcomes (Jackson, B., 1998; Gladstone, 2000).

Knowledge management is important in this context. It was defined in this study as the management of processes that govern the creation, dissemination, and utilisation of knowledge by merging technologies, organisational structures, and people to create the most effective learning, problem solving, and decision making within an organisation (Argyris, 1993; McElvily, Das and McCabe, 2000; Rasmussen, 2000; Sallis and Jones, 2002). E-learning is seen as a key enabler for knowledge management and its transfer in the higher education sector (Owens, 2002).

The main focus of this study was on learner preferences. This overlapped with the areas of technology 'attractiveness' and efficiency.

Literature Review

The main findings from the literature reviewed for this study suggest that learners were enthusiastic about ICT, but took it more seriously when it was used to assess their work. However while learners were enthusiastic about using ICT this did not lead to significantly different learning outcomes.

This literature also suggests that organisational, logistical, and technical problems often meant ICT was not used to its full potential. To overcome these problems learning technologies must be fully embedded in a course and the learners must be provided with adequate skills and support (Laurillard, 1994; Turban, King and Chung, 2000).

Methodology

Three units across two university faculties were selected for the study. A questionnaire and informal interview with the relevant lecturers were the study's data collection instruments.

Key Findings

The course related website was used in many different ways to provide learner support. This website was also useful for the distribution and discussion of course related materials and to undertake assessments. However it appears that very few learners actually used the website. This may be because it did not provide opportunities for learners to demonstrate their learning or lecturers to monitor their progress.

The lack of assessments and learning related material may also have contributed to the low uptake. Relevant website activity should be an addition to face-to-face seminars. Learners

would be prepared to use the website for non-assessed work if it clearly contributed to their progress and/or future assessment and/or grade. Therefore the most appropriate form of online assessment appears to be a portfolio of activities that can be assessed on a pass/fail basis. But this assessment should not contribute to the final grade.

A Motivational Perspective on the Relation between Mental Effort and Performance: Optimizing Learner Involvement in Instruction

Authors: Paas, F., Tuovinen, J. E., van Merriënboer J. J. G., and Darabi, A.

Background
Large numbers of instructional theories stress the role of authentic tasks in driving learning (Merrill, 2002). But one of the major risks of these authentic learning tasks is learners may not be sufficiently motivated to deal with their complexity (Van Merriënboer, Kirschner and Kester, 2003). This complexity is exacerbated when these tasks are presented in e-learning environments because they impose high demands on learners' motivation and persistence (Frankola, 2001).

Cognitive Load Theory (CLT) has ignored the importance of motivation which this study aimed to address. CLT is concerned with the instructional control of the high cognitive load typically associated with the learning of complex tasks. The theory suggests that learning happens best under conditions that are aligned with a learner's cognitive architecture.

This 'architecture' consists of a working memory that is limited in capacity when dealing with novel information. But this capacity becomes effectively unlimited when dealing with familiar material because this is previously stored in schemas in an individual's long-term memory.

Literature Review
Cognitive schemas categorise elements of information according to the manner in which they will be used. These schemas are then used by individuals to assist them progress to higher levels of knowledge and expertise. After extensive practice they can become automated. This theory of knowledge acquisition and transfer underpins many innovative instructional methods that require less training time and mental effort to attain better learner performance.

Cognitive load is sub-divided into three categories: intrinsic, extraneous and germane. Intrinsic load is imposed by the number of information elements and their interactivity within the learning task itself. Extraneous load is imposed by information and activities that do not contribute to the processes of schema construction and automation. In contrast germane load is related to information and activities that foster these processes.

Intrinsic, extraneous, and germane load are considered additive because when they are taken together, their total load cannot exceed the memory resources available if learning is to occur (Paas, Tuovinen, Tabbers, and van Gerven, 2003). The essence of CLT is that instructional control of cognitive load can create an optimal balance between the intrinsic load of the task and the ineffective/effective load ratio of the instruction (Paas, Renkl, and Sweller, 2003). This is important because other studies have found that there is a detrimental effect on outcomes for novice and/or expert learners when teaching practices are not tailored to their differing levels of expertise (Tuovinen and Sweller, 1999; Kalyuga, Ayres, Chandler, and Sweller, 2003).

Paas and van Merriënboer (1993) argue that a combined measure of performance and mental effort data can be considered a reliable estimate of the relative efficiency of instructional conditions. Therefore instructional efficiency is high if increased performance can be attained with little mental effort. But it is inefficient if high mental effort is associated with low performance. But this does not take into account motivation. Where this is absent instructional efficiency is much less important.

Important variables identified as motivators for learner performance include perceived importance, usefulness and the value of engaging in a task. The engagement in a task can be influenced by its perceived difficulty. If it is seen as either too easy or too difficult this can impact on learner motivation.

But Fisher and Ford (1998) argue that individual motivation is determined more by intrinsic factors. These include goals, incentives, individual personality differences, and metacognitive knowledge.

Goal orientation has two key dimensions: learning and performance. Learning goal oriented learners are dedicated to increasing their competence on a task. In contrast performance goal oriented learners are more concerned with assessment so devote less metal effort to their overall learning (Button, Mathieu, and Zajac, 1996).

This link between mental effort and motivation is important. This is because the amount of mental effort invested in a certain learning task can be considered a reliable estimate of the learner's motivation or involvement in that task. Song and Keller (2001) argue that the amount of invested mental effort is a more accurate measure of motivational behaviour than self-report methods, which require learners to indicate their perceived motivation level.

Keller's Attention, Relevance, Confidence and Satisfaction model (1983) is important in this context. This model posits practice variability as being important for gaining and retaining learner attention and assisting with knowledge transfer because it requires additional mental effort.

Methodology
The authors developed a mathematical formula and standardisation techniques to calculate and measure learner motivation.

Key Findings
The two exploration practice groups showed the highest task involvement. This is consistent with the literature that shows that discovery and exploratory environments are motivating for learners.

The good prior knowledge exploration group showed the highest involvement score. This supports Salomon's conclusion (1983) that prior knowledge was related to condition involvement or motivation. In this case the trend appeared to be that the exploration practice provided greater involvement than the worked examples practice, and that this effect was strongest for the higher prior knowledge learners.

As an alternative explanation dynamic tasks may be more effective than non-dynamic tasks. This is because more advanced learners might not be motivated to invest mental effort in learning tasks that were designed for novices and therefore used approaches that were excessively structured, such as worked examples practice.

Limitations
An oversimplification in the linear relationship between mental effort and performance as these would inevitably plateau. The study also did not sufficiently take into account task difficulty.

Future Research
Further research could apply the motivational perspective to the data sets of other cognitive load studies. A multi-dimensional approach combining the mental efficiency and motivational perspectives also has potential for the advancement of adaptive training research.

Tertiary Students' Changing Access to Technology: Observations from a New Zealand University

Author: Pratt, K.

Background

Evidence shows that ICT has the potential to enhance education at all levels and as a result transform university teaching and learning (Brill and Galloway, 2007; Selwyn, 2007). But its use by institutions remains limited. This may be a result of staff reluctance to use it in their teaching practice (Jones, 2002; Selwyn, 2007).

In contrast to this staff reluctance Jones (2002) found 85 percent of college students surveyed had their own computer and 79 percent agreed that using the internet would have a favourable impact on their academic experience. Prensky (2001) argued that this disconnect between student and teacher was the result of different thinking between digital 'natives' (those growing up using ICT) and 'immigrants' (those who did not grow up using ICT).

But this is not a universally held view (Bennett, Maton and Kervin, 2008; Guo, Dobson and Pertrina, 2008). They argue that there may be more variation within the so called digital natives as between them and other generations. The technology noted below excludes the technology provided by the university. By 2008 there were 700 institutionally supplied computers available for learner use (up from around 400 in 2007).

Methodology

The University of Otago runs regular surveys of learners' ICT use. This paper draws on the 1999, 2002, 2005, 2007, and 2008 surveys. Between 2,265 and 9,277 learners have completed these surveys and the response rates vary from 14.9 to 59.3 percent. All the major departments were represented. Undergraduate students formed the majority. Learners in residential colleges were over-represented.

But the surveys broadly represent the University of Otago's learner population. Chi square analyses were used to determine various relationships between the learners and their computer use including year, location, and level of study.

Key Findings

The percentage of learners with computer access has increased. By 2008 it was 93 percent compared to 72 percent in 1999. This was slightly lower for non-residential college students (90 percent in 2008). The surveys suggest that many learners specifically purchase a computer or use other methods to obtain computer access to support their studies.

Fewer Humanities students intended to purchase a computer or had access to one (82 percent) than their Commerce and Science (85 percent) and Health (86 percent) peers. But this was a narrowing of the distance between the departments from 1999 and an increase in their overall access (Health, 52 percent, Commerce and Humanities, 64 percent, and Science 66 percent respectively).

First year students had less computer access than other undergraduate and postgraduate students (74 and 77 percent respectively). But higher numbers of first year students intended to obtain computer access (90 percent) than other undergraduate (83 percent) or postgraduate students (84 percent).

Increasing numbers of learners have a laptop. In 1999 14 percent had one but in 2008 this had risen to 47 percent. Health and Commerce students had higher laptop ownership than their Humanities and Science peers. First year (44 percent) and postgraduate (42 percent) students were slightly more likely to own a laptop than other undergraduate students (40 percent).

Commerce students (57 percent) were the most likely to regularly bring their laptops to campus. Health students (49 percent) were the least likely. In 2008 postgraduate students were less likely (44 percent) to bring a laptop to campus than first year and other undergraduate students (58 and 54 percent respectively). But by 2008 a majority (54.9 percent) of learners reported regularly bringing their laptops to campus up from 48.3 percent in 2007.

75 percent of learners had used or were intending to use the institution's virtual network (25 and 50 percent respectively). The numbers intending to use or actually using the free wireless internet service provided by the institution was higher (80.8 percent) and the numbers not intending to use this service decreased from 33 percent in 2005 to 4.4 percent in 2008.

Most learners had mobile devices (82 percent). Health and Commerce students (85 percent) were more likely to own these devices. But first year undergraduate students were the most likely to own these devices and postgraduate students were the least likely. A smaller majority of learners owned mobile devices that could play audio files (65 percent in 2008). Fewer postgraduate students (60 percent) owned these types of devices than first year and other undergraduate students (66 and 68 percent respectively).

But only a minority of learners had mobile devices that could play video files (38 percent in 2008). In 2008 Commerce and Health students (44 percent) were more likely to own these devices than their Science (37 percent) and Humanities (36 percent) peers. In 2008 postgraduate students were much less likely to own these devices (21 percent) than first year or other undergraduate students (41 percent).

Even fewer learners owned a mobile device that could connect to the internet (18 percent in 2008). In 2008 Commerce students (20 percent) were more likely to own these devices than their Health or Science (16 percent) and Humanities (15 percent) peers.

The E-learner Support Project: Measuring the worth of e-learner support systems: Developing a possible benchmarking method for evaluating effectiveness

Authors: Renwick, J., and Owen, S.

Background
This Ministry of Education funded research project mirrors similar overseas learner support services research projects. They found that institutions appear to provide levels of assistance across a range of factors which contributed to the ability of e-learners to complete their study programme. The key factors identified as part of this research project were the aspects of learners' support services that were likely to reduce the attrition of e-learners from their study programme.

Methodology
The participating learners were from three New Zealand universities and numbered about 300. A questionnaire based on a Likert scale response and rating system was used. To assess the quantitative data the Importance-Performance (I-P) analysis was used (Martilla and James, 1977). This approach measures 'customer 'satisfaction by comparing service expectations (importance) with actual experiences (performance).

The difference between actual and judged performance of an aspect was determined and a set of performance gaps (GAP) identified. These were used to generate GAP scores. A negative score indicated dissatisfaction with performance. A positive score indicated satisfaction with performance and a neutral score that expectations and needs were being met.

The qualitative data was initially content analysed with a standard code-capture-count method before identified statements were placed in logical relationships with each other. Where

possible, quotes that could be reliably identified as referring to the Likert-scaled statements were noted and later used in a summary assessment of the quantitative and qualitative findings.

The summary analysis focused on linking information to the trends revealed by the GAP scores. Overall, the relative standard error of the quantitative findings in this report was 8.51 percent at a 95 percent confidence interval.

Key Findings
The findings indicate that the tertiary organisations surveyed as part of this project were providing learner support services that approached the level of performance e-learners expected. However the research suggests that providers were likely not to be reaching the performance level that e-learners determined as optimum. The findings provide a useful bench mark that providers could use to gauge their performance across a range of factors which support the e-learner.

Technical assistance is the most important aspect of support for e-learners. The providers surveyed for this research project appear to be aware of the need to improve the delivery of this service because they are extending the hours that this assistance is available. Another important aspect of learner support was the email communication they received from teachers.

Limitations
It was not possible for this research project to randomly select a sample of e-learners from the 2004 national population of full-time, undergraduate, distance-based e-learners. Māori and Pasifika were highly represented in the population of interest at the tertiary provider who declined to participate. Consequently the student sample used for this research had a lower representation of Māori and Pasifika learners than the national population had.

The overall response rate to the e-learners survey was low. This low response rate in combination with an unrepresentative sample means the report's findings must be regarded as indicative only. Because of this it was not possible for the study to draw definite conclusions about the wider population of e-learners.

Interaction Equivalency in Self-Paced Online Learning Environments: An Exploration of Learner Preferences

Author: Rhode, J. F.

Background
It is becoming widely accepted that learning occurs through active engagement and interaction, not passive transmission. Interactions are widely understood to be a fundamental component of quality learning environments that can significantly enhance the students' learning experience (Kearsley, 1995; Sherry, 1996; Mezirow, 1997; Jonassen, 1999; Brown, S. W. and King, 2000; Flottemesch, 2000; Picciano, 2002; Garrison and Anderson, 2003; Rovai and Barnum, 2003; Dobrovolny, 2006; Juwah, 2006; Wiley, 2006). In contrast when these interactions are absent the learning experience is degraded (Bibeau, 2001; Howland and Moore, J. L., 2002; Mann, 2005; Wanstreet, 2006).

But interactions are more than just communications. They cover a whole range of processes. The design and implementation of interactions that are engaging and stimulating for learners but that take into account their different preferences as well as the affordances of particular technologies remains a major challenge for institutions. Learner preferences should be the main determinant of facilitating these interactions, not the technology.

The underpinning theoretical model for this study was Anderson's 2003 Interaction Equivalency Theorem. Deep and meaningful formal learning is supported as long as one of the three forms of interaction (student to teacher, peer to peer or learner to content) is at a high level. The other

two that are not at a high level can be offered at minimal levels, or even eliminated, without degrading the educational experience.

However, high levels of more than one of these three modes will increase the likelihood of a more satisfying educational experience. But these may not be as cost or time effective as less interactive learning sequences (Anderson, 2003).

Using this theoretical model the study aimed to explore learner preferences of the various interactions they engaged in during a self-paced online course. It questions the assumption espoused by Anderson (2003) that a measure of equivalency exists among these commonly identified forms of interaction in an online learning environment.

This is important as some institutions think that peer-peer interactions can replace instructor-student interactions within e-learning environments. But there is limited empirical evidence to support this view. This lack of evidence also makes it unclear as to what would be the preferred approach because it is not certain what value learners place upon the various types of interactions in a self-paced learning environment.

To address these concerns the study posed the following questions:
1.   What forms of interaction do adult learners engage in most in self-paced online courses?
2.   What forms of interaction do adult learners value most in self-paced online courses?
3.   What forms of interaction do adult learners identify as equivalent in self-paced online courses?
4.   What impact do adult learners perceive interaction to have on their self-paced online learning experience?

Literature Review
Institutions are seeking to develop more flexibly paced teaching and learning models that provide learners the freedom to customise aspects of the learning experience to meet their personal and educational preferences (Twigg, 2003; Dron, 2007; Kahn, 2007; McLoughlin and Lee, 2008b). However these self-paced models have been criticised for their lack of guidance. But despite this criticism these models do offer significant benefits for learners as they enable them to have more control of their learning (Anderson, Annand and Wark, 2005).

The online environment also offers learners access to content and experts beyond what is offered by the institution to further support and enhance their learning experience (Dalsgaard, 2006; Dron, 2006; McLoughlin and Lee, 2008a). The perspectives of learners about their interactions within learner-paced education models was notably absent from the literature (Anderson et al., 2005). This is a concern as insufficient or ineffective interaction can lead to learner isolation, whereas exorbitant levels may lead to overload or frustration.

Methodology
The number of participants in the study was 10. They were adult learners enrolled in a fully online professional development certificate programme offered by a private, higher education institution located in the north-eastern region of the US. A mixed methods approach was used based on qualitative and quantitative data from semi-structured, in-depth interviews. These interviews were conducted near the conclusion of the course to record the learners' perceived value of various modes of interaction as well as their interaction experiences and preferences.

Key Findings
In respect to the first research question participants self-reported that they engaged most frequently and actively in interactions involving either the course content or instructor. These interactions occurred at both a formal and informal level. Informal interactions were as important as formal in determining their overall quality.

For the second research question learner-learner interactions were seen as significantly less important. This suggests that peer-peer collaboration is not valued by learners. This also indicates that peer-peer collaboration is unlikely to compensate for well-designed content and active instructor involvement.

In respect to the third research question learners reported that interactions with the instructor could potentially be diminished and compensated for through increased quality interactions with content. Participants unanimously reported that a self-paced format was a critical factor because it enabled them to enrol in an online program of study. Participants generally reported the activity of blogging as equivalent or superior to asynchronous discussion via the institutional Learning Management System.

In respect to the final research question participants confirmed that interactions were a critical component of a quality, self-paced, online learning experience. They supported increased student-instructor interactions. But they also supported the above findings by indicating the importance of learner-content interactions. Responses to this final research question also aligned with the other findings by participants reporting that they were willing to forgo peer-peer interactions to preserve the flexibility of their self-paced studies.

Future Research
Further studies will be necessary to explore whether these or similar hypotheses are confirmed in alternative settings. For example, future studies should expand the types of courses and contexts. They should also incorporate alternative course structures and pedagogies e.g. those with more instructor interactions and those with less.

Whether learners accept or reject interaction equivalency also needs to be confirmed. Newer asynchronous technologies such as weblogs also need further exploration. Finally, it would be beneficial to learn in future studies what impact course size has on the self-paced online learning experience.

Engaging distance in learning: What matters to students, what motivates them and how can engagement in learning be fostered?

Author: Ross, C.

Background
Learner retention, engagement and success are important for the New Zealand government and Tertiary Education Organisations. Retention has been the subject of much research. This research consistently shows the challenges associated with trying to achieve higher levels of learner retention in distance education.

Lower levels are in part attributable to student isolation (Ross, 2008). Recently there has been an increased focus on engagement as fully engaged learners are more likely to persist and be successful regardless of the delivery mode (Kuh, Kinzie, Buckley, Bridges and Hayek, 2006).

But engagement is more than simply the outcome of learner effort. Certain conditions and activities must be met for successful learner engagement. These condition and activities sit within institutional structures and cultures (Kuh, Kinzie, Schuh, Whitt and Associates, 2005) and include student-teacher and peer-peer relationships, learner motivation, and factors external to the learning environment (McInnis, 2003; Umbach and Wawrzynski, 2005; Schuetz, 2008).

Literature Review
Institutions play an important role in successful learner engagement (Kuh et al., 2005). For example, they can provide comprehensive learner support such as bridging and learning to learn programmes. These are particularly important for first-year students. These programmes have more value if they are embedded in discipline specific content (Zeegers and Martin, 2001; Kuh,

et al., 2006; Pittaway and Moss; 2006; Reason, Terenzini and Domingo, 2006; Youl, Read and Schmid, 2006).

Learners need to feel accepted by their peers and the wider institution if they are to achieve optimal outcomes (Deci and Ryan, 2000; Read, Archer and Leathwood, 2003; Johnson, Soldner, Leonard, Alvarez, Inkelas, Rowan-Keynon and Longerbeam, 2007). Teacher attitudes and behaviours that include being approachable, organised, well-prepared, and sensitive to learners' needs are also critical in fostering increased and improved learner engagement (Kuh et al., 2005; Umbach and Wawrzynski, 2005; Kuh et al., 2006; Reason et al., 2006; Bryson and Hand, 2007; Mearns, Meyer and Bharadwaj, 2007).

Peer mentoring programmes can also lead to improved learner outcomes (Glaser, Hall and Halperin, 2005; Dewart, Drees, Hixenbaugh and Thorn, 2006). Some argue that peer support is more important than teacher support because it of its role in achieving learner engagement. Learning communities and group learning are the most commonly used methods to encourage and foster this peer group support (Moran and Gonyea, 2003; Zhao and Kuh, 2004; Krause, 2005; Umbach and Wawrzynski, 2005; Lambert, Terenzini and Lattuca, 2007).

But learner motivation is necessary if these external support mechanisms are to achieve their objectives (Yorke and Knight, 2004; Ainley, 2006; Scheutz, 2008; Simpson, 2008). Differing reasons for learner motivation highlighted in the literature include an intrinsic interest in the subject, particular personality traits, and self-efficacy (Fazey D. and Fazey J., 2001; Yorke and Knight, 2004; Caspi, Chajut, Saporta and Beyth-Marom, 2006; Llorens, Schaufeli, Bakker and Salanova, 2007; Venturini, 2007).

Even where optimal levels of peer, teacher and institutional support are provided and learners are motivated their engagement can be undermined by external pressures and events such as family demands and employment commitments. These external pressures are likely to have a greater impact on learners who are studying part-time and/or through distance education (Kasworm, 2003; McInnis, 2003; Krause, Hartley, James and McInnis, 2005; Ross, Bathurst, Hoy-Mack and Zajkowski, 2006; Earle, 2008; Ross, 2008; Scott, 2009).

Methodology
A case study methodology involving one New Zealand institution was used. The learners that comprised the study's population sample were those enrolled for the first time at the case study institution. Data was collected through a survey, an associated questionnaire and semi-structured interviews.

The response rate to the survey and its associated questionnaire was nine percent (n = 82). Of this nine percent 52 percent were female, 10 percent Māori and six percent Pasifika. Only six percent were aged 20 or under. The majority were part-time and studying at certificate level (73 and 52 percent respectively). 10 learners (six females and four males) participated in the semi-structured interviews.

Learner motivational needs were measured using 24 items based on Deci and Ryan's (2000) self-determination theory which is underpinned by learner competency, agency and relatedness. The data was analysed by a statistician using SPSS.

Data was categorised by importance with high importance items being those where over 80 percent of respondents thought they were important or very important. Medium was where 50-79 percent of respondents thought they were important or very important. Low importance items had less than 50 percent of respondents saying they were important or very important.

Key Findings
Items deemed most important by learners were:
- Teacher feedback that assisted learning and was timely and personalised.

- Having prompt access to relevant resources and helpful advice and guidance.
- Learning interactions within the wider institution.
- Being challenged by their subjects.
- Applying what they had learned into practice.

The importance of teacher support was further demonstrated by learners noting that its absence could influence their decision on whether or not to continue with their studies. Teachers could also encourage learners to work independently as well as recognising their prior knowledge and external commitments and responsibilities.

However other learners enjoyed and gained value from peer-peer interactions. Using the internet also allowed learners to become more independent because they were not reliant on teachers, their peers, or the institution to access resources.

Items deemed to be of medium importance included learning support services being available in a timely manner and being given information and guidance on how the supporting systems worked. But despite this relative importance many learners did not use these support services. Reasons for this varied. Many learners were able to manage independently, while others perceived them to be inconvenient. Learners also relied heavily on non-institutional support such as family, friends and employers.

Only three items were deemed to be of low importance. They were being encouraged to work with their peers, questioning teacher practice, and having their culture respected.

The most important items that assisted learner motivation were:
- Knowing where to get help.
- Taking responsibility for their learning.
- Knowing how to apply what they were learning.
- Setting high standards.
- Knowing how to achieve their goals. These goals added more motivation for learners where they were related to their work or career.

The medium importance items that assisted learner motivation included feeling valued as a person, knowing how to use the library to support their learning, and feeling accepted by teachers. Of lesser importance was questioning teacher practice, knowing how to help other students with their learning, feeling comfortable with other learners, and being open to different perspectives.

The least important items were learning alongside other learners, feeling accepted by them, socialising with them, and taking on leadership roles. Learners used their own time to study and gain greater understanding of difficult content as well as accessing resources. This was at the expense of more frequent social contact with their peers and the wider institution.

The most important external pressures that influenced their study were: finances, work commitments, and non-institutional study or socialising. The effect of these pressures was reduced not only by their own motivation but also by strong support from family and employers.

Limitations
As this research only had 82 first-year students at one institution its results must be interpreted with caution. Its findings cannot be generalised to other distance, blended, or fully online tertiary teaching and learning environments.

The undergraduate experience of blended e-learning: a review of UK literature and practice

Authors: Sharpe, R., Benfield, G., Roberts, G., and Francis, R.

Background
This literature review was undertaken by the authors on behalf of the United Kingdom's (UK) Higher Education Academy (which is the equivalent of New Zealand's Ako Aotearoa).

Methodology
The authors used a best evidence synthesis to identify the literature used in this review. The following inclusion criteria were used to select its studies:

- It had to have been published since 2000.
- It had to include scenarios which blend technology with traditional delivery teaching and where technology was embedded in the course.
- It had to report on the experiences of undergraduates.
- It needed to be representative of UK learning environments.
- It had to have clear rationales and/or objectives.
- It had to include an evaluation of the learner's experience.
- It had to have a justified and rigorous evaluation methodology.

Interviews were used to give access to unpublished literature and to reveal practices that were not part of the published literature. These interviews were conducted with seven institutions. These institutions broadly represented the university sector. They included universities that were research-intensive, as well as those that had a strong metropolitan focus, and others that served a broader, regional area.

Key Findings
The review did not give a specific definition of blended learning but focused instead on eight dimensions that were implicit in the definitions found in the literature. These eight dimensions included: delivery, technology, locus of control, participants' roles, and pedagogy.

From the institutional visits and the review of course evaluations, they observed that there were two ways in which the term blended learning was being used by institutions. The most common one was the provision of supplementary resources through an institutionally supported virtual learning environment.

The second, (but far less common), manifestation of institutional blended learning were impressive examples of transformative course level practices that were underpinned by innovative course designs. These often made use of technology to facilitate appropriate and relevant interactions and replace other delivery modes.

The literature showed that learner responses were overwhelmingly favourable towards the provision of online course information and resources to supplement traditional delivery. Learners made regular and frequent use of electronic resources. There were few reported problems of access. Learners particularly valued the flexibility of a blended approach because it allowed them access both from home and on-campus.

The impact of the provision of course notes online was discussed in relation to support for learners with disabilities and the possible impact on attendance. Learners were also concerned about the costs associated with their downloading and printing.

They were also critical of inconsistent use of blended delivery between teachers and modules. Learners' concerns about inconsistent use are supported by evaluations of redesigned courses. These evaluations suggest that while learners recognised the value in the blend of traditional delivery and technology, there were large individual differences in how they experienced this.

It seemed to be important that learners understood the role of technology in their learning and the implications for their study strategies and engagement in learning activities. Individual differences which appeared to be important were prior experience and attitudes towards using computers within learning.

Future Research
1. What is the reality of the learner experience of flexible studying?
2. Which type(s) of lecture notes have the most impact in supporting learning and when are they best utilised?
3. What is the learner experience of blended learning across a degree level programme (or similar time frame)?
4. More purposive sampling of specific learner groups which are currently under represented in the literature, including disabled, mature, working, part-time, and international students.
5. Student conceptions of the learning process and their role within it.

Learners' Perspectives on What is Missing from Online Learning: Interpretations through the Community of Inquiry Framework

Authors: Stodel, E. J., Thompson, T. L., and MacDonald, C. J.

Background
ICT is becoming integral to teaching and learning. It offers not only the opportunity for new delivery mechanisms but potential transformation of the learning experience (Salmon, 2000; McConnell, 2002; Anderson and Elloumi, 2004). But this is not being matched by similar increases in understanding of how it might best be applied (DeBard and Guidera, 2000; Burge and Haughey, 2001; Garrison, Anderson and Archer, 2001; Pawan, Paulus, Yalcin and Chang, 2003; Garrison, Cleveland-Innes, Koole and Kappelman, 2006).

The main purpose of this study, based on the authors' experiences at universities, was to identify from learners perceptions what is missing from e-learning and use this to provide recommendations for how it could be improved.

Literature Review
The literature has identified that many learners miss the face to face contact or presence when participating in online courses (Bibeau, 2001; Tu and McIsaac, 2002; Garrison and Cleveland-Innes, 2005). The importance of teacher presence to learners is also supported by other studies that have identified it as a key factor in their success in e-learning environments (Garrison, Anderson and Archer, 2000; Bibeau, 2001; Rovai, 2002; Tu and McIsaac, 2002; Aragon, 2003; Garrison, 2006).

Presence in this context consists does not refer merely to the physical presence of teachers and learners. It also includes cognitive and teaching presence (Garrison et al., 2001).

Methodology
The sample population for this study was 23 learners consisting of 20 females and three males from one course at a Canadian university. 10 (one male and nine females) agreed to participate in follow up interviews. This data was analysed by the constant comparative method. The study did not compare those who wanted more face-to-face with those who did not and there was also no account taken of cultural or gender differences.

Key Findings
The major themes identified by learners as to what was missing from e-learning were:
- Robustness in online dialogue.
- Spontaneity and improvisation.
- Perceiving and being perceived by the other.
- Getting to know others and learning to be an online learner.

For many learners the quality of online discussions when compared with face-to-face was poor. For example, the time lag eliminated the energy and emotion that were present in quality face-to-face interactions. The benefits of asynchronous communication particularly its ability to encourage and support reflection were offset to a large extent by the online 'silence' leading at times to feelings of isolation.

The more focused nature of the dialogue had a mixed reaction from learners. The fact that an online environment lacked spontaneity was seen as a negative consequence of this more focused dialogue. Awaiting responses from others was also not well received by learners. But learners did not frequently use the synchronous chat room provided as part of the course either. This was largely due to the difficulties associated with having a conversation in this context. These difficulties included learners not being able to type fast enough.

The lack of face-to-face contact also led to trust issues with learners feeling they did not have an accurate picture of their peers. As a result they were not able to assess their intentions. This also applied to learners feeling that their online image did not necessarily equate favourably with their face-to-face image. However other learners did feel a sense of community. The collegial nature of the teachers' relationships was a major factor in this.

Some learners felt that in an online environment they did not benefit to the same extent as a face-to-face course from the teachers' expertise. They also missed the opportunity to establish a more informal relationship with their teachers which many felt would have benefited them both personally and professionally.

For many learners this was their first e-learning experience. Because of this they lacked the confidence to engage in it. Many felt a vague sense they were 'behind' due to their perceived lack of knowledge and experience. There were also a number of concerns expressed about online postings with many lacking the confidence to do this to a standard they would be happy with.

Impact of Communication Patterns, Network Positions and Social Dynamics Factors on Learning among Students in a CSCL Environment

Author: Sundararajan, B.

Background
Computer-mediated communication supported by a range of technologies is becoming an increasingly common supplement to traditional delivery. As these technologies become more integrated into the day-to-day activities of tertiary teaching and learning it is important to understand learner learning, behaviours, and attitudes towards their use (Fishman, 2005).

According to some of the literature the relationship of actual measures of interaction and performance is mixed and is largely dependent on the measures used. This requires further study (Picciano, 2002). The aims of this study were to identify individuals within the group/class that were central to it and were sought by their peers for gaining knowledge or information pertaining to the course material.

The study aimed to confirm or disprove the following hypotheses:
1. Betweenness centrality from use of email and Instant Messaging (IM), among students in a computer-supported collaborative learning (CSCL) environment will positively impact respect and influence among the class members.
2. Presence of social dynamics factors like respect and influence gained from email and IM communication among students in a CSCL environment will positively impact the

students' motivation to participate and interact in class discussions via instant messenger chats and bulletin board message postings.

3. Motivation to interact and participate in online discussions, gained from perceiving respect from peers and influence in class matters gained from email and IM communication among students in a CSCL environment will positively impact the students' self-perception of knowledge gained.

4. Motivation to interact and participate in online discussions, gained from perceiving respect from peers and influence in class matters obtained from email and IM communication among students in a CSCL environment will positively impact students' satisfaction with their performance in the course.

5. Motivation to interact and participate in online discussions, gained from perceiving respect from peers and influence in class matters obtained from email and IM communication among students in a CSCL environment will positively impact students' confidence of getting an A in the course.

Literature Review

Online learning has often being portrayed as the solution to solve four separate problems; growing enrolments, decreasing institutional income, the increasing demands by learners for more flexibility, and the ability to deal with the vast growth in available knowledge (Race, 1998; Land, 2002). In response to this institutions and teachers have constructed interactive environments that are often based around learning communities/communities of practice.

Learning communities are important because there is a growing consensus that knowledge is socially constructed rather than acquired through experts (Vygotsky, 1978; Scardamalia and Bereiter, 1996). Online learning communities can often become networks that facilitate social interaction and enhance social presence. This in turn can lead to social learning and knowledge construction (Wellman, 1997). According to Yildiz and Chang (2003) the quality of feedback in these online environments is superior to those in traditional delivery settings.

Methodology

The number of learners in the study's population sample was 45 (with slightly more females). The majority were working professionals who were studying off campus. Most were over 27 years of age. The majority had taken a distance course before and were therefore familiar with the supporting technologies.

Survey data was collected from eight courses over a period of three semesters. All items were measured using a seven-point Likert scale with seven being most helpful or completely agree, four being neutral and one being least helpful or completely disagree. Social network analysis was used to determine the frequency and importance of the various communication tools and learner interactions.

Frequency was used as a proxy for participation to help determine what the preferred communication tools were for learners when they formed social network structures. It was also used to determine if the central individuals in these networks had influence in associated group/class projects.

Structural equation modelling was then done to see if the respect and influence gained from network positions motivated these particular learners to actively interact and participate further in group discussions. This would also help determine whether these discussions would have a perceived effect on the conceptual and new knowledge gained by them as well as having an impact on their confidence in doing well in the course, and their satisfaction with their performance in the course.

Key Findings

The results of the study only partially supported Hypothesis 1. The betweenness centrality from use of email and IM had a relatively higher positive impact on influence among class members than it did on the respect gained from class members. But the results of the study did support Hypothesis 2. Respect and influence did have a favourable impact on learner motivation to participate in class discussions that used CSCL tools like IM and email. This participation assisted their learning process.

The results of the study only partially supported Hypothesis 3 because while respect gained amongst class members motivated the learners to participate (Hypothesis 2), it did not have a significant effect on knowledge gained. It also had a significantly favourable impact on knowledge gained.

Hypothesis 4 was not supported by the report's findings. Learners, who were new to a class or group, earned their respect by doing their assigned parts of a group task well and to the group's satisfaction. They earned their credibility by performing and were motivated to perform in anticipation of acceptance by the group. This is particularly the case among newcomers who strived for perceived respect and influence within the group.

Hypothesis 5 was also not supported by the report's findings. This is because the motivation to participate and interact in online discussions gained from perceived respect and influence among class members did not have a significant effect on the learners' confidence of getting an A in the course.

Respect may be there as a result of past achievements or may be earned by the individual during the process of collaboration. In the case of distance learners, respect will primarily be gained from networked communication when the students interact with one another.

However it is possible that they may already know one another from previous interactions. These previous interactions could include taking similar courses before, coming from the same high school or working in the same organisation.

Students' experiences using online support sites in New Zealand tertiary education

Author: Thompson, J.

Background

Learner support can be divided into two main areas: academic and non-academic. Academic support assists learners with their cognitive, intellectual and knowledge issues. Non-academic support deals with affective and organisational matters (Simpson, 2002).

The greater range and increased diversity of learners' means more flexible support services are required (Simpson, 2003). There are also requirements from education agencies to improve student completions and performance (Ministry of Education, 2002; Prebble, Hargreaves, Leach, Naidoo, Suddaby and Zepke, 2004; Manalo, 2007). As a result New Zealand institutions are increasing their learning support services (Hoffman, 2002).

However this support needs to be delivered and managed differently to cope with the increasing numbers of part time online learners who are often combining study with work and family commitments (Smith, 2007; Macdonald, 2008). If support services are provided online they can also assist those learners who are under-prepared, to access tertiary study (Ryan, Scott, Freeman and Patel, 2000). But many learners who may need or benefit from this online support do not have access to it (Knapper and Cropley, 2000; Sotto, 2000; McNally, 2007).

In this thesis learning support refers only to academic support. This research is intended to address a limitation in the literature around learners' perspectives of using online academic support services by examining and reporting on their experiences of using online learning sites.

The research questions used to address this objective were:
- What do students think of the accessibility, structure and navigation features of the learning support site?
- How do students make use of the site's resources?
- Why do students use the site?
- What are students' perceptions of their experiences using learning support resources in an online environment?

Literature Review

According to Bates (2005) much of the literature focuses on technology not student learning experiences. The literature related to online learning support tends to focus on distance learners (e.g. Simpson, 2002; Tait, 2003; Thorpe, 2003; White, 2003; Tait and Mills, 2005; Macdonald, 2008). But online support also provides an opportunity for other groups apart from distance learners who have been previously excluded from these services to access them e.g. disabled and part-time students (Mills and Tait, 1996; Bowker and Tuffin, 2002).

But it is not just previously excluded groups who want to access online support. Some argue that all learners are increasingly expecting to be able to access online support services (Mills and Tait, 2000; Phillips, 2003; Thorpe, 2003). But the variability in technical support and accessibility and learners' online expertise raises equity issues. It is difficult to guarantee that all learners will have equal access to support staff in an online environment.

Learner support is more than just basic skills acquisition (Gibbs, Morgan and Taylor, 1988; Chanock, 1995; Hoffman, 1998). It is important that learners receive ongoing support so they can acquire academic literacy, and become independent learners (Ballard and Clanchy, 1988; Street, 1995; Harvey and Watt, 1999).

This support can also help learners develop closer relationships with faculty which is critical to their academic success (Tinto, 1987, 1995; Nightingale, 1998). In an online context, course specific advice is also necessary.

While offline learning support strategies are useful, in an online context learners may require additional assistance. This includes navigating and searching the internet as well as evaluating and referencing its information.

Some learners will also require considerable learning support to overcome the challenges of working independently, away from the discipline of scheduled lectures and tutorials. But while technology may require extra skills from learners it can be used to support them to become more independent (Barker and Tucker, 1990).

A well designed learning support site can enable students to personalise the course material and be self-paced in their learning. It can also help break down barriers because learners may be more comfortable accessing online rather than on-campus services.

Support to successfully use online environments can be built into the course (Hicks and Leask, 2000). Online environments can also support learners in their acquisition and construction of knowledge (Jonassen and Wang, 1993).

According to Bates (2005) technology can also be used to more effectively monitor learner progress and then assist them in mastering the necessary learning requirements. But effective learning support requires individual diagnosis and feedback by teachers and/or specialist

advisers. This dialogue between learners and teachers and/or advisors can be enhanced by the use of synchronous and asynchronous technologies.

In providing effective online support services it is important that teachers understand who their students are and do not treat them as a homogeneous group (Morgan, 1993; Evans, 1994; Viskovic, 2000). Bates (1997) argues that it is important for teachers to determine whether there are groups of learners who benefit more than others from e-learning.

But if online support services are over-used it can also lead to problems around work load management and unrealistic expectations by learners on when and how they will be responded to (Mason, 2001). More interactive learning environments are likely to change the traditional role of learning support advisors. Institutions that provide both traditional delivery and e-learning also face a major challenge in providing high quality learner support in part because different resources, processes and skills are required for these different environments.

Teachers also face additional challenges including the acquisition of different skills and providing emotional and one-on-one support for learners. Support staff will also need different skills because in an online environment they are likely to miss non-verbal cues that reveal a learner's level of understanding, stress, or hint of undiagnosed problems (Robbins, 1999; Chanock, 2007; Mason and Rennie, 2008).

Early efforts in online support services were not always successful because many institutions and their staff merely transferred static resources to the internet with minimal adaptation (Clerehan, Turnball, Vance, Brown and Moore, 1999; Oliver, 2001). To be successful a range of subject specific and generic resources must be provided (Hicks, Reid and George, 1999; Hicks and Leask, 2000).

Caution also needs to be exercised around assumptions that learners only want one medium for support services. For example, Phillips (2003) noted that learners wanted online support as an additional choice or option to traditional services not as a replacement for them.

Much of the early work in learning support was around addressing actual or perceived deficiencies that would prevent learners being successful in academic environments (Chanock, 1995; Nicholson, 1999). As a result this support was often marginalised and separated from the mainstream faculty. This hindered rather than promoted successful learning (Tinto, 1987; Nicholson, 1999; Crozier, 2007). This can be addressed by learning support staff working more closely with faculty (George and O'Regan, 1999).

But it is likely to be more successful if support is reconceptualised away from remedial type work to supporting learners' acquisition of academic literacy skills and competencies (Chanock, 1995). This wider view is supported by learner expectations that support services are for the majority not remedial services for the few (Kenworthy, 2000).

The increasing move to online environments may also increase the importance attached to learning support (Mills, 2003). Tait (2000) identified three primary functions for online learning support: cognitive, affective and systemic.

Cognitive support facilitates learning through the mediation of generic course related materials and personalised learning resources. Affective support assists learners by creating communities and enhancing self-esteem. Systemic support services establish administrative processes and information management systems which are effective, transparent, and learner-friendly.

Methodology

A total of 95 learners from Unitec (35) and Massey University (60) participated in the study. The quantitative data came from online questionnaires and surveys. Pre-testing was carried out

on the surveys to detect any problems with their instructions, design or wording. The qualitative data was derived from semi-structured interviews. Participation in both the survey and interviews was voluntary.

Nine learners took part in the interviews. The response rate at Unitec to the questionnaire was approximately 17 percent. For Massey University it was 18 percent.

The questionnaire data was coded numerically and tabulated. For Unitec it was then analysed using descriptive statistical calculations such as frequencies and ages. But the Massey University data was computer scored. The interview data was subjected to thematic analysis the purpose of which was to identify important concepts or categories and examine them in relation to the rest of the data and context.

For validity the research used two triangulation methods. This involved multiple data collection methods, different institutional contexts, and allowing interview participants to check the transcribed data. Peer feedback also informed the process.

Key Findings – Unitec
20 percent of respondents used the online support as their first choice and just over 25 percent used it instead of its on-campus equivalent. The flexibility it provided was a major reason behind learner use. Other reasons for learner use included its alignment with online courses, the quality of the resources, and a preference for learning on their own. But a small minority preferred this type of support because accessing it face-to-face was seen as too daunting. Online support was also used by learners to assist with subject-specific areas.

Most learners found the services easy to locate. The majority accessed learning support from the institutional Learning Management System. But a large minority (37 percent) were informed by a tutor. Only a minority (20 percent) accessed it via specific publicity from the Learning Support Centre and only three percent found out about the services from their peers.

Most found it easy to navigate the site because they found its instructions helpful and easy to follow. The site was well used with 80 percent of respondents having used it more than once and just over half more than 10 times. Just over half the learners used the resources in situ rather than simply downloading or printing them. The most useful resources were academic writing, tertiary study tips, note making, oral presentations, memory tests, and exams.

Business and general mathematics, and computing were the specific resources most used. The least used resources were time and study management, and oral presentations. But the resources deemed least useful were staff information and nursing. The use of the resources was consistent with the wider research literature (e.g. Clerehan, Moore and Vance, 2001).

85 percent of respondents believed their use of online support had made a favourable difference to their studies. Nearly two-thirds said it helped them better understand programme content. One third said it was likely to increase their retention and chances of completion. Programme expectations were clearer according to half the respondents.

Just over one third stated that they had more confidence to attempt difficult study areas and it gave them more effective study techniques. 40 percent stated that it improved their assignment and exam grades. 31 percent believed it improved their academic writing skills.

Key Findings – Massey University
A large majority of respondents found the site easy to navigate. As a result it was easy for them to find information on the online support site. However 12 percent found the site disorienting. This could be improved by a more coherent site structure including better use of headings.

The most valued resources were those relating to written assignments. This was reflected in the specific information deemed to be most important: writing essays, referencing, test, and note-taking. Information about the Learning Support Centre, postgraduate study skills, and mathematics resources were the least valued by respondents. Other important information noted by respondents included exam and study skills, grammar and spelling, writing literature reviews, and thesis structure.

40 percent used the resources in situ while 25 percent stored them electronically for further reference. This was slightly less than those printing off the resources (27 percent). Just over half the learners only accessed the areas that would support their particular study. 78 percent thought the resources provided sufficient detail. One third of learners used the site at least six times and nearly half (49 percent) between two and five times.

However, only five percent used the site more than 10 times. But while they accessed the site less frequently Massey University students used it longer than their Unitec peers. This could be because of the additional complexity of university assignments.

88 percent believed that the site had made a difference to their academic success. The majority of learners (61 percent) agreed that online support provided a stimulating learning environment. However 22 percent disagreed or strongly disagreed with this and 17 percent were undecided. But the vast majority of learners (93 percent) thought using online support encouraged them to be independent learners.

61 percent reported that it made no difference to their motivation levels in comparison to the traditional delivery environment. However 27 percent found it less motivating while 12 percent were undecided.

Just over half the respondents said they used the site in addition to the on-campus equivalent. A large number though – 37 percent - used it instead of the on-campus version. 20 percent used the site because of the quality of the resources.

Most used the site because of the additional flexibility it provided. This allowed learners to access it at a time and place of their choosing. This was highly valued because many learners found it difficult finding the time to access on-campus services. Most learners (95 percent) agreed or strongly agreed that online support was 'liberating' as it enabled them to learn at their own pace.

Despite the lack of peer to peer interaction a majority of respondents (58 percent) did not find online support socially isolating. But a large minority (just over a third) did find it increased their social isolation. It was a roughly even split between those who thought that they learned better in an online support environment because they did not have to interact with their peers and those who thought this hindered their learning. 60 percent disagreed or strongly disagreed that the absence of teacher interaction hindered their learning.

Limitations
There was a potential bias in the learner sample due to its self-selecting nature. For example, those who volunteered many have been more computer literate than those who did not. There was an absence of demographic information. The sample sizes and institutional contexts used means the generalisability of the findings is limited. In addition specific cultural groups particularly Māori and Pasifika were not surveyed.

It also did not investigate the specific requirements of postgraduate or disabled students. The timing of the study meant it did not take sufficiently into account the increasing diversity of the learner population. Finally the study did not consider the use of some of the newer Web 2.0 technologies which could potentially improve the delivery of online support.

Future Research

- Include Māori, Pasifika, disabled, and postgraduate learners in any follow up research in this area.
- Include more recent technology developments in future surveys and repeat them.
- Research the professional development requirements of learning advisors.
- How can learning support practitioners work most effectively with academic staff to embed online support services within discipline specific resources and online services?

Metacognition and Lifelong E-learning: a contextual and cyclical process

Authors: Worrall, L., and Bell, F.

Background

Learning is a complex process. It involves many differing factors and variables that interact with one another over time to affect the degrees of success or failure of any one particular individual and/or group of individuals. This view is largely absent from the extant literature. The lifelong, cyclical, and flexible aspects of the metacognitive processes associated with e-learning are also largely absent within current areas of practical and theoretical debate.

Metacognition can be broadly defined as follows: one's knowledge concerning one's own cognitive processes or anything related to them (Flavell, 1976, p. 232). However neither this definition nor T. C. Reeves' 1997 model (summarised below) recognises that metacognition is a lifelong process in which e-learning plays a role (Hertzog and Hultsch, 1992).

Literature Review

Learners' prior metacognitive processes can be analysed and assessed by using appropriate assessment inventories, tools, and methods. But using these can also affect the design and delivery of effective e-learning tools, technologies and services (Flavell, 1976; Brown, 1987; Davis, 1989; McKoon and Ratcliff, 1992; Cook, 1998; Tobias and Everson, 2000).

Reeves lacked awareness that learning and knowledge construction is not a singular journey. Self-reflections are based upon a learner's increased awareness of strategies and processes of learning and whether they consider their learning to be targeted, relevant and interesting. This viewpoint is supported by the literature (Ayer, 1936, 1995; Wittgenstein, 1953; Popper, 1972, 1979).

Methodology

25 individuals (19 males and six females) from the North West region of England participated in the study. They were identified from a number of contacts gained through prior research projects. Their degree of computer literacy ranged from those who had practically no knowledge of computers and the internet, to those who were deemed by the researchers to be quite proficient. While the numbers were small there were a range of ages and occupations.

The learners were given the opportunity of using online and CD-ROM-based courseware at home, work, or anywhere else where they had access to a personal computer. A brochure was created to provide an immediate source of reference for learners when they were choosing courseware.

Students recorded their original learning objectives and motivations for learning in journals (in line with the 'Origin of Motivation' dimension in Reeves' model). However due to constraints, the project was unable to provide specific metacognitive support through a mentor or teacher. The learner journals were intended to overcome this by being designed as self-help tools that enabled students to reflect upon their own learning processes and behaviours.

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The learners were also given an online post-course questionnaire that was used to gain quantitative and qualitative data on the usability aspects of the courseware. The results from this questionnaire were analysed using Likert type methods.

Key Findings

Learners' experiences can be improved by their engagement in metacognitive activities before, during, and after, each learning activity. This is particularly important for those learners who engage in solo learning activities without the benefit of social interaction with their peers.

Based on the literature review and study findings the authors came up with a model that expanded on Reeves' version. This is summarised in the diagram below. The short dashed lines represent the amended/extended dimensions.
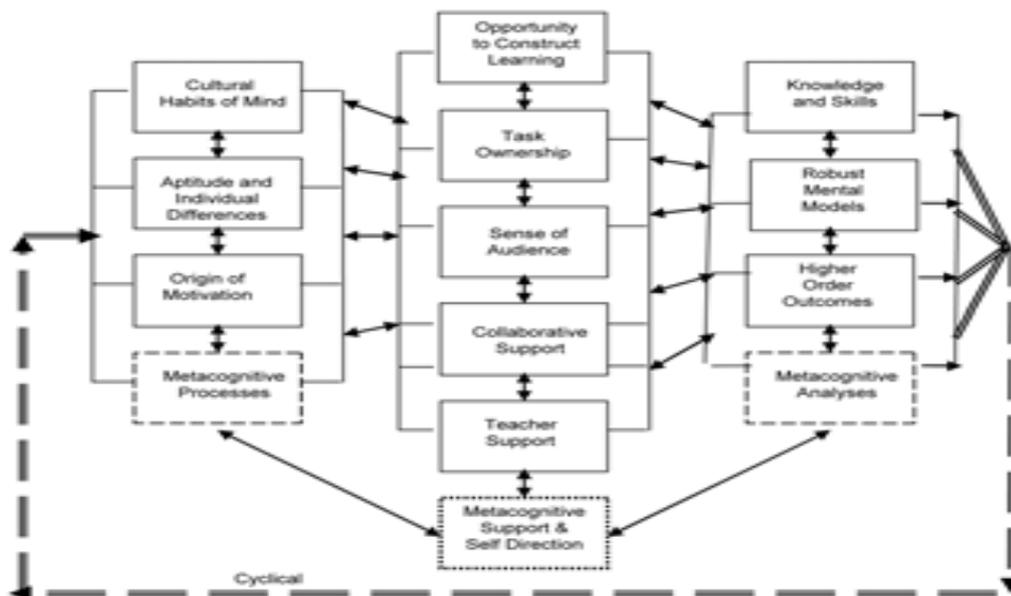
12 INFORMATION LITERACY

E-learning for adult literacy, language and numeracy: Summary of findings

Authors: Davis, N., and Fletcher, J.

Background

This Ministry of Education funded research study aimed to provide greater understanding of the potential of e-learning for developing adult learners' literacy, language and numeracy (LLN). The international literature identified how to engage adults successfully in e-learning to improve their LLN skills. It also provided evidence that literacy in the 21st century includes skills in using digital technologies. For example, many professions have implemented e-learning for on the job training.

This study investigated how e-learning can be employed as a means of reaching greater numbers of adult learners as well as how it could be used to better meet their learning needs. This is important because these learners comprise about 20 percent of the tertiary learner population in New Zealand. The main research question that this study addressed was: what characteristics of programmes, such as e-learning, mixed mode, and distance learning, have been successful in raising the LLN skills of adult learners and could be used to supplement workplace training?

Methodology
This comprised of a literature review, online seminars with international experts, stakeholder interviews and two institutional case studies.

Key Findings
The main message from this study was that e-learning is relevant to and useful for most adults with LLN needs. But these benefits rely on a learning programme that is carefully designed to fit each individual's needs and lifestyle, their proficiency with digital technologies, and their level of reading literacy.

Distance e-learning, especially when blended with face-to-face support, can provide an effective way of developing the LLN skills of learners currently at Level 2 on the New Zealand Adult Literacy and Life Skills Survey (2006). Level 2 is widely seen as the minimum level of literacy that adults require.

The report's other key findings were:
1. LLN skills in the 21st century include proficiency with digital technologies and practices. This includes e-learning.
2. E-learning for LLN is largely a recent development in New Zealand: very few well-established programmes exist.
3. E-learning is more effective if it is part of face-to-face training.
4. Māori approaches to e-learning can be used to build skills and knowledge within the Māori community.
5. As long as adequate support is in place, e-learning provides a good source of practice and motivation for second-language learners.
6. The diverse Pasifika peoples benefit from e-learning that fits their respective cultures and lives, and is accompanied by induction activities.
7. Many of the e-learning strategies used for building reading and writing skills can also be successfully used for and by adults with disabilities that limit their ability to learn and/or access learning.
8. Using mobile digital technologies in e-learning contexts increases the flexibility of LLN provision.
9. Tutors and support staff require specific professional development in e-learning, and organisations need to develop so that they can successfully accommodate this type of learning.

The published case study from this research project described how a New Zealand polytechnic used e-learning to help peers with LLN needs (Davis, Fletcher and Absalom, 2010). This included five cases embedded within an organisational perspective. An online numeracy course had been in operation the longest. This was most successful with adults who had all of the following: some numeracy skills, an intermediate or higher level of language literacy, good study skills, and access to the internet at home or on-campus.

In another case mobile devices were used by apprentices to support their work-based learning. This led to improvements in their assessments and an increase in their general literacy skills. In the final case included here tutors used software created for dyslexic learners in an evening class. This helped peers develop not only LLN skills but also skills in using digital technologies including the use of email.

Embedding Information Literacy Skills in Online Tutorials

Authors: Gunn, C., and Hearne, S.

Background
Information literacy is now an integral part of the graduate profile because these are skills and capabilities that they are expected to have. Information literacy is also critical in supporting effective study habits and skills. It is important that e-learning is seen as a key component of information literacy because it is an integral part of the learning environment.

This project aimed to develop interactive tutorials that would motivate and engage peers, and address their support needs that were identified by librarians. A team approach was used for the development of these tutorials. Members of the development team included subject matter experts, librarians, web developers, and e-learning support staff.

Key Findings
The use of the tutorials led to productivity gains for peers. Video clips and quizzes were tools that added value for peers. Peers had favourable responses to the new tutorials, and their supporting teaching and learning processes.

Digital Information Literacy: Supported Development of Capability in Tertiary Environments

Authors: Hegarty, B., Penman, M., Kelly, O., Jeffrey, L., Coburn, D., and McDonald, J.

Background
Digital information literacy is becoming increasingly important for learners if they are to effectively participate in tertiary study and wider society. This Ministry of Education funded research project investigated the strategies and tools associated with developing the digital information literacy capability of staff and learners from four tertiary institutions in New Zealand.

A key outcome of the project was the development of a definition of digital information literacy for Australasia. Other outcomes were identifying the components of digital information literacy essential for lifelong learning in the workplace, and a comparison of standards with other OECD countries.

The project aimed to address the following research questions:
1. Investigate how staff and students access, and interpret digital information creating their own understandings, using purpose built modules which are customisable and/or Web 2.0 strategies.
2. Ascertain how personal online learning environments and membership in a social networked community can influence digital information literacy.
3. Indicate how important digital information literacy is for lifelong learning of staff and students (including Māori and Pasifika), productivity and innovation.
4. Determine the standard of digital information literacy in the New Zealand academic workplace compared with other OECD countries.

In addition to the core skills of recognising the need for information in digital environments and then being able to access and evaluate it, digitally literate individuals would use the information they obtained in an ethical manner. A capable person in a digital information literacy context was defined as:
- Having confidence in their ability.
- A problem solver.
- Motivated.
- Interactive (this involves sharing and collaborating as well as interacting with others).

- Reflective.
- Possessing technical aptitude (i.e. they use a wide range of tools and terminologies).
- Having appropriate beliefs (i.e. they value the ICT environment).

Methodology
Most of the participants in the study were female and European. But there were also Māori, Pasifika, and Asian participants. Most of the participants had three or more year's computer and internet experience. An action research approach was used within a case study framework. The action research took place over three 10 week cycles.

The data used included pre and post workshop surveys, face-to-face workshops, interviews, and weblogs (blogs). Qualitative data was categorised broadly under two separate areas: digital information literacy (DIL) and capability. The DIL data was used to compile a pre and post workshop participant score.

Key Findings
The main finding was that capability, rather than a standardised literacy, is key to an individual's success in dynamic, technological environments. This capability integrates strategies for learning, and takes into account an individual's particular dispositions for handling digital information and change in digital environments. The findings confirmed that DIL is an evolving concept. This means there is no one size fits all model that can be used for the development and maintenance of DIL skills and capabilities.

There was no agreed definition for DIL within New Zealand, Australia, or internationally. But based on the available evidence and their experiences and expertise the authors' developed the following definition of DIL: 'the ability to recognise the need for, to access, and to evaluate electronic information.'

The majority of the study's participants made positive shifts in their DIL skills and capability. This was demonstrated in many ways:
- An increase in their DIL scores.
- The way they used and managed digital information.
- A marked willingness to collaborate, share information, and explore new approaches.
- Reported improvements in technical skills, confidence, and motivation.
- Expanded understanding of the available possibilities.
- Exploring tools and strategies beyond those defined in their individual learning objectives.

The face-to-face workshops were critical in participants' increasing their DIL skills, capabilities, and knowledge for two main reasons. Firstly they facilitated and encouraged collaboration. Secondly they also supported 'play' in a safe environment. Through 'play' participants were permitted to make mistakes, indulge in trial and error, and to repeat the action until it was mastered, all while working in a low risk context.

These workshops also provided an opportunity to assist participants to explore and to experiment with applying their skills to the real world contexts in which they were operating. This helped them gain further skills in accessing and interpreting digital information.

This increase in knowledge, skills and capabilities led to improved confidence. This meant participants increasingly adopted a problem solving approach to the acquisition of new skills and capabilities and the use of new tools and technologies. But within the work shop environment different approaches were adopted. These included seeking one-on-one assistance, accessing expertise within the group, or utilising external networks and resources.

Participants' expanding skills, knowledge, and capabilities also saw them adopting a digital persona. This greatly increased their use of Web 2.0 tools and technologies such as wikis and

blogs. There was also a shift in participant attitudes with notable increases in their belief that they could effectively use ICT to achieve their goals.

Institutions were important in the participants' acquisition of DIL skills and capabilities. For example, if institutions restricted access to the internet, participants' development of digital skills was affected because they were limited in their ability to practise the new skills they acquired during the workshops. Institutional infrastructure (such as bandwidth), and technical support impacted on the level of access and comfort that the participants experienced.

Finally participants noted the importance of time. Most believed it was unlikely they would have sufficient time outside the workshops to continue developing their DIL skills and capabilities.

Limitations
The participants were not representative of either the wider tertiary sector in New Zealand or the particular sub-sectors involved in this research. There were also insufficient Māori and Pasifika learners.

Future Research
- Use the model developed here with more representative peer groups including larger numbers of Māori and Pasifika learners.
- Compare the survey findings with other similar research findings.
- Use the findings as a baseline for developing measures of DIL in future research.
- Test whether this model will assist graduates to become ready for the workplace.
- Investigate the importance of time allocation for 'play' in digital information environments.

Digital Literacies in the Lives of Undergraduate Students: Exploring Personal and Curricular Spheres of Practice

Authors: Jones, S. and Lea, M. R.

Background
This paper reported on the preliminary findings from the Digital Literacies in Higher Education project which was funded by the United Kingdom's Economic and Social Research Council. This project involved an in-depth study of peers' digital literacy practices. This research occurs in the context of increasing educational and societal use of ICT. There is a need for more research at the intersection of academic literacies and technologies (Crook, 2005).

The use of the term literacies in the plural signals a view of literacy as engagement in a range of different social practices around texts, depending on the specific context, rather than just individual cognitive activity. This view has led to an increasing corpus of research dedicated to widening the concept and practice of literacy away from a narrow focus on it as a de-contextualised cognitive skill (Ivanič, 1998, 2005; Lea and Street, 1998; Lea and Stierer, 2000; Lillis, 2001; Walton and Archer, 2004; Thesen and Van Pletzen,, 2006).

There is also an emerging body of research examining literacy in an e-learning environment. This includes examining the relationship between peers' online discussion texts and their written assignments, argumentation in online learning, and meaning making using hypertext (Lea, 2000, 2001; Goodfellow, Morgan, Lea and Pettit, 2004; Coffin and Hewings, 2005).

Methodology
45 peers enrolled at three institutions in a range of academic, professional, and vocational contexts were selected for this project. Each participant was interviewed three or four times at their institution over a six month period. These took place individually and in group settings. These interviews were supplemented by short e-mail exchanges and chat and text messages. The authors also used hard copy and electronic examples of a range of peers' texts from both within and outside the curriculum.

Key Findings
Participants in the study interacted with multiple and hybrid digital texts[20] within and across both curricular and personal spheres. The participants' educational and non-educational digital environment interactions took many different forms. These included texting, social networking, instant messaging, and emailing. However not all participants took part in all of these and technology was not the sole influence in how they engaged in communicative practices.

Various technologies were used to engage in different contexts. For example, e-mail and PDF files were used for more formal interactions with lecturers or the institution. In contrast instant messaging and social networking were largely used for personal non-academic communications and interactions. This is most likely because of institutional and/or teacher demands such as the requirement to submit assignments by e-mail or its use to support assessments.

But when participants interacted with institutions or teachers by email they preferred to use their personal rather than institutional systems. Some participants also used their personal email to communicate with their peers rather than through the institutional Learning Management System. Most participants preferred informal communication and personal technologies e.g. Instant Messenger communication.

The positioning that took place in social networking interactions enabled participants to cultivate friendships and camaraderie with their peers whilst also doing work for university assignments. But despite these benefits some participants were reluctant to engage in this space.

Among those participants who embraced social networking, it became clear that they were engaged in multi-faceted kinds of interactivity in which they took on multiple roles and constructed different identities within the textual space of the interaction. These multiple roles and different identities may also influence the practices of participants in their personal spheres as well as their technology use.

When completing group work, participants had to engage with a range of literacy practices including those that are common to the production of academic texts. These practices included drafting, critiquing, and developing further text, inserting diagrams, and doing research. This adoption of a wider range of literacy practices by peers was because they had to comply with institutional and disciplinary conventions.

Issues in equivalence: Information literacy and the distance student

Authors: Lamond, H., and White, B.

Background
It is expected that university students will acquire information literacy skills and capabilities during the course of their studies. Distance education is important because it provides greater access to tertiary education, particularly for those learner groups who have traditionally being under served (Lindsay, 2004). But for distance peers and those supporting them ensuring they acquire information literacy skills and capabilities is more challenging.

It is important that there is equivalence between the learning experiences of on-campus and distance peers (Association of College and Research Libraries, 2004). This equivalence can be supported if peers take more control of their learning.

Libraries play a key role in the development of learners' information literacy. For on-campus learners interactions with general and subject-specialist librarians provide learning

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[20] Hybrid digital texts refers to texts that are produced in association with digital technologies

opportunities. But these opportunities are largely absent for distance learners and it is a challenge for libraries to provide them (Needham and Johnson, 2007).

These findings from the literature are supported in this context because the Massey University library found it was not offering the same level information literacy support to its distance learners compared to their on-campus peers. Moreover the support it was offering such as locating research materials did not foster independent learning.

Technology is playing an important role in this context in two respects. According to Bates (2005) since the mid 1990's the growth and development of the internet has led to rapid growth in distance education. This expansion is enabled by the rapid growth of supporting institutional infrastructure such as Learning Management Systems. In New Zealand these developments have contributed to the distance education cohort growing from 14, 172 in 2000 to 32,850 in 2007 (Ministry of Education, 2008).

Technology can also assist in providing support for distance learners to acquire information literacy skills and capabilities. For example, generic online tutorials can be devoted to information literacy (Holliday, Ericksen, Fagerheim, Morrison and Shrode, 2006). Mobile devices are also being used. In addition the use of virtual environments and social media such as Second Life and Facebook are also being considered (Secker, 2007).

However many distance learners do not have high-speed internet access. This is a particular issue for learners based in rural communities (Statistics New Zealand, 2007). This makes it difficult for libraries to provide remote support and services as these are traditionally done via the internet. It also means these learners may lack the software and download speed to access the resources or complete their work.

This problem is compounded by the increasing amount of content that is only available electronically and the fact that learners may not have the requisite skills and capabilities to effectively operate in digital environments. On-campus learners have access to expert staff to address these deficiencies. In contrast distance learners must often deal unaided with unfamiliar resources.

Key Findings
Libraries and librarians need an effective and ongoing presence in the university's virtual learning environments if these identified issues for distance learners are to be resolved. In particular information literacy must be built in to the fabric of the course by having its assessments take information literacy skills into consideration.

The library must also have resources in sufficient numbers to support distance learners (Backhus and Summey, 2003). These resources must be as learner-friendly as possible. In addition the library has considered the provision of regional workshops as a solution to overcome the problems of providing equivalent support to distance learners in the development of their information literacy skills and capabilities.

Future Research
There is a need for a better understanding of the implications and impacts of ICT on the provision of library services.

Massively Multiplayer Online Gaming as a Constellation of Literacy Practices

Author: Steinkuehler, C.

Background
There is a growing concern in the US about the impact of video games on literacy (Sanders, 1995; Wearden, 2001; Solomon, 2004). This concern is driven in part by the rapid rise of video

game playing amongst young people (Rideout, Roberts and Foehr, 2005). According to Mandese (2004) video games are now a more dominant medium than print media.

But this literature does not specify which of the game(s) is causing issues with learner literacy, or specify what type of literacy is at risk from their use. This is problematic as games have significant variation in their design and how they are used.

Literacy is often defined along similar lines to the following definition from the National Institute of Literacy (n.d.): 'an individual's ability to read, write, speak in English, compute and solve problems at levels of proficiency necessary to function on the job, in the family of the individual and in society'.

But there is an alternative definition from the New London Group (1996, p 64): 'the increasing multiplicity and integration of significant modes of meaning-making, where the textual is also related to the visual, the audio, the spatial, (and) the behavioural...'. This wider definition stresses the importance of not only recognising meaning but also producing it and is gaining widespread acceptance (e.g. Gumperz, 1982; Heath, 1983; Street, 1984, 1993; Kress, 1985; Cook-Gumperz, 1986; Cazden, 1988; Gee, 1992, 1996, 1999, 2003; Barton, 1994; Lankshear, 1997; Knobel, 1999; Lankshear and Knobel, 2003).

Massively Multiplayer Online Games (MMOGs) are two or three dimensional games where in addition to the gaming software users create avatars to interact with their peers. The particular MMOG used for this study has over one million users globally.

Methodology
This was a two year study. Data was collected through recording and transcribing observations of participants' game play and their game related communications such as discussion board posts. At a more formal level community documents including company written manuals and guidebooks as well as unstructured and semi structured interviews with 16 participants were also used.

The author chose cognitive ethnography (Hutchins, 1995) as the primary research methodology. This was defined as the description of specific cultures in terms of their cognitive practices, their basis, and their consequences. It was adopted as a way to establish what happens in the virtual setting of the game. In particular it focuses on how the participants considered their own activities, the activities of others, and the contexts in which these activities take place (Steinkuehler, Black and Clinton, 2005).

Key Findings
MMOG are complex environments. The contemporary definition of literacy is sense making within a multimodal, socially situated space. In this broad sense participation in a MMOG is in and of itself a literacy activity. Taking the traditional print based definition of literacy MMOG participation requires the use of and interaction with large amounts of written text.

Interacting with a MMOG involves sophisticated literacy activities and practices. These include negotiating and successfully using multiple channels of communication in private and public spaces. Game related literacy activities and practices include text talk, written letters, and 'orally delivered' narratives. These activities extend beyond the immediate environs of the game to such things as fan-related sites, weblogs, and discussion boards.

The Importance of Online Community in Student Academic Performance

Author: Graff, M.

Background

Online assessments are a useful way to monitor and address learner performance. But a classroom community is also important. Learning communities have extensive support in the literature (Citera, 1988; Shale and Garrison, 1990; Warschauer, 1997; Rovai, 2001, 2002). The literature also suggests that online environments that lack close interactions hinder the development and maintenance of these learning communities (Haythornthwaite, Kazmer, Robbins and Shoemaker, 2000).

There are also important individual differences with females having a stronger sense of community than males (Rovai, 2002). An individual's affinity with learning communities is also heavily influenced by their learning styles (Graff, 2003).

Methodology

140 first year undergraduate students (115 females and 25 males) participated in the study. They had an age range from 18 to 54 with a mean age of approximately 23. To assess learner performance, online multiple choice tests were used as well as assignments. Cognitive styles were measured and analysed using Allinson and Hayes Cognitive Styles Index (1996). Community was measured using Rovai's (2002) classroom community index.

Key Findings

The major finding from this study was that key factors determined good learner performance in coursework assignments. These factors were: engagement with the course in terms of the amount of online assessments attempted, classroom community, and cognitive style. This is supported by the finding that learners with a stronger sense of community and defined as analytic on the Cognitive Styles Index performed better on their assignments.

Cognitive Style and Cross Cultural Differences in Internet Use and Computer Attitudes

Authors: Graff, M., Davies, J., and McNorton, M.

Background

Despite the potential benefits that e-learning systems can offer, difficulties often occur when they are designed without consideration for learner characteristics. These characteristics can be defined in terms of nationality, gender, and cognitive learning style (Freedman and Liu, 1996; Liang and McQueen, 1999).

But culture is also important. Cultural differences in learning style have been the subject of debate over recent years. According to Kubes (1998) cognitive style and culture are not related. However others argue that there are cultural differences in cognitive style (Watkins and Regmi, 1990; Biggs, 1991; Kember and Gow, 1991; Allinson and Hayes, 2000).

These cultural differences in cognitive style could be due to divergent study approaches (Smith, 2000; Turner, 2000). These differences in culture and cognitive style may also contribute to how a learner approaches and engages with e-learning.

One way of assessing a learner's approach to computer use for instruction is by testing their attitudes to this. Over the last decade, numerous studies have explored individual differences in attitudes towards computers (Offir and Katz, 1990; Woodrow, 1990; Abouserie, Moss and Barasi, 1992; Katz, 1994; Francis, Katz and Evans, 1996). This study aimed to examine these

individual differences in learners' approaches to using computers on the basis of their gender, nationality, and cognitive learning styles.

Methodology

The population sample for this study was 170 undergraduate students. There were 103 Chinese students studying in China (mean age 20.23, Standard Deviation 1.52) and 67 British students studying in the United Kingdom (UK) (mean age 20.78, Standard Deviation 2.60). The mean age for all participants was 20.45 with a Standard Deviation of 2.03. The gender distribution of participants was 37 males and 129 females.

Their attitudes to using computers was assessed using Smalley, Graff and Saunders (2001) computer attitude scale for secondary students which updated an earlier scale by Jones and Clarke (1994). This instrument consists of three subscales – affective, behavioural, and cognitive.

They also used Allinson and Hayes Cognitive Styles Index (1996). This is a self-report test designed to measure the whole/part-processing dimension of cognitive style. Finally they used a questionnaire to get more detail on internet knowledge and use amongst the sample population.

Key Findings

A significant main effect of cognitive style was noted for internet use. Participants with an intuitive cognitive style had greater self-reported internet use than those with an analytic cognitive style. Further analysis revealed that Chinese participants had a more favourable behavioural attitude towards computers than their UK peers.

The 17-19 years age group had significantly more favourable affective and cognitive attitudes towards computers. The mean difference between the highest and lowest age bands was significantly greater in the Chinese sample than in the UK sample.

Finally this study revealed that Chinese participants reported significantly higher internet use than their UK peers. These findings suggest that individual differences were evident in terms of attitudes to computer-based learning and internet use. While these differences existed principally on two levels: nationality and cognitive learning style, age was also a factor.

Future Research

Ascertaining which particular computer-based activities the different cognitive styles engage in. This could include for example more isolating web-based searching and browsing for information, or activities such as internet based interaction with others.

Learner Experiences Across the Disciplines

Authors: Hardy, J., Bates, S., Haywood, D., Haywood, J., Macleod, H., Paterson, J., and Rhind, S.

Background

There is a widespread assumption that technology is embedded seamlessly into the personal and social lives of today's learners. However recent reports have questioned this assumption. They have found that young adults often do not have the sophisticated information skills and digital literacy needed to become autonomous learners.

There is also a small but significant minority of learners who do not actively engage with IT. The 'digital divide' has narrowed but it has not disappeared. The UK's undergraduate population is diverse. This is in part because of the increasing move towards widening access. This includes encouraging the participation of adult returnees by emphasising the importance of lifelong learning.

The Joint Information Services Committee's Learners Experiences Across the Disciplines project addressed these important issues. The aim of the project was to understand the impact of technology, both institutional and personal, on learners' transition to university and how this changed as they progressed through their critical first year.

This project addressed the following research questions:
- What are students' expectations regarding the availability and use of learning technologies at university?
- How do students adapt and change their approaches to e-learning during their first year?
- What are the key factors that influence students' choices of e-learning strategies and how these are utilised?
- To what extent do students use non-institutional online technologies to support their learning?

Methodology
The sample population for the project was first-year undergraduate students at the University of Edinburgh. They entered the university from a variety of routes and academic disciplines, over the course of the academic year 2007/2008. This research project was guided by two underlying principles. Firstly, a learner-centred approach was adopted which meant primacy was given to students' own views and opinions.

Secondly, the research adopted a holistic approach in which learners' use of ICT and learning technologies were set within the context of their learning experiences as a whole. To capture the breadth and complexity of learners' experiences a mixed-mode approach was followed. This included a series of reflective learner diaries recorded in video, audio, or text format, together with surveys and focus groups.

Key Findings
Learners were confident with technology. They used a wide range of personal technologies including laptops. However ICT related skills did not belong to a particular generation. Learners had a wide range of abilities in their effective utilisation of these technologies. But despite their differing abilities the learners had in common various methods and strategies to find their 'comfort zones'.

They also used technology to suit their own ways of learning and working. But there was still a small minority of learners who were either not confident with technology or had no internet access. There were others who did not recognise the value of technology for studying their particular subject.

The term e-learning did not mean much to learners. For them there was simply teaching with strands of technology running through it. This indifference was best expressed by their lack of preference for particular technologies.

Learners were often conservative. This was demonstrated through their clear preference for tried and tested methods and their limited vision of what the future of technology holds for education. It was also reflected in their strong desire for traditional delivery, with technology used mainly to supplement and enhance this.

This conservative attitude is also reflected in the fact that learners generally did not have high expectations from universities in terms of novel or innovative uses of technology. Many did not even necessarily value it. But where technology was used, learners expected it to be reliable, predictable, and high quality across all their courses.

An empirical examination of factors contributing to the creation of successful e-learning environments

Authors: Johnson, R. D., Hornik, S., and Salas, E.

Background

According to the American Society for Training and Development (2004) US organisations were spending $250 billion annually on training. Technology supported workplace training was projected to grow 27 percent annually (Kolbasuk McGee, 2004).   But despite this projected growth technology-supported workplace training is still only a small component of total provision. However while it is only a small part of total provision it still represents a sizeable investment.

This growth in technology based training in the workplace is being mirrored in formal education where millions of US learners are enrolling in web-based courses (Wirt, Choy, Rooney, Provasnik, Sen and Tobin, 2004). E-learning was defined in this study as: 'training initiatives which provide learning material, course communications, and the delivery of course content electronically through technology mediation' (Eddy and Tannenbaum, 2003).

This study focused on the role of social presence along with application-specific computer self-efficacy (AS-CSE) interaction and perceived usefulness. AC-CSE is an individual's belief in their ability to perform specific computer tasks (Compeau and Higgins, 1995b; Marakas, Yi, and Johnson, 1998).

AC-CSE influences how effectively learners interact in computer mediated environments and is seen as critical in their learning (Compeau and Higgins, 1995a; Johnson and Marakas, 2000, Yi and Davis, 2003). Lower AC-CSE had an adverse impact on learners in a number of ways. These included them having an unfavourable view of the learning environment and neglecting key tasks (Bandura, 1997).

Perceived usefulness was defined as the degree to which an individual believes that the technology will enhance their performance (Davis, F. D., 1989). The mixed results in studies with regards to increased learner control leading to better outcomes was most likely because individuals completing the course may not see the value of the technology in supporting their learning.

If learners believed the technology was useful it was likely to lead to their more effective utilisation of it. However if learners did not see the value of the technology they were less likely to use it to support their learning.

The learning outcomes reported on in this study were: course satisfaction, skills demonstration, and course instrumentality. Researchers have tended to focus on the first two outcomes (Arbaugh, 2000a, 2001; Piccoli, Ahmad and Ives, 2001; Richardson and Swan, 2003). But these outcomes do not always effectively predict transfer of learning (Colquitt, LePine and Noe, 2000).

Course instrumentality (i.e. learner beliefs about the value of the training) is also important (Alliger, Tannenbaum, S. I. Bennett Jr., Traver and Shotland, 1997). According to Lim (2001) and Carswell and Venkatesh (2002) it is a predictor of learners' future intentions to enrol in e-learning courses.

The study sought to confirm or disprove the following hypotheses:
1.   Individuals with higher AS-CSE will have higher perceptions of course instrumentality than individuals with lower AS-CSE. Higher AS-CSE individuals will also perform better and be more satisfied than their lower AS-CSE counterparts.

2. Individuals who perceive the technology to be more useful will have higher perceptions of course instrumentality than individuals who perceive the technology to be less useful. Those who perceive the technology as being more useful will also perform better and will be more satisfied than those who perceive it as being less useful.

3. Individuals who interact more will have higher perceptions of course instrumentality than individuals who interact less. Individuals who interact more will perform better and be more satisfied than those who interact less.

4. Individuals who perceive more social presence will have higher perceptions of course instrumentality than individuals who perceive less social presence. Those who perceive more social presence will perform better and be more satisfied than those who perceive less social presence.

Literature Review

Previous research has indicated that online training initiatives can be as effective as face-to-face environments in delivering instruction (Hiltz, 1994; Alavi, Yoo and Vogel, 1997; Piccoli et al., 2001; Hiltz and Wellman, 2007). Differences between them were generally attributable to learner motivation or instructional characteristics (Arbaugh, 2000a, 2001).

Some of the literature suggests that e-learning would dramatically change organisational training (Horton, 2000; Welsh, Wanberg, Brown K. G. and Simmering, 2003; Salas, DeRouin and Littrell, 2005). But Flood in a 2002 study showed that this type of training had non-completion rates as high as 80 percent because it was inherently isolating.

This is an identified paradox. E-learning environments are often simultaneously interactive and isolating (Stonebraker and Hazeltine, 2004). Moore (2002) found that one of the most common complaints from e-learning participants was the lack of a shared learning environment and connections with their peers.

This isolation is critical. This is because most learning theories stress the importance of effective interactions with content, instructors, and peers as the basis for effective learning (Vygotsky, 1978; Kozulin and Presseisen, 1995; Leidner and Jarvenpaa, 1995; Bransford, Brown and Cocking, 1999; Mayer, 2003).

Learner interaction with content is seen by some of the literature as the most important (Hiltz, 1994; Gunawardena, 1995; Leidner and Jarvenpaa, 1995). But regardless of the type of interaction, where it is increased it is strongly linked to improved learning and performance in distributed learning environments (Gunawardena, Lowe, Constance and Anderson, 1997; Alavi, Marakas and Yoo, 2002; Hiltz, Zhang and Turoff, 2002; Schmidt and Ford, 2003).

Social presence was defined in this study as 'the degree of salience of the other person in the interaction and the consequent salience of the interpersonal relationship' (Short, Williams and Christie, 1976, p.65). This can be effectively achieved in an e-learning environment through an increase in peer-peer connections (Markus, 1994; Gunawardena, 1995; Zack and McKinney, 1995; Gunawardena and Zittle, 1997; Richardson and Swan, 2003).

But social presence is different from interaction. Whereas interaction focuses on the exchange of information social presence focuses more broadly on an environment's ability to facilitate a shared learning environment.

Methodology

The study's population sample was comprised of 345 learners with a small majority of females and a young mean age (under 25) enrolled at a single course at one university. Most of the participants had high levels of experience in computer and internet use. Participants received nominal course credit for taking part in the study.

Data was collected from multiple sources. Perceptual data was collected using an online survey made available to participants for one week during their last course module. Interaction data was obtained from the institutional Learning Management System logs. Quiz grades were obtained from the instructor.

AS-CSE was measured with a five-item scale developed for this study. This scale was intended to be consistent with Bandura's (2001) and Marakas, Yi and Johnson's (1998) measurement development frameworks. Perceived usefulness was measured with a four-item Likert-type scale developed by Davis F. D. (1989).

Interaction was measured using four items: the number of discussion postings read, number of original discussion postings, number of follow-up discussion posts, and number of course emails sent. Social presence was measured with a five-item scale developed by Short et al. (1976).

The effectiveness of e-learning was assessed in three ways. Firstly, course instrumentality was measured using Alavi's (1994) six item scale. Secondly, course satisfaction was measured with a seven-item Likert-type scale developed by Biner (1993). Finally, course performance was assessed using the total score obtained on six end of module multiple choice quizzes. Analysis was conducted using partial least squares because it did not require as large a sample and it did not make the same distributional assumptions about the data.

Key Findings
Hypotheses 1 and 2 were fully supported. AS-CSE was associated with improved course instrumentality, performance, and satisfaction. Perceived usefulness was associated with improved course instrumentality, performance, and satisfaction. But hypotheses 3 and 4 were only partially supported. Interaction was associated with improved course performance and satisfaction but not course instrumentality. In contrast social presence was associated with improved course instrumentality and satisfaction but not course performance.

Limitations
Firstly, it represented the sole test of a theoretical model. It should be subjected to further testing with different participants, contexts, and technological architectures. Secondly, the research participants were undergraduate students who were completing the course as part of a degree requirement, so the results may not be generalisable.

Thirdly, due to the requirements of the course and the focus of the research questions, the study was unable to fully capture the richness of the reciprocal relationship between social presence and interaction. Finally, since the variables of interest in this study were captured concurrently, it was not possible to show causal relationships.

Future Research
- Investigating how the content of communication affects social presence and e-learning outcomes.
- Investigating how and where technology can create value in e-learning initiatives, whether through increased opportunities for learning, or through the facilitation of a shared learning environment. Additional related research should seek to understand the process through which this occurs.
- Investigating whether interventions can be developed to assist those learners with lower levels of AS-CSE to gain confidence and comfort with the technology.

First year students' experiences with technology: Are they really digital natives?

Authors: Kennedy, G. E., Judd, T. S., Churchward, A., Gray, K., and Krause K-L.

Background

The main purpose of this report was to document the characteristics of the so-called 'Net generation' (born between 1980 and 1994). Its intended objective was to try and establish if the assumptions around the ICT uptake of the 'Net generation' and its use and integration into their lives were accurate. This was done by empirically documenting the experiences that incoming first-year students had with an array of technology and technology-based tools.

The majority of learners in the study had unrestricted, broadband access through a mobile phone and a desktop computer. Many also had access to other forms of ICT. The most common were digital cameras, MP3 players, and laptop computers.

Methodology

1,973 University of Melbourne students born after 1980 were surveyed using a four page questionnaire. Most were 17-21 with more females than males. About 25 percent were international students. Approximately 33 percent were from non-English speaking backgrounds. As a preliminary report and a work in progress the analysis was largely descriptive.

Key Findings

The most common computer-based activities for learners were:

1. Sending or receiving email.
2. Creating documents.
3. Playing digital music files.
4. Searching for information (with slightly more general than study related searches).
5. Communicating via instant messaging.

Mobile phones were predominantly used by learners for non-educational purposes with none of its commonly used activities having an education focus. These activities included (in order of learner participation in them) voice calls, text messaging, taking digital movies or photos and sending them to others, and using it as a personal organiser.

Emerging computer-based technologies were being embraced by a smaller but significant proportion of these learners. These included weblogs, file sharing, social networking, and web-conferencing. International students used a wider range of technology and technology-based tools more frequently than domestic students.

There were also disciplinary differences. Engineering, architecture, and building and planning students were more likely to use particular technologies and use them more frequently than their peers from other faculties. In contrast education and arts students were much less likely to use particular technologies and used them much less frequently than their peers from other faculties.

These learners were overwhelmingly favourable about the use of ICT to support their studies. The key activities they identified included (in order of their participation in them): using a computer for general study purposes, searching for information, general course administration, and using a Learning Management System to access course-related materials.

Based on these findings there was limited empirical support for the stereotypical depiction of the 'digital native'. There was consistent access and patterns of use for entrenched technologies and software packages such as computers, mobile phones and email. But the access and patterns of use for the other technologies and software packages showed considerable variation based on gender, ethnicity, and discipline area.

There was sufficient evidence in this study to negate a one-size-fits-all approach to the integration of ICT into the curriculum and learner support structures. It was also important that learners were given guidance on how to strategically employ technology and technology-based tools so they could be used to optimise their learning experiences and outcomes in university settings.

Future Research
Gathering empirical evidence on the teacher perspective regarding how technologies might be used to enhance learner learning.

Critical Success Factors for Effective Use of e-learning by Pacific Learners

Authors: Koloto, A. H., Katoanga, A. N., and Tatila, L. U.

Background
Both the Ministry of Education (Ministry) and the Tertiary Education Commission (TEC) have as one of their major priorities improving the participation, retention, and achievement of Pasifika learners. Much of the work on addressing this priority has involved identifying the particular barriers Pasifika learners face when trying to access tertiary education. The Ministry and TEC's relevant research combined with other sector based e-learning initiatives have increased the understanding of the pedagogies and factors necessary for the effective use of emerging technologies within education.

This particular research project originated through the TEC's e-Collaborative Development Fund. Its main objective was to identify the critical success factors and pedagogies for the effective use of e-learning so that it could increase the access, participation, and achievement for Pasifika learners.

This objective would be achieved by addressing the following research questions:
- What are the demographic trends of Pasifika learners and e-learners in New Zealand?
- What lessons learned by other sectors, such as the health sector, are relevant for Pasifika learning and e-learning?
- What strategies at the institutional level impact on Pasifika learning and e-learning?
- What is good practice for Pasifika learning and e-learning in New Zealand?
- What are current levels of, and what will enhance, access to technology for Pasifika people?
- What attitudes help or work against the uptake of learning opportunities, in particular e-learning, for Pasifika people?

Literature Review
The authors noted an overall lack of literature on this subject. The only study cited was one undertaken by Clayton, Rata-Skudder and Baral. (2003). This study found that while the majority of its Pasifika learners were capable and confident in an e-learning environment, technical issues were a problem. Appropriate and relevant support to address these technical issues is important.

Visual, well-structured resources were valued by Pasifika learners. While the study participants were satisfied with their e-learning experiences nearly a third believed it did not improve their learning. Just over a third also agreed that while it could enhance traditional delivery it should not replace it.

This traditional delivery component was also seen as essential by Pasifika learners in the provision of support services. But while traditional delivery was critical, online support also improved learner motivation and achievement. Based on their findings Clayton et al. identified the critical success factors for Pasifika learners in an e-learning context as ensuring they had

access to technology and using a learning approach that combined e-learning with traditional delivery).

Not only would this approach increase Pasifika learners' success according to Clayton et al. it would also increase their participation. This is because an effective combination of a traditional delivery component with the additional flexibility provided in an e-learning environment allows Pasifika learners to strike an effective balance between study and their external commitments.

Methodology
There were a total of 148 participants in the focus groups and interviews with a much greater number of females (n = 103). Most of the major Pacific groups were represented e.g. Fiji, Samoa, Tonga and the Cook Islands. All the learner participants were Pasifika. But 10 of the participating staff were not. The age range of the participants was 18 to 60 years. The institutional spread was roughly even between universities, polytechnics, and Private Training Establishments. But there were fewer learners from the wānanga sub-sector.

Data was collected from the project's literature review, focus groups and individual interviews with Pasifika learners and staff involved in e-learning. A case study of an institution was also conducted. Data was analysed using a specialist programme (N6) after key themes had been identified and categorised.

Three theoretical frameworks underpinned the project: researcher as first paradigm (Mitaera, 1997), the tivaevae model (Ma-Ua-Hodges, 2000) and the kakala metaphor (Helu-Thaman, 2002). The tivaevae model is based on a team approach to research. The kakala represents the key processes of the project: data collection and analysis, writing up the results and making these widely available.

Key Findings
To support their study in e-learning courses Pasifika learners were more likely to use the institutional Learning Management System (LMS), web-based research, discussion or bulletin boards, and computer-based assessment. Within the LMS a majority of participants used its authored web pages and learning tutorial software or virtual tutorials. Most of the participants were in courses where the online component ranged from a high of about 80 percent to a low of approximately 20 percent.

The most valued aspect of e-learning for Pasifika learners was its facilitation ability. This included access to course materials and information as well as assessment and research. However access to peers and teachers was least valued. Communication tools and online support were also less valued. E-learning had a potential advantage in its cost savings for Pasifika learners.

But if e-learning is to be successful for Pasifika learners and communities there is a need for investment in the equipment, course content, and appropriate staff who can offer the types of support necessary in an e-learning environment. Support for those who are new to the technology is critical.

The critical success factors for Pasifika learners in e-learning identified in this study were:
1. Access to computers and the internet.
2. Knowing how to use computers, the internet, and ICT generally.
3. Teacher and peer support enabled by ICT.

The report's case study underscored the importance of appropriate and relevant support in an e-learning context. It was important that this support facilitated access to the technology, IT support, and staff. Staff being available online was valued by the learner participants. This had many benefits including immediate feedback, more personalised support and interactions, and assisting with the development of increased ICT capability.

The case study institution did provide extensive support for learners. This included evening classes and home visits. The case study also supports the earlier findings of the value of combining e-learning with traditional delivery to increase Pasifika learners' participation and success in tertiary learning environments.

Critical success factors that were not e-learning related included motivation and self-confidence, access to information, learning centre and other resources, and understanding the course content. The barriers identified included motivation, external commitments, costs, and a lack of:
- Understanding of the technology.
- Access to computers.
- Self-confidence.

Limitations
The ethnicity of the participants was not comprehensive and there was only scope for one case study. The number of participants was limited. In particular, the focus groups were generally small. Consequently, the results of the study cannot be used to generalise across the wider Pasifika populations.

Future Research
- Variations in Pasifika learner access and participation by ethnic group.
- Pasifika learners ICT access.

When Knowing More Means Knowing Less: Understanding the Impact of Computer Experience on e-learning and e-learning Outcomes

Author: Kushnir, L. P.

Background
The main research question underpinning this study was does students' online experience, the organisation and relevance of online information, and the level of task difficulty, affect e-learning and students' perception of overload?

Literature Review
Learners often complain of feeling overburdened with information in e-learning courses, particularly in comparison to their traditional delivery counterparts (Hiltz and Turoff, 1985; Harasim, 1987; Hiltz and Wellman, 1997; Kushnir, 2004). There are a range of factors identified in the literature as to why learners perceive they are overloaded in an e-learning context (Hiltz and Turoff, 1985; Hiltz, 1986; Stanton and Baber, 1992; Reed and Giessler, 1995; Carey and Kacmar, 1997; Carver, C. A. Jr., Howard and Lane, 1999; Franz, 1999; Yang, 2000; Khalifa and Lam, 2002; Lee and Tedder, 2003; DeStefano and LeFevre, 2005; Zumbach, 2006).

Learners' level of experience in e-learning environments is critical because it determines how effectively they can engage with the course, particularly its content and technical requirements. Less experienced learners can experience overload (Hiltz, 1986; Burge, 1994; Hiltz and Turoff, 1995; Althaus, 1997; Reed, Oughton, Ayersman, Ervin and Giessler, 2000; Kraus, Reed and Fitzgerald, 2001).

An unorganised online learning environment with poorly presented information can hinder learners' effectiveness and lead to perceptions of overload (Hiltz and Turoff, 1985; Dalal, Quible and Wyatt, 2000; Kushnir, 2004). Simple tasks are seen by some as being more suitable for online environments than complex tasks (Hiltz, Johnson and Turoff, 1986; Carey and Kacmar, 1997).

Methodology

185 learners comprised the study's population sample. Most were female (n =135) and aged 17-25. The three major variables used in this study were: learners' experience with e-learning technologies, the organisation and relevance of online information, and level of task difficulty.

All participants were given 30 minutes to read and learn five specific pages from an Introductory Psychology text used in their course. Keeping screen size and resolution constant, the five pages of text were embedded within four differently organised online environments:

- A stimulus-low environment. This was where the material to be learned was presented as scrolling text, with no other stimuli present.
- A familiar environment. This was where the material to be learned was set within the borders of a familiar course web site.
- A stimulus-noisy environment. This was where the material to be learned was set within the borders of an Amazon.com web page.
- A PDF file environment. This was where the material to be learned was presented as a PDF file that resembled an online duplicate of the material in the course textbook.

Participants were randomly assigned to one of these four environments. After reading the online text, all participants were asked whether they had enough time to complete the experimental task or if they felt overloaded. This was combined with their demographic information that included age and gender. Participants were also asked how they ranked themselves in regards to their experience of using computers and e-learning systems.

Univariate Analyses of Variance were computed to test for significant group differences and the effects of experience on test scores. They were also used to report on whether there was enough time for participants to complete the experimental task and the total number of reported pages.

Tukey's - B post hoc analyses and independent samples t-Tests were computed to further clarify significant tests. The Wald statistic was computed to determine whether the report's independent variables of group and experience had significant effects on its dependent variables of overload and enough time.

Key Findings

Experienced learners reported higher degrees of overload and worse test scores than their less experienced counterparts in the 'stimulus-noisy' environment. This was explained by the fact that less experienced learners 'blocked out' irrelevant information more readily as they did not have the cognitive 'resources' to deal with it.

But experience was important in completing tasks in a timely manner. Experienced learners were the ones most likely to report that they had enough time to complete the experimental tasks. In contrast inexperienced learners were more likely to report that they had insufficient time to complete their tasks.

Future Research

This could consider the factors or prerequisites for a universal system that could effectively accommodate both novice and experienced users.

An early investigation into factors in student's choice of technology for e-learning

Authors: Lynch, K., Debuse, J., Lawley, M., and Roy, S.

Background

Today's learners have many technology based options designed to assist them with their learning. These include institutional Learning Management Systems, learning supported by

mobile devices, and weblogs (blogs) (Duncan-Howell and Lee, 2007; Farmer, Yue and Brooks, 2008; Weaver, Spratt and Nair, 2008).

In addition, institutions are investing considerable monies to provide online resources. These resources form a key component of institutional Virtual Learning Environments (VLEs). These VLE are helping institutions to provide increasingly sophisticated e-learning environments to support their teaching and learning.

However despite its differing manifestations, fundamentally, e-learning is teaching and learning that is empowered by digital technology (Govindasamy, 2001; Nichols, 2003; University of the Sunshine Coast, 2007). But according to Lynch (2006) little consideration has been given as to what specific technology learners' would prefer to use for e-learning.

This study investigated a number of factors that could influence what technology learners prefer to use for e-learning. These included learning style (Bush, 2006; Willems, 2007), learners' educational technology preferences, and their acceptance, use and competence with e-learning technologies.

This study also extended the application of The Unified Theory of Acceptance and Use of Technology (UTAUT) model into the field of education. Finally it undertook further investigation into the relationship between a learner's 'comfort level' and their frequency of use of ICTs explored by Lynch (2006).

Literature Review
A learning style can be described as an individual's preferred way of learning. Instruments used to determine a student's learning style include Felder and Solomon's Index of Learning Style, Kolb's Learning Style Inventory (LSI) (1984), the Myers-Briggs Type Indicator, and Gardener's Multiple Intelligences.

The one selected for this study was Kolb's because it is short in length, free to use, and is well recognised in the education community. Kolb's inventory emphasises that the individual's learning style is the key to their achievement. It defines learning style as the way an individual consistently responds to and interacts with the world around them, including technology.

Kolb's LSI involves a four-stage cycle:
- Immediate or Concrete Experience (CE),which provides a basis for,
- Observation and Reflection (RO), which is then,
- Assimilated and distilled into an Abstract Concept(s) (AC), producing new implications for,
- Actions which can then be actively tested and in turn used to create new Experiences (AE).

A learner's place in the cycle indicates their preferred learning style:
- Diverging (combination of CE and RO).
- Assimilating (combination of RO and AC).
- Converging (combination of AC and AE).
- Accommodating (combination of CE and AE).

Educational technologies have been well received by learners (Koohang and Durante, 2003). According to Stansfield, McLellan and Connolly (2004) these technologies can enable learners to achieve at higher levels than through traditional delivery.

A range of variables can influence learners' perceptions of e-learning. For example, some researchers have suggested that learners' perception of ease of use drives their uptake of the technology. This uptake is linked to learners' perceptions of its value because according to Saade (2003) and Lynch (2006) this is determined by how frequently learners' use the technology.

Internet experience is also important because it affects web-based learning. But age and gender do not (Koohang and Durante, 2003). Compulsory courses are also perceived more negatively than elective courses (Smart and Cappel, 2006).

The UTAUT model developed by Venkatesh, Morris, Davis, G, and Davis, F. (2003) has been used to determine educators' perceptions of learning technologies (Debuse, Lawley, and Shibl, 2008). The UTAUT uses four constructs to represent technology acceptance:
- Performance expectancy (representing the perception that it will improve user performance).
- Effort expectancy or usability.
- Social influence.
- Facilitating conditions (in the form of technical and organisational infrastructure that supports its use).

Methodology
Most learners in the study's population sample were female, under the age of 23, and enrolled at a business course at one Australian university. Data was collected using a questionnaire which included the 12 questions from Kolb's LSI. 41 responses were used.

Key Findings
The predominant learning style was converging or assimilating followed by accommodating. There were no learners with a diverging learning style. Most learners rated themselves as competent in using the technology, provided they had sufficient time to use it.

More than 50 percent of respondents used online static information including digital libraries and email. The other popular technologies noted were asynchronised video of lectures and the availability of their associated downloadable digital transcripts. The learning usefulness ranking of the technologies correlates with the likelihoods of actual or potential learner use.

Applications that took advantage of online technologies within social spaces such as blogs, wikis, and discussion boards were either not considered as useful technologies for learning or were ranked low in terms of their usefulness. The learners appeared most interested in using learning technologies to replicate traditional delivery lectures.

The statements from the received responses that garnered the most agreement were that e-learning technologies were useful to them as a learner and using e-learning technologies is a good idea. External influences were limited in whether or not learners used technology to support their learning. However institutional support was critical. Learners felt more included in a traditional delivery lecture but saw the virtual version as a more efficient use of their time.

Future Research
Factors influencing learner uptake of lecture podcasting requires further investigation. Further research should also expand this study's sample size. Finally, an examination of how learning styles relate to technology and how these can be used to identify the most appropriate educational technologies for learning should be undertaken.

Great Expectations of ICT how Higher Education Institutions are measuring up

Author: Ipsos MORI

Background
The authors produced this report for the Joint Information Services Committee as a follow up on previous research done on school leavers. It explored how their experiences of ICT in their first year of higher education aligned with their expectations.

Methodology
Most of the study's participants were female and aged 17-19. They were from universities and enrolled mainly in science related disciplines. An online survey, follow up interviews, and focus groups were the data collection methods used.

Key Findings
Overall, universities were perceived by the participants to be providing a basic level of ICT provision to a good standard. Participants' expectations were met, and sometimes exceeded. This study gave some success stories for the use of ICT among learners driven in part by some leading edge universities.

But according to participants' one area where universities are not leading the way was in their development of new ways learners can learn. Technology training for learners tended to focus on how to use different systems. There was little sense amongst the study's participants that the university had a remit to encourage them to think differently about information, research, and presentation.

Technology for technology's sake was not appealing to this group of learners. However the university's attitude to technology was important because not only could it create a point of difference but also support their reputation.

Critical Success Factors and Effective Pedagogy for e-learning in Tertiary Education

Author: New Zealand Council for Educational Research

Background
The New Zealand Council for Educational Research was commissioned by the Institutes of Technology and Polytechnics of New Zealand (ITPNZ) to write a background paper on critical success factors in e-learning. This paper was one of four parts that comprised a wider ITPNZ project that was funded from the Tertiary Education Commission's e-Collaborative Development Fund.

This wider project had three main outcomes:
1. Provide information on the critical success factors for Māori e-learners.
2. Disseminate the findings to tertiary sector practitioners.
3. Enable these practitioners to develop effective e-learning programmes for Māori.

To achieve these outcomes this report examined Māori participation in e-learning courses and undertook a literature review on the critical success factors for Māori in all learning modes. E-learning was defined as 'learning that takes place in the context of using the Internet and associated Web-based applications as the delivery medium for the learning experience (E-learning Advisory Group, 2002, p 11).

The isolation of learners from teachers in distance education may disadvantage Māori who place a high value on face-to-face interactions and relationships. But distance education delivery does not necessarily involve e-learning.

Literature Review
Critical success factors have non-educational roots. They refer to the personal and individual factors that are essential if an organisation is to be successful in achieving its goals (Daniel, 1961; Rockart, 1982). Critical success factors approaches therefore tend to focus on the identification of a small number of factors that are in the 'must get right' category (Bullen, 1995).

Adopting this process within an educational context could involve the following approach:

Stage 1 – Identify the learners' goals through a process of needs analysis.

Stage 2 – i) assess what the learners are currently able to do; ii) analyse what has to be achieved to move them from their current position to their identified goals and iii) specify what is necessary to make this happen.

Stage 3 – Determine how to identify and measure whether or not learners' goals have been achieved.

According to Darby (2002) effective e-learning is not achieved through transferring offline resources and materials online and having the teacher absent. Courses that do this tend to have higher learner dropout rates.

Higgins (2000) sees a learner-centred e-learning environment as one that is designed to provide learners with choice, interactivity with peers and teachers, and appropriate support. To be effective e-learning needs to be planned for and grounded in an understanding of the roles of teachers and learners, of learning, and of how students learn.

E-learning has been heavily influenced by constructivist theory. This theory states that all learners bring pre-existing understandings, resources, and interests to learning situations (Marton and Saljo, 1984; Bransford, Brown A. L. and Cocking., 1999; Weigel, 2002; Biggs, 2003). But incorporating learners' prior knowledge, experience, and learning styles into an e-learning course is challenging.

These challenges include ensuring there are culturally relevant materials available (Australian Flexible Learning Framework, 2003). Bransford et al. (1999) suggest that these challenges are most effectively addressed if the everyday experiences of learners are connected in meaningful ways to what is being taught. But how this is done is also important.

Active learning is critical in an e-learning context. Incorporating e-learning into existing teaching and learning practices provides more ways for learners to be actively and deeply involved with their subject area materials. Used in this way e-learning can be a very important mechanism for increasing students' learning opportunities, and for increasing the overall quality of their learning.

Active learning can be achieved through both asynchronous and synchronous interactions because they can lead to increased feedback from a wider range of teachers, peers and external experts (Bransford et al., 1999). It can also be facilitated through 'public' peer review of learner work in an online environment. These processes allow learners to take more control of their learning by taking on some of the teacher's roles. This includes providing feedback or having greater input into peers' assessments (McConnell, 2002).

E-learning environments can also encourage and support more reflective learning and potentially lead to the achievement of other outcomes. For example, the feedback from learner surveys in McConnell's study suggested that they learned a great deal from having the opportunity to view their peers' work in progress. Learners were motivated to complete their own work by the knowledge that it had a waiting audience.

The issue of learners who read their peers' work but do not otherwise participate is solved by having each member of a group self-assess their own participation via the same collaborative forum. They can use criteria provided by the tutor to do this.

E-learning also provides opportunities for teachers to support student acquisition of more flexible and adaptive learning approaches. For example a 'cognitive apprenticeship' approach can be adopted. This is a staged approach in which the 'apprentice' develops from being a dependent observer to becoming an independent practitioner with initially high and then

decreasing levels of teacher support (Brown J. S., Collins and Duguid, 1989; Brown A. L. and Palincsar, 1989; Collins, Brown J. S. and Newman, 1989; Beven, 1994).

E-learning approaches that are under a learner's control provide them with more options to self-pace their progress through the use of examples and information. For example, web-streaming of lectures has particular advantages for learners struggling to keep up with concepts presented in a language other than their first language. The ability for online learners to practise, self-assess, and to repeat difficult material has been credited with reductions in failure rates (Sun Microsystems, 2003).

Lewis and Goodison (2004) found that where substantial use was made of e-learning environments it encouraged a greater mix of learning, communications activities, and increased interactivity. These e-learning environments also had a number of benefits for teachers. These include their facilitation of complex or more academic subjects and using its available functionality to provide more targeted and timely support to learners.

These e-learning environments also allow learners to come to lectures better prepared and more engaged. This meant teachers could use their lectures to discuss more important concepts and issues.

E-learning's more flexible approach allows greater participation by part-time and marginalised groups including learners with learning difficulties or disabilities. While e-learning can improve learners' participation its contribution to their achievement is mixed. For example, Harris, Hall and Muirhead, (2004) and Lewis and Goodison, (2004) did not note any changes in achievement directly attributable to e-learning.

Palloff and Pratt (2001) think that some subjects cannot be delivered in an online environment. These include lab sciences, applied art, counselling skills, and speech. In the subjects that can be taught online they noted that there was no discernible difference in achievement between e-learning and traditional delivery.

But they pointed out that these results were based on limited research and that other factors may contribute to learner achievement in e-learning apart from technology. These other factors include the nature of the learning tasks, the teacher, and learner characteristics particularly motivation. Ali and Elfessi (2004) also found a lack of discernible difference in achievement between e-learning and traditional delivery.

But a Sun Microsystems (2003) study found improved results for learners using e-learning. Palloff and Pratt also noted that e-learning provided additional benefits for learners including increased peer-peer interaction.

Learners are increasingly using institutional Learning Management Systems (LMS) to support their learning. But their acceptance of online courses is far from universal. Their use of LMS' tends to be for accessing course materials, information and email (Asgarkhani, 2003).

The LMS did not provide learners with the feedback and communication they needed about their learning and assessment, and did not address individual differences. While it provided flexibility for learners in their time-use and pace of learning, it did not support interaction (Campton, 2003; Proctor, 2003; Nichols and Chohan, 2004).

But learner use of LMS' has been associated by others with deeper and more strategic learning styles (Gibbs, 1999; Vos and Grant, 2001). But Gibbs noted that these changed learning styles may have been pre-existing and encouraged by the LMS rather than being developed by it. While choice of technology is important this should be determined by content matter, learning objectives, and its availability to learners (Vos and Grant, 2001).

Whether or not e-learning contributes (and how much) to different learning styles and approaches is often confounded by differing learner and teacher views. Learners often view e-learning as being effective because it is more enjoyable. However teachers define effectiveness as tangible differences to learning and learning approaches or styles (Ladyshewsky, 2004). Ladyshewsky believes improved outcomes are achieved when e-learning is conducted in smaller classes.

E-learning can help increase learner motivation and engagement (Damoense, 2003; Hegarty, 2004). Damoense does not attribute this to the technology but rather the learning environment that it can support. For example, e-learning environments can encompass activities that are interactive and flexible and assist learners with their knowledge construction and active learning. These types of activities and outcomes are often associated with quality learning experiences.

However according to Hegarty a 2002 Australian study that focused on their vocational sector found that learners can be disengaged from e-learning if there are issues around their use of, or access to, the technology. Poor design and teacher practice and learner characteristics such as motivation were also important.

But good course design can increase learner participation. For example, e-learning linked to formal assessments can be used to increase teacher-student interaction (Young and McSporran, n. d.). Course design is also important if learners are to adopt appropriate learning styles and different learning strategies (Beasley and Smyth, 2004).

While e-learning has inconsistent results when it comes to retention the reasons behind learner drop outs from its courses are much clearer. They typically involve important learner characteristics such as motivation, satisfaction, personal circumstances, technology, lack of tutor feedback and study skills, and online miscommunication (Jones P., Packham, Miller and Jones A., 2004).

Clear expectations of what is required from learners are also important in e-learning contexts (Choy, McNickle and Clayton, 2001). Both learners and teachers prefer blended learning approaches which provide a combination of e-learning and traditional delivery. These approaches are also increasingly popular in workplace contexts (Bate, Robertson and Smart, 2003).

Teacher input is critical in terms of how they design the course as well as through their interactions and support of learning and learners (Bate, Robertson and Smart, 2003). Brennan (2003) noted that while in principle the importance of interactivity and social cohesion were recognised, often the course design does not support these types of teaching and learning approaches.

But e-learning's emphasis on both technological capability and independent learning may disadvantage Māori and ESOL learners (Bate, Robertson and Smart, 2003; Brennan, 2003). Blended learning works well where it offers both flexibility and social interactions.

Key Findings
Increasing Māori participation and achievement in tertiary education was a major priority in the then Tertiary Education Strategy (Ministry of Education, 2002). There are many examples cited in the report from the E-learning Advisory Group (2002) of increased participation and improved outcomes for Māori in blended learning contexts. But based on 2004 data from the Ministry's Single Data Return (SDR) Māori are considerably more likely than non-Māori to be in courses that do not have an e-learning component.

But this is most likely because of their low participation rates at universities where much of the e-learning activity is. This explanation is supported by the fact that the percentage of Māori in university study roughly equals their e-learning participation rate. However their low e-learning participation rate could also be due to other factors including a lack of internet access, or their school qualifications not allowing them entry into e-learning courses.

But a lack of internet access is not the only challenge in increasing Māori participation in e-learning. Many Māori are resistant to participation in internet-based activities, including e-learning, for important cultural reasons. This is because of concerns around teaching traditional knowledge via the internet where it could be available to all and therefore potentially open to misunderstanding or even abuse (Campbell and Hawkesworth, 1999; Hond, 2004).

Furthermore many e-learning environments are not seen as 'Māori friendly'. For example there is a lack of digital resources in Māori (Hond, 2004). Māori learners who lack education can also mean e-learning may be viewed as a hindrance because it can add to their general feelings of inadequacy particularly where they 'fear' the technology (Campbell and Hawkesworth, 1999; Hond, 2004).

The issues and challenges related to introducing and sustaining e-learning in tertiary settings can be summarised as:
- Identifying and meeting the needs of learners.
- Designing experiences that efficiently meet objectives.
- Choosing appropriate technologies and creating motivating learning designs.
- Measuring learning outcomes.

These issues and challenges can be addressed most effectively by engaging learners, minimising technical problems, providing sufficient interaction while not overtaxing teachers, and framing e-learning so that it enriches learning and creates a sense of a group or learning community. These need to be the top priorities in the establishment and review of e-learning provision in tertiary settings.

In terms of specifically increasing Māori participation in e-learning this is only likely to be achieved if their university participation rates rise or there are more opportunities in other parts of the tertiary sector particularly polytechnics and wānanga. Increasing their e-learning participation is also more likely if a blended approach is adopted.

Statistical Profile of Mäori in Tertiary Education and Engagement in e-learning

Author: New Zealand Council for Educational Research

Background

This report is based on data from the Ministry of Education's 2004 Single Data Return (SDR). The SDR is the main collection of statistical data from Tertiary Education Organisations (TEOs). The SDR's Internet field provides data on TEOs engagement with e-learning. It is a course-level variable that is split into categories based on the course's requirements for student access to the internet.

The traditional delivery category is referred to in the Internet field as 'No Access'. The e-learning delivery categories are referred to as Web-Supported, Web-Enhanced and Web-Based defined as follows:
- Web-Supported: where a course provides students access to limited online materials and resources. Access is optional, as online participation is likely to be a minor component of study.

- Web-Enhanced: where a course expects students to access online materials and resources. Access is expected, as online participation is likely to make a major contribution to study.
- Web-Based: where a course requires students to access the accompanying online materials and resources. Access is required, as online participation is required.

Key Findings

Only 37 percent of Māori were enrolled in e-learning courses compared to 49 percent for non- Māori. Therefore 63 percent of Māori were in courses with no internet access. One of the most likely explanations for this is the limited e-learning provision at wānanga and polytechnics which are the main providers of tertiary education for Māori.

For example, at wānanga there were no learners in Web-Enhanced or Web-Based courses. At polytechnics there was only five percent in both types. In Private Training Establishments the figures were also low at about one percent for each type. The low participation by Māori in e-learning may also be because more of them are in the 45+ age group which has less internet access.

In polytechnics Māori women have more internet access than their male peers (48 percent vs. 29 percent respectively). But despite this increased internet access Māori women had low participation in Web-Enhanced and Web-Based courses.

This gender difference is probably related to extramural enrolments. More women are extramural learners. Extramural learners are more likely to participate in e-learning courses. For example, Māori learners are much more likely to do e-learning courses at wānanga and polytechnics extramurally and part-time rather than on-campus and full-time.

By level of study more Māori (76 percent) are in Web-Supported courses at Levels 1-4 (which are provided mainly by polytechnics) than the other e-learning delivery modes. At both these levels and postgraduate study few Māori learners are in Web-Enhanced courses (10 and five percent respectively). But at universities at degree level only 23 percent of Māori learners are in Web-Supported courses. This is because universities have much higher provision of Web-Enhanced and Web-Based courses.

Student attrition in mathematics e-learning

Authors: Smith, G. G., and Ferguson, D.

Background

Learner attrition rates are higher in distance education and e-learning courses than in their traditional delivery counterparts (Thompson, 1997; Phipps and Merisotis, 1999; Smith, Ferguson and Caris, 2002). Student and instructor characteristics are crucial in determining learner attrition (Roblyer, 1999; Wade, 1999; Carr, 2000). Learners who are motivated and are knowledgeable about e-learning and are taught by instructors, who are more experienced in this delivery mode, are likely to have lower attrition rates.

This study looked at attrition by comparing and contrasting mathematics courses delivered by e-learning and traditional delivery. Mathematics teachers are much less keen on e-learning than other their peers in other disciplines mainly because of its perceived inability to handle its complexities.

This is particularly problematic with notations and diagrams which cannot be taught in 'real time' online as most learners lack the software to do this. In contrast traditional delivery does not present these technical challenges (Leventhall, 2004; Smith, Ferguson and Gupta, 2004).

The objectives in this study were to determine if mathematics was more or less viable than other disciplines both in an e-learning and traditional delivery context. This was determined through

attrition because it is a good measure of viability. Learners will drop out of courses they like the least or the ones they perceive to have the lowest value.

Methodology

Instructors participating in e-learning through a large non-profit organisation that only provided fully online, asynchronous courses were surveyed. They were asked to identify their enrolments and attrition rates for both their mathematics and non-mathematics courses. There were 138 responses. This was compared to a US university's attrition rates in mathematics between e-learning and traditional delivery.

As the learner numbers and make up were substantially different an implied rather than a direct comparison was made. This is justified by the fact that the learner populations for both modes were seen as largely representative (part time and older vs. full time and younger for e-learning and traditional delivery respectively).

Key Findings

For e-learning courses there was a statically significant difference in attrition rates for mathematics and non-mathematics courses. Mathematics courses had a much higher attrition rate. But for the traditional delivery courses there was no discernible difference in the attrition rates of mathematics and non-mathematics courses.

However the most likely reason given for these differences was not the delivery mode but the composition of the e-learning student cohort. It was much older, part-time, and had a poorer academic background. They were also often returning to study after a long hiatus and may have forgotten their basic mathematics literacies and skills. In contrast the younger traditional delivery learners were much more current in their skills and capabilities and were not balancing work/study pressures to the same extent as their older peers.

Using Self-Regulatory Learning to Enhance E-Learning-Based Information Technology Training

Authors: Santhanam, R., Sasidharan, S., and Webster, J.

Background

Most employees now need a reasonable set of IT skills and knowledge. As a result many universities offer IT training courses (Argawal and Ferratt, 2001; Piccoli, Ahmad and Ives, 2001; Bureau of Labour Statistics, 2004; Homer and Povar, 2004). This training is increasingly being delivered through e-learning methods and processes. This is in part because e-learning is seen as being cost effective.

Allen and Seaman (2005) found that 81 percent of US educational institutions were offering at least one fully online or blended course. 34 percent offered degree programmes that had no traditional delivery component. But despite this massive investment and its potential e-learning has not delivered its anticipated benefits.

The IT platform has become the dominant mode of communication with the learner. This has meant that the accompanying instructional strategy relies on self-directed learning. This approach is underpinned by the assumption that learners can independently regulate their learning and absorb the training content (Gagne, 1977; Gagne, Briggs and Wager, 1992; Leidner and Jarvenpaa, 1995).

However this reliance on self-directed, independent learners means that the course is often designed to reduce or remove the guidance and support from teachers and peers. But reports indicate that learners are often not able to apply the required high levels of control, are generally not motivated to learn, and tend to use inadequate learning strategies (Brown, 2001; Bell and Kozlowski, 2002; Rossett and Schafer, 2003). In short according to Schunk (2001) self-regulation is not consistently applied by all students in all learning contexts.

Learners need to be encouraged and supported to use self-regulated learning strategies. These strategies will also enhance their learning outcomes. Suggested instructional interventions to achieve learner adoption of these strategies include formulating appropriate goals for the course. But self-regulation is determined by a number of factors largely outside the instructor's control. These include learner beliefs about their capability to learn which is often referred to as self-efficacy (Zimmerman, Bandura and Martinez-Pons, 1992; Schunk and Ertmer, 1999, 2000).

The study aimed to confirm or disprove the following hypotheses:
1A: In an e-learning-based IT training session, pre-session interventions designed to increase the learner's use of self-regulatory learning strategies and accompanying beliefs will enhance learning outcomes.
1B: In an e-learning-based IT training session, interventions that provide positive feedback to learners on their use of self-regulatory strategies will enhance learning outcomes.
2A: In an e-learning-based IT training session, learning orientation will be positively associated with learning outcomes.
2B: In an e-learning-based IT training session, computer-learning self-efficacy will be positively associated with learning outcomes.
2C: In an e-learning-based IT training session, self-efficacy for self-regulatory learning will be positively associated with learning outcomes.

Literature Review
There has been limited research on IT skill development courses (Jones and Paolucci, 1999; Bernard, Abrami, Lou, Borokhowski, Wade, Woznoy, Wallet, Fiset, and Huang, 2004; Jonassen, 2004). But there has been extensive research into distance education. A meta-analytic review of over 200 research studies on distance learning concluded that learning outcomes can be enhanced by paying attention to specific features of the instructional environment including the proper use of instructional strategies (Bernard et al., 2004).

Lou, Abrami and D'Apollonia (2001) in a review into group learning found that it had more favourable effects than individual learning. But despite this most commercial technology supported training is based on individual not group learning (Benbunan-Fich and Hiltz, 2003, Richardson and Swan, 2003). However many believe that instructional strategies are more important in determining learner success in an e-learning environment (Alavi, 1994; Alavi, Wheeler and Valacich, 1995; Alavi, Marakas and Yoo, 2002; Leidner and Fuller, 1997; Coppola, Hiltz and Rotter, 2002; Sasidharan and Santhanam, 2006).

Methodology
118 learners participated in the study with an average age of about 22 and a roughly equal split between males and females. All participants had experience with popular software packages like Microsoft Word and PowerPoint. But none of them had experience with web-development software.

A laboratory experiment was conducted at a large public university using an e-learning platform that supported training for employees and students. Each participant completed the course independently, without interference from other learners by sequentially activating and completing its eight consecutive learning modules. Delivery of the course was interactive and used audio and video components.

Data was collected using a background information survey, pre-training scripts based on Schunk and Zimmerman's 1998 self-regulation model, midpoint scripts and a declarative knowledge test. Two types of manipulation checks were conducted one with the study participants and the other with a separate group. Factor analysis was used to interpret and report on the data. For reliability they used Cronbach alpha tests.

Key Findings

When the instructional strategy that was used included interventions that taught learners to self-regulate, they applied more self-regulatory learning strategies, leading to enhanced learning outcomes. The group instructed to follow self-regulated learning strategies (SRL) before and during training achieved the highest learning scores.

The group that received no instructions to self-regulate their learning either before or during training received the lowest learning scores. However all learners applied some SRL. But e-learning necessitated a higher application of SRL than this bare minimum.

The results did not support the hypothesis that individual learner traits relating to SRL could influence learning outcomes. In traditional delivery information systems training environments individual learner traits play a relatively important role. But in e-learning based training environments, instructional strategies may play a more critical role than pre-existing differences in individual learner traits.

Limitations

They used self-reports on the use of SRL as a manipulation check rather than interviews, observation, or verbal protocols. This was because self-reports provided a method by which to compare the use of SRL among the groups. While research suggested that training outcomes should be evaluated using several dimensions the authors only focused on learning outcomes. This was due to their primary interest in improving the effectiveness of e-learning. The final limitation identified was the use of learner participants.

Future Research

Examine the software, programming, and other technical issues in the design of e-learning tools that can provide SRL related messages at the beginning of the training session as well as during it and identifying how they could be personalised for each learner. Determine if users' SRL skills can be developed through training programmes.

Engaging the Māori E-Learner: Instructional Technology, Design, and Delivery

Author: Tamati, D.

Background

E-learning presents many opportunities and challenges for Māori learners. The opportunities include the potential for greater engagement. The major challenge is the importance that Māori attach to traditional delivery learning environments.

This is driven in part by the problems they encounter when working in isolation which often occurs when learners study outside traditional delivery environments (Mead, S. M., 1997; Smith, L., 1999). But this strong bias in favour of traditional delivery environments could lead to a belief by Māori that they can only succeed in them.

Māori e-learners need to quickly establish connections and build relationships. Of particular importance is support from their whānau, friends, tutors, and peers (Pere, 1994). But another critical factor in improving the performance of Māori learners is a change in the roles and responsibilities of tutors (McSporran, 2004; Ministry of Education, 2005).

The main objective of this research was to provide an insight into the engagement of the Māori learner in an e-learning environment based on the perspectives of eight Māori professionals. The research questions were:
1. What do the Māori professionals prefer to learn?
2. What are the issues, challenges and needs of the Māori e-learner?
3. What are the pedagogical strategies and methods that can enhance learning for Māori?

4. What elements of technology can be used to engage the Māori e-learner?

Literature Review

E-learning is commonly used to refer to courses delivered through the internet (Ministry of Education, 2005). It provides flexible learning alternatives for Māori learners (Porima, n.d). E-learning can not only meet the differing needs of diverse learners but also improve their learning outcomes (Ministry of Education, 2003; Holsapple and Lee-Post, 2006). The emphasis in e-learning on group learning is also likely to benefit Māori (Palloff and Pratt, 2003; Mead, H. M., 2003).

But a New Zealand Council for Educational Research report (2004) found that Māori learners had low participation in courses with an e-learning component. To increase their participation it is critical that Māori are closely involved in the design of courses so that their needs can be met. For example, the course design should support the effective merging of technology with Māori epistemology and tikanga (Porima, n.d.).

Māori learners can be broadly categorised as follows: cultural inheritor, cultural seeker, cultural dissenter, and cultural rejecter (Maharey, 2002). An inheritor is fluent in te reo Māori, conversant in tikanga Māori and embraces Māori culture. A seeker is trying to establish their identity and links. In contrast a dissenter reacting to negative cultural pressures rejects the adverse and stereotypical images associated with Māori.

These different perspectives need to be taken into account when engaging Māori in e-learning. Māori often have a natural aversion to learning environments with limited or no face-to-face contact (Prensky, 2001). This aversion is often manifested through anxiety, discouragement, boredom, and frustration (Berryman and Bishop, 2006).

It is important to ensure that as much face-to-face contact as possible is maintained in e-learning environments if they are to attract, engage and assist Māori (Mead, S. M., 1997; Smith, L., 1999). Māori may also need a compelling reason to participate in e-learning (Prensky, 2001).

Māori need to take ownership of their learning if they are to be successful in e-learning (Prensky, 2001). They also need increased motivation, dedication, commitment, and pride (Porima, n.d). Karabenick and Collins-Eaglin (1997) argue that learner self-regulation is a significant aspect of their engagement. While this self-regulation is underpinned by self-efficacy and understanding it is supported by cognitive strategies such as organisation and critical thinking.

Regular group discussions help members develop a rapport with each other and provide a valuable avenue for the sharing of knowledge and resources. This assists in the development of a culturally responsive community (Berryman and Bishop, 2006). E-learning communities like their traditional delivery counterparts can respect and understand cultural diversity (Hooks, 1994).

But to do this they need to adapt to find appropriate ways to meet the diverse needs of indigenous learners. Their needs are most likely to be met when they can participate freely and confidently (Hooks, 2000). This is facilitated where the Māori e-learner is immersed in a culturally diverse community.

Learning communities where Māori values are respected and incorporated are important (Mead, H. M., 2003). The establishment of key relationships in an e-learning environment assists Māori engagement and is critical to their success (Tapine and Waiti, 1997). These key relationships can be broadly categorised as whānau support. Whānau here is widely interpreted to cover all critical relationships including those of classmates and colleagues (King, 1992; Ritchie, 1992; Pere, 1994; Mead H. M., 2003).

Māori learners like their non-Māori peers need a base level of competency and confidence when working with computers or have the necessary technical support readily available if they are to succeed in e-learning (Roblyer, 2003; McSporran, 2004). To assist all learners including Māori teachers need to engage in innovative activities and use a wide range of technologies and tools across a variety of contexts (Hooks, 1994).

But many teachers resist the notion that they need to change their practice or up skill to effectively incorporate technology into their practice (McSporran, 2004; Sheets, 2005). For Māori learners teachers face the additional challenge of needing to incorporate cultural responsiveness into their wider practice. Both these elements are necessary if Māori learners are to be successful in e-learning (Tapine and Waiti, 1997; Gay, 2000).

Technology allows different pedagogies to emerge that better meet the needs of learners (Nichols, 2007). This includes e-Ako which is underpinned by a reciprocal relationship between teacher and learner. Using e-Ako pedagogy would in some contexts reverse traditional roles so the learner would become the teacher and the teacher would become the learner (Pere, 1994; Webber, 1996).

Māori put particular emphasis on the importance of the tutor in their role as guide or facilitator as they equate this to their kaumatua or kuia (Vasil, 1990). Tutors also play a major role in the provision of timely, sufficient, and positive feedback (Weimer, 2005, Porima, n.d). This supports the view that teacher-student interaction is critical (Wanstreet, 2006).

For Māori learners it is critical that everyone (not just tutors) participates in group discussions (Ritchie, 1992). This is because these discussions are part of the adequate and accessible support mechanisms that are vital for Māori success in e-learning (Porima, n.d).

It is also important that these support mechanisms are underpinned by teaching methods and materials that will increase learner motivation (McFarlane, 2004; McSporran, 2004). Constructivism suits Māori learners because it allows the tutors and learners to co-construct meaning, understanding, and relevant practice (Smith, L., 1999).

Methodology
Eight learners participated in this study. Data was collected through individual and focus group semi-structured interviews as well as observations and transcripts from an online forum created especially for this study. A computer-aided data analysis program, N7, was used to analyse themes, code data, and categorise results. Data was triangulated by comparing and contrasting the online tutorial and interview data.

The research design used for this study was the Problem-Resolving Action Research model (Piggott-Irvine, 2002). This involves three cycles: examining an existing problem, implementing an intervention to resolve or address the problem, and evaluate the effectiveness of the intervention.

Key Findings
Apart from the cultural rejecter the other participants fitted into the broad categories of Māori learners outlined above. The participants found a combination of traditional delivery supported by e-learning was best. But they did express concerns that the e-learning component was not sufficiently engaging. The consensus from participants was that engagement began before the course commenced and that pre-orientation should prepare them well for e-learning. They valued the face-to-face aspect of this orientation.

Engagement could be increased through more use of social media (e.g. Facebook). A high degree of immediate interaction with teachers would also facilitate and assist learner engagement. Face-to-face interactions were highly valued but for some participants the personal contact from the tutor regardless of how this was achieved was more important.

Finally engagement was supported by effective course design that incorporated innovative assessments such as online quizzes and where possible allowed a degree of personalisation to occur. Good course design also depends on effective use of technology and taking into account learner needs and expectations. For example, Māori images were not viewed as important by the participants. Many found them distracting. They placed more emphasis on having appropriate and relevant content.

Participants' views were roughly divided between those who valued the incorporation of tikanga Māori into the e-learning environment and the others who were unclear on the rationale and value of doing this. However these differing views did not have an impact on participants' motivation.

Participants struggled with isolation. One of the main reasons cited for this was that the online forums were 'sterile' and lacked the 'warmth' of the more familiar traditional delivery environment.

But this isolation could be overcome by motivation and self-belief. This is important because Māori are often told they can only succeed in traditional delivery environments. However this makes Māori dependent on them. In contrast e-learning can foster and encourage more independent learning which benefits Māori. Support needed to be holistic by combining academic, pastoral and cultural aspects. It also needed to be available online to increase its effectiveness for Māori e-learners.

Future Research
Addressing the question of how Māori pedagogies and instructional technology including its design and delivery can be incorporated into the course curriculum to increase Māori engagement in e-learning.

A Literature Review focused on Virtual Learning Environments (VLEs) and e -Learning in the Context of Te Reo Māori and Kaupapa Māori Education

Authors: Tiakiwai, S. J., and Tiakiwai, H.

Background
There has been increased e-learning activity across the New Zealand education sector. But it is viewed in two distinct ways: one that it is a different pedagogical approach and the other that it is merely a different delivery mode.

The questions informing this literature review were:
1. What are the key understandings that emerge from an integration of the literature that has explored kaupapa Māori education (including te reo education) with the literature that focuses on e-learning principles and practices within indigenous education contexts?
2. What are the key understandings that emerge from the literature on the emerging teaching and learning practices associated with Virtual Learning Environments (VLEs)?
3. And, drawing on the two preceding review sections - What are the teaching and learning practices that appear most likely to contribute to enhanced learning outcomes for learners in kura kaupapa Māori?

Methodology
A kaupapa Māori framework was used for this literature review. This ensures that the analysis of the literature is appropriately grounded and located. It also addresses critiques from kaupapa Māori researchers that educational research tends to ignore the reality of Māori educational experiences and does not recognise the validity of Māori methods of knowledge construction (Bishop, 1996; Smith, G., 1997; Smith, L., 1999). This approach meant that the literature

pertaining to e-learning could be examined to see how and in what ways it may be appropriately applied in kaupapa Māori learning environments.

Literature Review

A common theme in the literature was the importance of creating the right learning environment. VLEs allow greater learner interaction. They also enable increased flexibility and thereby assist learners to increase control of their learning (Piccoli, Ahmad and Ives, 2001; Chandra and Lloyd, 2008; Harlow, Cowie and Jones, 2008). According to Piccoli et al. increased learner interaction and their achievement of learning outcomes is more likely in a VLE than in a traditional delivery environment.

But poorly designed VLEs can lead to high levels of learner anxiety, isolation, and confusion (Piccoli et al., 2001). Differing levels of learners' confidence in relation to interaction with their peers also needs to be taken into account. Some learners also needed to adjust to the absence of traditional delivery (Gilbert, Morton and Rowley, 2007).

However, others have argued that learners should not need to adjust to an absence of face-to-face interaction in e-learning because this should be built into the course design (Institutes of Technology and Polytechnics of New Zealand, undated; Porima, undated; Waiti, 2005). The importance of design in facilitating improved relationships and interactions between teachers and learners was also highlighted by the New Zealand Council for Educational Research (NZCER) (2004).

Students' cultural expectations around teacher-learner relationships should inform course design (Rogers Graham and Mayes, 2007). These cultural expectations also include a need to appropriately incorporate language, symbols, and concepts to avoid causing offence (even if unintentionally) to learners (Rogers et al., 2007).

In the literature collaboration is generally viewed as a manifestation of teaching and learning practice, or arising from the interaction and development between resources and its participants or users. But this review takes a more holistic view by focusing on the importance of collaborative relationships – between and across communities, schools, and institutions – to facilitate the provision of e-learning services and products.

Collaboration is seen as an important teaching and learning practice in e-learning contexts (McLoughlin and Oliver, 2000; NZCER, 2004; Condie and Livingstone, 2007; Chandra and Lloyd, 2008). This is because e-learning places particular emphasis on collaboration, shared experiences, and participation (McLoughlin and Oliver, 2000).

E-learning also places more importance on peer-peer interactions. This is because it is often expected in e-learning environments that learners will take increased control of their learning and teachers will shift to taking on more of a facilitation role (Condie and Livingstone, 2007; Chandra and Lloyd, 2008).

Wilson (2004) suggests that collaborative action helps ensure a 'custom fit between the static resource and the immediate needs of individuals and groups' (p. 79). Collaboration is particularly important in a kaupapa Māori context. This is because it can assist with effectively incorporating and addressing the differing views and particular needs of Māori pedagogy and world view with those of IT developers (Ham and Wenmoth, 2007).

Online or digital resources need to be of higher quality than their traditional delivery equivalents (E-Learning Advisory Group, 2002). This higher quality combined with effective use will have a positive effect on learner engagement and learning outcomes (Ministry of Education, 2006).

This increased learner engagement and improved learning outcomes are more likely to occur where the tools connect to the learners' everyday lives, experiences, and expectations. The experiences of Te Wānanga o Raukawa in piloting an e-Portfolio software programme, Mahara, suggests that when this occurs such tools can complement culturally specific learning approaches.

The impact of technological infrastructure on digital learning environments is often dependent on, and influenced by, issues such as its speed, accessibility, cost, and reliability (Parr and Fung, 2000; Bolstad, 2004; Waiti, 2005; Gilbert et al., 2007; Ham and Wenmoth, 2007). In particular, learner, experiences of unreliable data connections, their lack of access to technical expertise, and the 'learn as you go' approach were seen as being inhibitors to effective engagement in e-learning for Māori (Waiti, 2005). Therefore in designing an e-learning course the limitations of the infrastructure and the confidence of learners to use it need to be taken into account (Rogers et al., 2007).

The infrastructure 'divide' between larger and smaller institutions may adversely impact e-learning provision. For example, this could lead to a situation where smaller institutions do not have the resources to be able to offer the same levels of e-learning capability as larger institutions. This would be further exacerbated by financial resourcing constraints which also hinder the development of appropriate infrastructure and capability (Ham and Wenmoth, 2007).

Much of the literature reviewed identified how technology enhanced or supported learner engagement in learning. But there were fewer studies on how technology facilitates learner achievement or contributes to enhanced learning outcomes. Of more concern is the fact that much of the evidence of improved learning outcomes is anecdotal.

While e-learning may facilitate increases in achievement this is most likely to occur when learners are comfortable using, and have the confidence to engage with, the technology. It is also determined by the quality and reliability of the supporting ICT tools and infrastructure (Condie and Livingstone, 2007).

Others have also, for different reasons, cautioned about attributing increased learner achievement to e-learning environments. For example, Schutte (1997) found that learner success was largely determined by peer-peer interaction. This tended to favour e-learning. But this was because the teacher was largely absent in these environments which required learners to interact more.

Similarly Bolstad (2004) found while the qualitative data supported improved learning outcomes such as engagement and achievement the quantitative data (standard assessment tests and examinations) was inconclusive. Chandra and Lloyd (2008) also found that isolating e-learning as the key variable in improved learning outcomes is difficult. They noted that where simplistic conclusions are drawn they mask the complexity of VLEs. In their particular study they did find improved learning outcomes. But they cautioned that this could be due to the Hawthorne effect of being engaged in a research project or changes to pedagogy where the teacher shifted from instruction to mentoring.

The E-Learning Advisory Group (2002) believed Māori participation, and effectiveness, in e-learning could be achieved through the development of resources catering for Māori, a support group to help develop appropriate e-learning programmes, and research and professional development for Māori practitioners. Ham and Wenmoth in their 2007 evaluation of the e-Collaborative Development Fund found that 'e-learning within the Māori community is seen as a 'leveller' and, in particular, a way to enable learning to take place for Māori communities in remote areas' (p. 60).

One of the major challenges facing e-learning in a Māori learner context is how to make it culturally appropriate. This ranges from incorporating a traditional delivery component which is generally straightforward to the more complicated issue of including tikanga Māori processes such as whānaungatanga. Either way it is important that e-learning provides an environment where Māori learners can bring the reality of their community and culture (Campbell and Hawkesworth, 1999).

For some Māori learners' retaining a traditional delivery component in e-learning was critical (Porima, undated, NZCER, 2004). But despite the absence of face-to-face interaction this NZCER study also showed that better teacher-student relationships were possible in an e-learning environment.

One of the major gaps identified was the lack of te reo Māori resources. Access to these types of resources was noted in the literature as being important, particularly in Māori immersion environments (May and Hill, 2005; Waiti, 2005; Ham and Wenmoth, 2007). However there are examples of this occurring effectively in practice (Campbell and Hawkesworth, 1999; Ham and Wenmoth, 2007).

But despite this importance, according to NZCER, such resources may not be appropriate in a publically accessible online environment. Even where these resources were available learners may not have the access or skills to effectively utilise them (Porima, undated; NZCER, 2004). However where access was available benefits to learners in terms of costs and time management were identified (Porima, undated).

Those responsible for developing these resources need to be aware of their own cultural biases because culturally responsive teaching and learning environments are important for Māori learners (Bishop, Berryman, Tiakiwai and Richardson, 2003; NZCER, 2004; Rogers et al., 2007). But too often designers who are preoccupied with content tend to support a one size fits all approach.

However this may be due to organisational shortcomings as well as those of the designers. For example, an institution could prioritise technical rather than pedagogical support (Rogers et al., 2007). A note of caution was also sounded by NZCER around the importance of these factors as there was a lack of data on Māori experiences in e-learning.

There is also a lack of literature on what the effective teaching and learning practices are that are most likely to support enhanced learning for Māori learners within e-learning environments. But some common themes emerge from what is available. The literature identifies several ways in which e-learning environments can be created that will lead to improved outcomes for Māori learners. These include the incorporation and acknowledgment of Māori cultural knowledge (Underwood, 2007).

Quality teacher-student relationships which are important for Māori in traditional delivery are also important in e-learning (Waiti, 2005). Incorporating a traditional delivery component within e-learning courses will address this. It is also likely to improve the overall quality of the course and help reduce learner isolation, particularly in distance education contexts (Waiti, 2005).

Deepened Mirrors of Cultural Learning: Expressing Identity Through E-writing

Author: Andrew, M. B.

Background

Using. Learning Management System (LMS) and learner data (in the form of a paper journal) this study investigated the role of e-learning in the construction of cultural learner identities and emerging understandings of New Zealand culture. Both the LMS and paper reflections allowed learners to more deeply consider their learning about culture and society. The study was based on the idea that e-writings could provide deeper insights into learner awareness of their developing thinking about 'Kiwiness' than traditional paper-writings.

Literature Review

Language socialisation as described by Pavlenko (2002) aligns with Murphy and Loveless (2005) who stated that 'online discussions can support opportunities for co-construction of knowledge through shared discourse and interaction with others in a social context" (p. 155). Locke (2005) suggested that -moderated spaces for self-expression made available through digitised media including LMS bulletin boards or threaded intranet discussion sites provide enhanced writing opportunities for learners.

Motivation and interactivity are both increased when writing in an e-text environment (Suzuki, 2004; Senior, 2006). Importantly e-text also enables enhanced reflection that is both experiential and critical. This is in part because e-writing spaces are seen as being less threatening to learners which can increase their critical thinking (Coster and Ledovski, 2005; Locke and Daly, 2006). Because learners are encouraged to share their thoughts and are not judged on their accuracy it enables greater honesty in their writings and also allows them to adopt a more descriptive, narrative type approach.

E-texts are seen as being democratic, public discourses for constructing, portraying, and reflecting on real-life learning (Jonassen, 2000; Campbell, 2003; Johnston, 2003; Murphy and Loveless, 2005). They are public because participants can view and engage with others' writings. However they play an important and additional function by acting as repositories of learners' personal descriptions, evaluations, and reflections.

Methodology

Five classes from one course with a total of 48 learners were used for this study. Most learners were from Asia. But there were also learners from Europe, Africa, and Iran. The age range of the participants was 19 to 52.

The qualitative data used consisted of 96 sets split evenly between the paper and e-diaries. Themes that emerged from the data were open-coded and categorised. Discourse and metaphor analysis techniques were also used.

Key Findings

The e-texts in particular showed much greater learner engagement in learning. They also demonstrated through better articulation improved connections to their real world experiences afforded by community placements. This study suggests that e-texts in particular may assist learners with their selection of content and modes of expression for capturing their experience.

It also indicates that technology can support types of learner interactions and expression that are difficult to achieve in a traditional delivery environment. The results also suggest that e-texts allow learners the opportunity to develop frames for thinking.

E-diaries allowed learners to reflect and evocatively describe how community placement had influenced their identity. Overall the e-texts were much more useful for both participants and researchers in describing their community placements and its impact on their identity and skills acquisition. This finding supports the wider research literature.

This analysis suggests that learners utilise their e-reflections and discussion board entries as sites of self-reappraisal and re-negotiation as well as demonstrations of experiential learning. The data also indicates that learners were moving from spectators to participants. E-text's role in these shifts is supported by the wider literature.

Does the Community of Inquiry Framework Predict Outcomes in Online MBA Courses?

Author: Arbaugh, J. B.

Background
While there is no dominant theoretical framework that explains online learning effectiveness the one that has attracted the most attention is Garrison's Community of Inquiry Framework (CoI). But despite this interest there has been a lack of studies focused on generalising it to a wide range of disciplines in higher education. Studies examining all its components simultaneously were also limited.

This lack of research means there is limited evidence to consider whether there are significant relationships between any of the framework's dimensions and learning outcomes. To address this gap there is a need for more empirical studies to assess its explanatory power in fields beyond general education.

The purpose of this paper was to report on the results of a study that examined whether the CoI dimensions of social, teaching, and cognitive presence exist distinctively in discipline specific (i.e. management education) e-learning environments. It also aimed to determine whether and to what extent these dimensions were associated with perceived learning and delivery medium satisfaction in online Masters of Business Administration (MBA) courses.

Cognitive presence was defined here as the extent to which learners were able to construct and confirm meaning through sustained reflection and discourse. This presence is likely to be the most difficult to implement in online courses.

Literature Review
Garrison, Anderson and Archer (2000) developed the CoI framework to investigate how features of written language used in computer conferencing activities promote critical/higher-order thinking. They contended that higher-order learning experiences are best conducted through a community of inquiry comprised of teachers and learners.

This community of inquiry should be supported by meaningful interactions. These interactions need to have clearly defined parameters and be geared towards a specific direction. Teacher presence in these interactions is critical. Teachers also had a vital role to play in course organisation and design, facilitating relevant and appropriate dialogue, and providing extensive, direct instruction (Anderson, Rourke, Garrison and Archer, 2001; Coppola, Hiltz and Rotter, 2002; Brower, 2003; Shea, Fredericksen, Pickett and Pelz, 2003; Marks, Sibley, and Arbaugh, 2005; Eom, Wen, and Ashill, 2006).

For learners both social and cognitive presences are important (Short, Williams and Christie, 1976; Guawardena and Zittle, 1997; Benbunan-Fich and Hiltz, 2003; Arbaugh, 2004, 2005b; Beuchot and Bullen, 2005; Garrison and Cleveland-Innes, 2005; Hwang and Arbaugh, 2006; Williams, Duray and Reddy, 2006; Yoo, Kanawattanachai and Citurs, 2006). But social

presence is more important in online contexts where learners need to be perceived as 'real people'.

Methodology
Out of an initial population sample of 1,200 learners they had 656 responses. The mean age of respondents was just under 33 and 57 percent were male. The study focused on one MBA programme from one university in the mid-western region of the US over a two year period. 17 instructors were involved.

The study's dependent variables were perceived student learning and satisfaction with the course delivery medium derived by factor analysis. Controls were established for class section size, learner age, gender, weekly course website usage, and prior experience with web-based courses.

Prior experience was measured by the number of web-based courses taken by the learner. Weekly usage of the course website was measured by the number of days a week the learner logged onto the course site multiplied by the self-reported average number of minutes per session spent on the site.

Key Findings
Teaching and cognitive presence were relatively highly correlated with perceived learning. Teaching presence was a much stronger predictor of perceived learning than the course delivery medium. In contrast social presence was a much stronger predictor of delivery medium satisfaction than perceived learning. Cognitive presence was a strong predictor of perceived learning. But it was not a significant predictor of delivery medium satisfaction.

This suggests that while social presence was important, teaching and cognitive presences are more critical in online learning environments. It is also important that teaching and cognitive presences are highly visible in online contexts simultaneously because they complement each other.

Advanced IT Education for the Vision Impaired via e-Learning

Author: Armstrong, H. L.

Background
This paper described a pilot project that was conducted over a two year period. The aim of this project was to provide acutely vision impaired people accessible IT networking training equivalent to that offered to sighted people. Vision impairment was defined here as a disability resulting in little or no useful vision.

The vision-impaired are struggling to gain education that is relevant to their future employment and disability. Technology has made a major contribution to this state of affairs. For example, many online educational courses are highly inaccessible for visually impaired learners because they are underpinned by a vision-driven education approach (Harper, Goble and Stevens, 2001). This is compounded at the institutional level where there has been slow and limited progress in ensuring accessibility of learning materials and environments for those with a variety of disabilities.

Literature Review
Studies have found that the majority of course websites are not accessible for visually impaired learners (Thompson, Burgstahler and Comden, 2003; Mankoff, Fait and Tran, 2005; McEwan and Weerts, 2007). This could be due to a lack of experience in developing these sites as well as limited information on how to do it quickly and effectively (Mankoff et al., 2005).

A strong focus on a vision driven approach in an e-learning context is to be expected when it dominates the research discourse (Spence, Kettenmann, Kobal and McGlone, 2001; Thesen,

Vibell, Calvert and Osterbauer, 2004). According to Shore and Klein (2001) this dominance in the research is likely because of its primacy in the learning experience.

Methodology

The project's population sample was 19 legally blind learners (all with less than five percent visual acuity and/or less than 10 degrees field of view) who were progressively testing converted versions of the Cisco Certified Network Associate e-learning materials. Participants needed to be 18 years or older, have a working knowledge of the chosen assistive technologies, and possess a basic familiarity with computers.

The participants had a number of crucial support mechanisms. These included a comprehensive set of online learning materials. Course delivery was by trained vision impaired and sighted instructors, who were in turn supported by specially designed teaching aids.

Key Findings

The vision impaired participants achieved similar ratings to their sighted peers in quizzes and tests. But they took longer to cover the materials in preparation for their assessments. This extra time was estimated to be four to five times longer than for their sighted peers. This additional preparation time also applied to the other course materials.

This extra time was most likely required because the vision impaired participants were not as confident of their knowledge or skills. This was demonstrated by the fact that they spent a significant amount of time repeating exercises and re-reading notes.

Sighted learners were expected to gain higher marks than the vision impaired participants in the final examination. The pass mark in all Cisco examinations was 75 percent and the vision- impaired participants scored an average of 92 percent in the first set of examinations. This result was the same as the sighted learners in the control group. The standard deviations in grades for the two groups were also very similar. There was also no difference in the number of examination attempts between the two groups.

This indicates that the vision impaired learners were able to access the materials on the same basis as their sighted peers and mastered the same skills and knowledge as them. The vision-impaired learners were satisfied with their experience. Most of them gave positive ratings to the delivery, technology, and accessibility of the course and its materials. This suggests that given a suitable environment and accessible e- learning materials, learners with acute vision impairment can achieve grades at the same level as their sighted peers.

Limitations

The nature of the project did not allow for a truly rigorous positivist approach regarding the structure of the two groups of learners. Although the two groups of learners completed the same learning outcomes utilising the same equipment and the accessible portion of the Cisco e-learning courses, the vision impaired learners did not physically occupy the same classroom at the same time as their sighted peers.

In addition the sighted learners were taught by sighted instructors and the vision impaired students by totally blind instructors. With regard to hours of tuition the vision impaired learners had a total of ten hours per week in the classroom. But the sighted learners had only six hours of classes per week to cover the same material. This means it was difficult to determine a weighting that accurately reflected success rates that incorporated comparative time spent on each activity.

Future Research

Broader research is required on the most effective means of delivering e-learning materials to different types of learners regardless of their vision capabilities. The usefulness of the teaching aids developed specifically for the vision impaired learners as general teaching aids for all students could also be investigated.

Otago Virtual Hospital: medical students learning to notice clinically salient features

Authors: Blyth, P., Loke, S-K., and Swan, J.

Background

This paper reported on the use of a virtual medical school run by the University of Otago to train learners to recognise important symptoms when assessing patients for treatment. The virtual school uses real-life medical situations extracted from emergency departments' data.

Using avatars the learners play a variety of clinical roles in assessing patients and the system also allows for patient/peer responses based on their actions. The virtual school was influenced by similar overseas initiatives. The main difference was that it simulates the everyday patient-doctor and doctor-doctor interactions in a hospital emergency department. These interactions commence from patient admission and examination, through to negotiation of a treatment plan, and finally to submission of patient notes.

Methodology

A case study approach was used with seven learners who worked on the same case in three groups over three 90 minute sessions. The learners played the role of doctors and the faculty were the patients. The data sources used were: video recordings of the virtual world activity during the task, the submitted patient notes, and the audio recordings of pre and post-interviews.

In addition learner data that related to their noticing the salient points of the case was used.
The data was triangulated by carrying out three runs of the same scenario with three different groups and maintaining both insider and outsider viewpoints throughout the study. Negative examples of learners being given the salient points of the case were actively sought.

Key Findings

Solving a real life case in a virtual environment requires learners to obtain and notice significant elements among the flux of messages without external guidance or support. This is challenging because the virtual environment provides much more scope for learner interpretation particularly when compared to its traditional delivery counterpart.

In the paper cases for example learners were not normally required to distinguish salient from non-salient elements of the case. Clinical problems tended to be more tightly framed in paper cases compared to the virtual ones. The virtual environment appears to better replicate the likely real life situation than the paper environment. This was supported by the learner responses which noted the realism of the virtual environment.

Students' perceptions of a selected aspect of a computer mediated academic writing program: An activity theory analysis

Authors: Brine, J., and Franken, M.

Background

This study aimed to capture and analyse the perceptions of 120 international students enrolled in the first semester of a first year, web-based academic writing course in a New Zealand university in 2003. The two aspects of the web-based course focused on in this study were those thought to be unfamiliar to its learners: the co-construction and evaluation of peer text. The study also aimed to determine the impact of activity theory analysis on a course of this nature.

Literature Review

Activity theory is based on the notion that activity is determined by the context in which it takes place. Social or group activity is its fundamental unit of analysis not individual activity. Activity theory aligns with theories relating to second language learning (Lantolf, 2000; Van

Lier, 2000; Belz, 2002; Blin, 2004; Thorne and Payne, 2005). Engestrom (1991) added a community component to the activity system and its analysis.

An activity system consists of six main components: participants, mediating artefacts, outcomes, rules, community, and division of labour (Cole and Engestrom, 1993; Lewis, 1997; Jonassen and Rohrer-Murphy, 1999; Kaptelinin, Nardi and MacCauley, 1999). An external artefact such as a word processor mediates between the learner and the outcome. These external artefacts both afford and constrain the completion of the activity. According to Leont'ev (1981) these external artefacts or tools also connect people.

Methodology
The course used for this study ran for 12 weeks and was sub-divided into two, two hour classes per week. Most of its learners were Chinese. Learners were initially assigned to work in groups of about nine or 10 members. These were later reduced to four or five members. The activities reported on in this study were firstly to co-construct an introduction for an essay, and secondly to complete the full 1,000 word essay. Web-mediated activity was facilitated through a specialist internet package called Class Forum.

Diary entries were used. These required learners to give their viewpoints on features of the course. These entries were only viewable by the teacher. The structure of the activity system was used to provide a framework to analyse the goal directed behaviour of the learner groups. This data was analysed using consensually derived coding categories. These were based on the components of the activity system. Analysis also focused on the benefits and constraints of the technologies used.

Key Findings
Despite limited or no prior experience with group work most learners viewed this positively. Its benefits included a wider range of peers to support their own learning, assisting them with their skills development, as well as exposing them to different perspectives, ideas, and knowledge. Friendship beyond the course was also identified by learners as a major benefit.

Learners were expected to develop among themselves appropriate models, strategies, and processes for the co-construction activities without teacher input. For some learners this worked well. But for many others this was challenging. This was largely because the learners lacked the means to establish successful working relationships. This included how to deal effectively with conflicts. Learners were also unclear how to develop a shared understanding of procedures and assign roles.

Strategies such as allowing multiple participants to provide input but only using one person to record the ideas were used. This worked well for learners. But multiple contributions and group selection of the best ones was less satisfactory. One group who tried this could not achieve it in a web-based environment preferring instead to opt for a face-to-face meeting.

Many learners thought reaching consensus was difficult to achieve. This was due in part to English being the mediating language. But the diverse ideas, opinions, and beliefs of the group(s) also proved challenging in attempts to reach consensus. This was compounded by a lack of teacher guidance. One strategy suggested by learners to resolve this was a reduction in group sizes.

Variable commitment by group members was also problematic. Some learners thought this would improve over time so were more tolerant. But for others this meant they preferred to work outside the group. This may be why many learners preferred to work alone.

This shows the importance of group cohesion. Effective groups worked well. But ineffective groups experienced many difficulties leading learners towards a preference for working alone. Group cohesion is particularly important if its conflicts are to be resolved successfully and not

impact on its effectiveness or in extreme cases existence. But this may also constrain peer-peer interactions because to maintain the peace their responses to each other's work may not be forthcoming or honest.

The learners believed that many of these difficulties could be resolved if they were given clearly assigned roles. The learners that used the web-based system reported no major problems or difficulties despite their lack of experience in both e-learning and computer use.

Are learning style preferences of health science students predictive of their attitudes towards e-learning?

Authors: Brown, T., Maryam, Z., Williams, B., Shapour, J., Roller, L., Palermo, C., McKenna, L., Wright, C., Baird, M., Schneider-Kolsky, M., Hewitt, L., Sim, J., and Holt, T-A.

Background

According to Huston and Cohen (1995) learning style refers to the way individuals prefer to process new information and the strategies they adopt for effective learning. There is no one size fits all approach that will lead to optimal outcomes for all learners.

While e-learning theoretically allows for the adjustment of educational content to meet student learning requirements the relationship between learning styles and learner attitudes to e-learning has only received limited attention in the empirical literature to date (Startsman and Robinson, 1972; Brudenell and Carpenter, 1990; Effken and Doyle, 2001). Therefore the objective for this study was to determine whether the learning style preferences of health science learners could predict their attitudes to e-learning.

Literature Review

There is a considerable amount of literature devoted to learning styles (e.g. Coffield, Moseley, Hall and Eccleston, 2004; Arthurs, 2007). A variety of learning style theories and frameworks have been developed along with accompanying instruments to operationalise their constructs (Dunn and Griggs, 2003; Loo, 2004). They are broadly categorised as follows:

1. Instructional and environmental learning preferences.
2. Information processing learning preferences.
3. Personality related learning preferences (Hickcox, 1995).

The most common learning theory in allied health research is information processing. This considers personality theories and is underpinned by a four stage learning process: concrete experience, which is followed by personal reflection on the experience. This is then combined with previous knowledge (referred to as abstract conceptualisation). Finally new ways of adjusting to experiences are explored (referred to as active experimentation) (Kolb, 1984).

The other notable learning style mentioned in the literature proposed four learning style dimensions: active/reflective, sensing/intuitive, visual/verbal, and sequential/global (Felder and Spurlin, 2005). Active learners' tend to best retain and understand information by doing something active with it, discussing or applying it, or explaining it to others.

In contrast reflective learners' prefer to think about it quietly first. Active learners like group work more than reflective learners, who prefer working alone. Active learners find lectures particularly challenging (Felder and Silverman, 1988).

Sensing learners tend to like learning facts. Intuitive learners often prefer discovering possibilities and relationships (Felder, 1993). Intuitive learners do not like educational activities that involve a lot of memorisation and routine calculations. Sensing learners do not like courses that have no apparent connection to the real world (Felder and Silverman, 1988).

Sequential learners tend to gain understanding in linear steps, with each step following logically from the previous one. In contrast global learners tend to learn in large 'jumps'. They absorb material almost randomly without seeing connections, but then they suddenly 'get it'.

Visual learners remember best what they saw. Verbal learners obtain more out of words such as written and spoken explanations. Optimum learning outcomes for learners are obtained when information is presented both visually and verbally. But visual learning styles are currently underserved in tertiary institutional and teaching environments.

If e-learning can permit the adaptation of education content to synchronise with individual learning styles, are learners' attitudes to e-learning influenced by their learning style preferences? Though there have been some studies on the relationship between learning styles and the use of e-learning, evidence remains contradictory.

For example, some studies have suggested that there is a strong relationship between student learning styles and their attitudes to e-learning (Shih and Gammon, 2002; Graff, 2003; Hong and Kinshuk, 2004). But Shaw and Marlow (1999) suggested that no such relationship exists.

As well as the more general literature being contradictory the relationship between learning style preferences and learner attitudes towards e-learning has received only cursory attention in the more specialised medical and nursing literature (Kirchhoff and Holzemer, 1979; Brudenell and Carpenter, 1990; Summers, Carty, et al., 1993; Yoder, 1994; Effken and Doyle, 2001; Engleberg, Schwenk and Gruppen, 2001; Lynch, Steele, Johnson Palensky, Lacy and Duffy, 2001; Liberman, Abramson, Squires, Glassman, Morris and Dershaw, 2002). No studies at the time of writing had involved other health disciplines.

Methodology
The Index of Learning Styles (ILS) was used to obtain data on the learners' preferred learning styles. The Online Learning Environment Survey (OLES) was used to assess their attitude towards e-learning. These were combined into one survey that was distributed to learners enrolled in 10 different health science programs at an Australian university. A total of 822 useable surveys were returned. This survey data was supplemented by a learner self-report questionnaire to obtain their relevant demographic information.

The SPSS software package was used for the entry, storage, and retrieval of data as well as the calculation of descriptive statistics. Mean scale scores and standard deviations were calculated for the OLES' nine actual and preferred subscales. A linear regression analysis was completed to determine whether any of the ILS' learning style variables were significant predictors of the OLES actual and preferred subscales (that measured health science learners' attitudes towards e-learning).

The ILS subscale scores were correlated with their OLES equivalents. Any of the ILS subscales that correlated significantly with their OLES equivalents were used as independent variables in the linear regression analysis. The OLES subscales were used as the dependent/ criterion variable in the linear regression analyses.

Key Findings
64 percent of health science learners reported their learning style preference as sequential, 60 percent as sensing, and 44 percent as active. Learners' attitudes toward e-learning using the OLES showed that their preferred scores for all nine subscales were higher than their actual scores.

The linear regression analysis results indicated that ILS learning styles only accounted for a small percentage of the OLES actual and preferred subscales' variance. For the OLES actual subscales, the ILS' Active-Reflective and Sensing-Intuitive learning style dimensions were the most frequent predictors of health science learners' attitudes towards e-learning.

But on the OLES preferred subscales these learning style dimensions also accounted for the most frequent source of variance. This study's results suggest that the learning styles of health science learners (as measured by the ILS) can only be used to a limited extent to predict learners' attitudes towards e-learning.

Limitations
Convenience sampling was used to recruit participants so respondent bias could be an issue. Only learners enrolled in health science programs from one university were included in the sample. This limits the generalisation of the results. Only a limited number of independent variables from one valid and reliable scale were included in the regression analysis, so other significant predictors may not have been accounted for.

Future Research
Firstly, a similar study could be completed with health science learners from a broader sampling base that included more health-related disciplines and more universities. Secondly, a similar study could be completed comparing health science learners with their peers in other disciplines.

Thirdly, additional questionnaires examining different constructs could be included to try and establish other significant predictors for learner attitudes to e-learning. Finally, learner participants could be randomly selected to take part in the study to minimise the potential problems with respondent bias.

Is a Blended Learning Approach Suitable for Mature, Part-time Finance Students?

Author: Burgess, J.

Background
The university that formed the basis of this study had many problems retaining their part-time learners. They introduced a blended approach to overcome this. This was because a blended learning approach that incorporated traditional delivery with access to online resources was seen as being flexible enough to cope with learners' absences and had sufficiently rich content to remove students' anxieties about the scope and level of the work.

This approach was also supported in the literature. For example, Grey (2006) states that blended learning which combines e-learning with a variety of other delivery methods can be used to provide a superior learning experience. Hall (2006) found that e-learning engagements could have a positive impact on the learning experience.

Methodology
The number of learners in the study's population sample was 10 who were enrolled on one course module.

Key Findings
Using the blended approach the assessment marks were eight percent higher for the university's part-time learners. There was also a sharp reduction (in relative terms) in the number of extension requests after the blended approach was introduced. But it did not assist the part-time learners with mastering the more complex aspects of the course and in particular its mathematical components. The learners still lacked confidence in this area.

The institutional Learning Management System was generally well received. But its public forums were not well used. Learners would have liked more quiz material and access to online links. The blended approach did improve learner use of ICT and their knowledge and skills in using it. A blended approach also led to learners using more learning methods.

A Nurse Prescribing Programme Incorporating e-Learning

Author: Burgess, J.

Background
According to Doster (2004) the traditional approach to nurse training has been heavily weighted towards a one size fits all approach. But this approach is not always appropriate. Because of this there has being much more consideration given to learners' reasons for undertaking a course, how they learn best, and their individual work experiences that are coupled to the efficient use of accreditation for prior experiential learning.

The focus of this study was on a United Kingdom university's nurses' prescribing programme that was underpinned by a blended learning approach. This approach reduced mandatory university attendance from 26 to six days per annum. This suited the learners because many had difficulties meeting a high number of classroom days due to work and family commitments.

This programme required the learners to have the basic skills and knowledge to use a personal computer, the internet, and online learning materials. A minimum hardware specification was required to access the e-learning material and this was supplied to learners in leaflets, along with guides to computing, and studying away from the university. All learners were provided with a no-cost opportunity to undertake the European Computer Driving Licence to improve their IT competency.

Learners were provided with orientation. This included an online exercise prior to course commencement. Ongoing support was provided through the institutional Virtual Learning Environment (VLE). This support was both technical and course-related.

There was also offline support provided where learners were allocated to teachers geographically dispersed across England and, where possible, learners' and teachers' nursing specialisations were matched. Teachers were the learners' initial point of contact for all programme matters and problems. The teachers' liaison was the programme leader based at the university.

Methodology
The evaluation of the programme was carried out using two questionnaires given to learners at the end of their study. The first questionnaire asked the learners to assess the overall programme. The second questionnaire asked the learners to more specifically focus on assessing the utility of the e-learning materials. There was also electronic monitoring of learners' access to the VLE. This data was used to determine the frequency of learners' access to the learning material.

Key Findings
Overall the programme was assessed by respondents as being satisfactory to excellent. The majority of the respondents evaluated the programme as good. This may be because respondents believed they were more in control of their learning.

Most of the respondents would not only choose this form of study in future but would recommend the programme to others. However some of the respondents gave poor ratings because they thought that the programme and its online material had insufficient detail to support different nursing specialisations.

An advantage of using e-learning was that the learners developed and fine tuned their IT skills. This proved to be a bonus in their work. Some learners developed their IT skills to such an extent that they felt motivated to continue with their studies at a higher level using distance/e-learning environments

Accommodating culture and cultural diversity in online teaching

Authors: Goold, A., Craig, A., and Coldwell, J.

Background

There have been significant changes to the institutional structures and learner populations in Australian tertiary education. This has resulted in a markedly different cohort of learners in new types of classes (Meek and Harman, 1993; Maslen and Slattery, 1994).

With these new learning environments there is a greater need for effective communication and collaboration. But the reality is that with the greater diversity of learners within the student cohorts, communication and collaboration are not straightforward.

There is potential for cross-cultural learning through interactions between learners from diverse backgrounds and cultures. But these interactions also have the potential to create misunderstanding and confusion. Jolley (1997) suggests that this can be alleviated through e-learning because it will promote 'cultural awareness as learners engage in the electronic exchange of ideas, experiences and educational material' (p.26).

The research reported here is from the second stage of a three-part research project. The overall aim of the project was to identify the characteristics of culture and cultural diversity and to discover how these characteristics manifested themselves when learning in an online environment.

Methodology

Data was collected at the participating university from focus groups during one semester in 2005.

Key Findings

The cultural diversity of learners in a virtual classroom is likely to be greater than in a physical classroom. But many of the clues that enable teachers and learners to be culturally sensitive in physical classrooms are missing in the online world.

Learners need to be better prepared so they can effectively interact with the technologies for communication and collaboration purposes. They also need to develop an understanding of the diversity in communication styles as well as developing sensitivity for other cultures.

A Framework for Supporting Post-secondary Learners with Psychiatric Disabilities in Online Environments

Author: Grabinger, S.

Background

Many learners with cognitive impairments and disabilities are unable to cope with the requirements of an online course and in particular its information richness and complexity. They also have problems with online environments because they tend to be structured around peer-peer interaction.

But these problems are not restricted to this group of learners. They are also common for many other non-mainstream groups including ESOL learners. However these problems can potentially be resolved through the increasing sophistication and flexibility provided by ICT.

According to Bushnell, Mcleod, Dowell, Salmond, Ramage, Collings, Ellis, Kljakovic and Mcbain (2005) one of the major problems for non-mainstream learners is a lack of support. But this can be overcome by building appropriate and relevant support mechanisms within the course instructional strategies.

This would assist all learners, not just those with disabilities. This is important because the amount of e-learning provision is increasing as well as the number of learners with cognitive disabilities accessing tertiary study (Blalock, 2004; Carlton, 2004; Ito, 2004; Leake, 2004; Mcgill, 2004; Silva, 2004; Allen and Seaman, 2005; Mccandless, 2005).

But despite their growing sophistication, existing online course platforms and instructional design strategies often do not address the specific problems of learners with cognitive impairments. This is largely due to three factors. Firstly, there is a lack of appropriate interface flexibility. Secondly, specific information about how to address the needs of learners with cognitive impairments is absent.

Finally, teachers often make narrow choices when they are selecting instructional design strategies. This limits the educational opportunities for learners with cognitive impairments. Learners' cognitive disabilities and impairments are many and varied. This makes generalisations and standardised approaches for them inappropriate.

Key Findings

The author developed a framework referred to as the Universal Design for Learning. Its underlying premise is that learners fall along a continuum of differences and that these can be addressed or alleviated through the appropriate use of the right digital tools.

Examples of applying this framework in practice are:

- Digital applications and technology make it possible to communicate in multiple ways through asynchronous (e.g. online forums and email) and synchronous (e.g. online chat and video-conferencing) technologies.
- Teachers and learners can provide multiple examples for learning, metacognition, and teaching through internet based tools and websites including Flickr, YouTube, Twitter, Facebook, weblogs (blogs), and wikis.
- Scaffolding can be achieved by: providing examples of problem-solving processes as well as step-by-step forms to assist learner focus.
- Project management software that includes planning techniques (e.g. eProject.com) and RSS applications (e.g. bloglines.com) should be made available.
- Multiple methods of self-expression can be provided through standard software packages including Microsoft Power Point, and internet based technologies and websites such as MySpace, iTunes Scholar, and pod and video casting.

These technologies and tools can be overlaid onto learner cognitive networks to produce good results. Examples of cognitive networks are:

- The recognition networks used by learners to identify information including names, facts, and numbers.
- The strategic networks used by learners to plan how they will learn, to solve problems, and to select, use, and modify learning strategies.
- The affective networks that are used by learners to engage in learning that involve their emotional reactions to content, strategies, and assignments.

Initial Evaluation and Analysis of Postgraduate Trainees' Use of a Virtual Learning Environment in Initial Teacher Training

Author: Hramiak, A.

Background

The purpose of this study was to ascertain if learners' experiences could be enhanced by using the communication and collaboration affordances of a Virtual Learning Environment (VLE) to negate the geographical isolation of learners. The main theories underpinning this research were networked collaborative learning (Jones, 2000; de Laat and Lally, 2003);

socio-constructivism (Vygotsky, 1978; Dillenbourg; 1999; Kyriakicou, 1999) and communities of practice (Wenger, 1998).

The study also built on previous VLE projects at the author's university. Equal access for learners and the establishment of learning communities are seen as critical to the success of a VLE (Wegerif, 1998; Kyriakicou, 1999; Thurston, 2005). Clarke (2002) showed the importance of a VLE in reducing the isolation of distance learners. According to Galanouli and Collins (2000) learning communities can be successful even when they are learner driven.

Methodology
The learners that comprised the study's population sample were post graduate teacher trainees at Sheffield Hallam University in the UK. The trainees spent about one third of their time on campus with the remainder off campus. They were isolated from each other whilst off campus. The university's Learning Management System was used as the supporting platform for this study. Discussion board discussions, an end of course survey and a group interview were the data collection methods used.

The underlying approach was that used for an evaluative, longitudinal case study (Yin, 1984; Bassey, 1999). The methodology to support this was practitioner led action research which involves the practitioner playing the dual role of participant and researcher.

Key Findings
The discussion boards were used infrequently and only by a small number of participants. But despite this the participants were generally positive about the available resources and discussion boards. The main issues cited by learners for not participating or only doing so infrequently were technical and familiarisation.

It may also have been because email was the preferred communication medium, not discussion boards. The learners preferred learning by interacting with each other. But the low online participation rates suggest that learning supported by peer-peer interaction was preferred offline.

Toward deep learning for adult students in online courses

Authors: Ke, F., and Xie, K.

Background
According to Moore and Kearsley (1996) most of the current distance education learners are aged 25 to 50. Richardson and King (1998) think that these distance education learners have significant academic differences from traditional learners. Adult learners in this study were defined as those who returned to or re-entered post secondary education at an age of 22 or over, or were enrolling on less than a fulltime basis.

The report set out to address the following research questions:
1. Did adult learners perceive learning satisfaction, achieve a deep learning stage (Moon, 1999), and acquire a sense of community within online courses (Rovai, 2002)? Would learners' ages predict their perceptions?
2. What kinds of learning interactions were adult learners involved in? Would learners' ages predict their online interaction performance?
3. What is the effect of online course design models on both learning satisfaction and perceived and observed learning engagements for adult learners?
4. What is the effect of alternative online discussion tasks on both learning satisfaction and perceived and observed learning engagements for adult learners?

Literature Review
Online learning is difficult for older learners to adapt to (e.g. Dubois, 1996). For example, some studies stress the problems associated with lack of feedback and interaction. But others show that it provides additional flexibility for these learners. While the literature tends to focus on

traditional learners (Kasworm, 1990; Tallent-Runnells, Thomas, Lan, Cooper, Ahern and Shaw et al., 2006) recent studies have shifted their focus to include older learners.

For example, Chyung (2007) found that while older learners posted significantly more online messages, their younger peers had a much more noticeable increase in their self-efficacy towards learning topics. Wyatt (2005) found that age was positively associated with the perception that online instruction provided a quality experience.

According to Cole and Engestrom (1993) knowledge acquisition is underpinned by interaction. Cercone (2008) sees this resulting in many courses being designed so that learners' active participation in interactions becomes the major online learning activity. This aligns with adult learning theory which has interactivity in an online 'classroom' positioned as a key element in distance teaching (Frey and Alman, 2003). Increasingly these interactions are being facilitated through online discussions (Majeski and Stover, 2007).

But for Tallent-Runnels et al. (2006) one of the major criticisms of online discussions is learners' 'shallow participation'. Spatariu, Quinn and Hartley (2007) think that this undesirable participation could be due to poorly designed or constructed tasks or forums. However there is a lack of empirical studies on this to draw conclusions either way.

Methodology

51 learners from one university who were enrolled in 10 online courses that focused on nursing, management, and education comprised the study's population sample. These courses were all offered through an institutional Learning Management System. The majority of participants were adult learners with a mean age of 43.

Most were European and female (but with notable Chinese and Hispanic minorities). They had high confidence levels in their ability to use technology to complete their coursework. They were all taught by instructors with five or more years' e-learning experience.

Quantitative data was collected through surveys which measured the learners learning satisfaction, self-perceived online learning stages (deep vs. surface learning), and perceived level of sense of community in online courses (Rovai, 2002). The surveys were based on Rovai's (2002) online learning stages survey and Biggs, Kember and Leung's (2001) sense of community survey.

According to Majeski and Stover (cited in Fink, 2003) 'deep learning is highly collaborative, integrative (synthesising ideas and facts), self-reflective, and application-centred.' Deep learning was the key measure of success used in this study for the participants' online learning.

Analysis of the data involved a content analysis approach. This examined learners' online discussions throughout a regular school semester using the Online Learning Interaction Model. This model was based on the theoretical framework of deep learning (Moon 1999; Fink, 2003; Cercone, 2008) and the synthesis of the two representative content analysis schemes in the distance education literature (Henri, 1992; Gunawardena, Lowe and Anderson, 1997).

The authors also examined adult learners' perceptions of e-learning and their involvement in online learning interactions. This data was analysed using an inferential statistics technique to examine the effects of alternative e-learning course models and the types of online discussions on adult students' learning satisfaction and engagement.

Key Findings

Participants were generally satisfied with their courses. Their dominant learning approach was deep learning. There was a negative correlation between older learners and surface learning. There was also a negative correlation between the degree of surface learning and sense of

community. Overall there was generally a strong sense of community emerging in the reported online courses.

There was no reported correlation between age and satisfaction, frequency of course site access and message posting or checking. Learners' online interactions were generally for social purposes or individual knowledge construction which is not generally associated with deep learning approaches.

But there was a negative correlation between older adult learners and these types of activities which supports their preference for deep learning noted above. Integrated online courses are best suited for reinforcing a stronger sense of community and to support deep learning approaches.

Limitations
Participants were not randomly assigned to different online course contexts. The effect of other mediating variables on the main variables was therefore not discounted. This reduces the power of the findings. The number of the participants in the study was limited.

Future Research
- What is the design of collaborative learning and discussion tasks that reinforces higher level, deep-learning-oriented, online interactions?
- What preparations are used by or for adult learners in their online and offline deep learning strategies?
- What is the appropriate balance between structure and interactivity in online course design?
- Finally additional measures were suggested. These included test-based learning outcomes (e.g., class grades) and examining whether the effect of course design models and online discussion strategies will be similar on different types of learning outcomes for adult learners.

Politeness and Face in Digitally Reconfigured E-learning Spaces

Authors: Locke, T., and Daly, N.

Background
The research on asynchronous discussions shows that it has many advantages including its ability to encourage and support deep and reflective learning. It can also encourage and support the equality of learner participation and contributions as well as being more useful for task oriented communications. Asynchronous discussions are better able to facilitate and support learning for a wider range of learners than synchronous discussions.

But there are some disadvantages with asynchronous discussions. These include a lack of leadership and structure. Course design as well as instructor support and input are critical if asynchronous discussions are to achieve desired outcomes including the encouragement of divergence and debate (Poole, 2000; Lim and Tan, 2001; Markel, 2001; Lim and Cheah, 2003; Im and Lee, 2004; Sorensen and Baylen, 2004; Hammond, 2005).

The focus of this research was on asynchronous discussions through a bulletin board. Discussions in this study referred to a formally constituted, topic-centred conversation, established in the context of a learning institution or environment. Underpinning this research was the assumption that technology is much more than simply a learning aid or support. It can shape cognitive learning processes.

The authors introduced two terms to help describe online interactions: reach and connection. Reach has membership as one of its components which can be active (participating) active (not participating) and implied e.g. an author of an article which is being discussed. Connection relates to the duration and continuity of the particular online interactions.

The authors see participation as being broken down into absolute (a learner's total contributions) and relative (a learner's percentage of the total). Feedback is broken down along similar lines. Convergence in this context is the extent of agreement and disagreement and how comfortable the group is with disagreement.

Politeness theory was first developed in the late 1970's and has since then undergone extensive revision (Brown and Levinson, 1978). At its core is the concept of face. This has both a negative and positive basis. Positive face is based in part around an individual's need to be approved of and liked by others and to have their wishes and desires shared and respected. In contrast negative face is based in part on individuals' need for privacy and distance from others, and to have their autonomy and independence respected.

An act which threatens or disrupts either of these faces is critical in politeness theory and within online discussions. But there is not universal acceptance of this theory or its concepts as it tends to focus on the individual. For example, Chinese and Japanese learners have a publicly negotiated face which values group approval and conformity more highly than individual preferences and autonomy (Gu, 1990; Mao, 1994).

Methodology

The study's population sample was five (comprised of both Chinese and Pākehā learners) with an average age of about 28. While most of them had previous online learning experience they were not confident in a bulletin board environment. The course used for this study was Waikato University's Masters on English Language and Literacy: Issues and Tensions that was taught in Semester A, 2005. For the study's data collection a questionnaire, interview, and transcript data from learners were used. The methodology was action research in the context of a case study.

Key Findings

Participants' previous experience in online courses was critical to their success. The bulletin board also greatly assisted the Chinese learners because it allowed them greater time to compose and respond to discussions. This meant they developed greater confidence over time. The high participation rates and feedback from the lecturer and peers also helped contribute to their success.

The participants used politeness theory strategies to develop and increase group cohesion. These included establishing consensus and exhibiting a clear interest in others' thoughts, ideas and experiences.

In addition Chinese politeness practices contributed to learning because they facilitated congeniality and allowed for divergence. This was achieved by virtue of the habitual way various Chinese articulations addressed the negative face of the New Zealand participants. The fact that participation was assessed was also a significant contributor to the success of the course.

Lessons in designing sustainable mobile learning environments

Authors: Loke, S-K., Lokman, M., Winikoff, M., McDonald, J., Wass, R., Purvis, M., Zeng, R., Matthaei, C., and Vlugter, P.

Background

According to Frohberg, Göth and Schwabe (2009) mobile learning (generally referred to as m-learning) is gaining increased attention within the research community and literature. This is matched by rapid growth in the uptake and use of mobile devices. For example, the New Zealand Broadcasting and Standards Authority (2008) found that 71 percent of 12-13 year olds used mobile phones.

But will this widespread use, transfer to the educational context? There are doubts about the sustainability of m-learning. For example, a recent study on m-learning projects found that six

of the nine projects that were reviewed provided mobile devices to their learners (Dyson, Litchfield, Lawrence, Raban and Leijdekkers, 2009; Gkatzidou and Pearson, 2009; Lam, P., Lam, S.L., Lam, J. and McNaught, 2009; Cochrane and Bateman, 2010; Tsai, P. S., Tsai, C. C. and Hwang, 2010).

This may not be sustainable because it is unlikely that learners will participate in m-learning in the same manner post-project. Institutions are generally unwilling to bear the logistical burdens of the equipment and the financial burdens associated with this and its use long-term.

Of the three projects where learners used their own devices, two involved general use of the devices around the university. Only one of the studies integrated m-learning into a specific mainstream course as one of the multiple means of collecting data (Dyson et al., 2009; Vuojärvi, Isomäki and Hynes, 2010).

But mobile devices do provide learning opportunities. These include content delivery, provision of revision questions, and facilitating co-construction of meaning (Petrova, 2007; Gkatzidou and Pearson, 2009; Cochrane and Bateman, 2010; Looi, Seow, Zhang, So, Chen and Wong, 2010).

Methodology

The study's population sample was 36 learners taking part in an undergraduate zoology course which focused on research projects. This course was carried out over a seven week period in groups of four. While learners did use their own mobile devices they were reimbursed for costs incurred accessing content from the institution's systems. The data was collected for this study from a pre and post-course survey.

Key Findings

The pre-course survey indicated that learners generally felt they would not use their mobile devices to capture research data or procedures. But they were roughly evenly split on whether or not mobile devices were relevant for their projects. For those who felt it was relevant texting of group members and taking photos to support their learning were seen as the most likely uses.

The post-course survey found only 16 percent of learners used the available m-learning infrastructure to support their studies. The main reasons for this low uptake were: preference for existing methods and tools, and the mobile devices being viewed as irrelevant or unnecessary for the course's particular tasks.

Access to Communication for Deaf, Hard-of-Hearing and ESL Students in Blended Learning Courses

Authors: Long, G. L., Vignare, K., Rappold, R. P., and Mallory, J.

Background

Deaf learners' struggles with reading, writing, and communication in the classroom have been well documented over the past 20 years (e.g. Johnson, D. and Johnson, R., 1986; Mallory and Long, 2002; Karchmer and Mitchell, 2003; Anita, Reed and Kreimeyer, 2005; Long and Beil, 2005). When deaf and hard-of-hearing learners attend traditional delivery classes they typically do so with the assistance of sign language interpreters.

But the transfer of information from hearing instructors (who do not know sign language) through interpreters is a major concern to deaf and hard-of-hearing learners. This is because it often contributes to them feeling left out of classroom communication (Foster, Long and Snell, 1999; Long and Beil, 2005).

In contrast to traditional delivery, online learning provides a much wider range of opportunities through its associated synchronous and asynchronous technologies for deaf and hard-of-hearing learners to access and participate in discussions related to the relevant topic. Inclusion of an

online format slows the synchronous pace normally found in traditional delivery and allows the deaf and hard-of-hearing learners, more time to compose a response or ask a relevant question.

This study examined learner interactions and satisfaction with instructional delivery in blended learning courses. Blended learning was defined as any course in which approximately 25 to 50 percent of traditional delivery was replaced by e-learning.

Literature Review

Deaf and hard-of-hearing (D/HH) learners enrolled in college face a multitude of barriers to their inclusion in the classroom (Stinson and Liu, 1999). But in the online 'classroom' the barriers tend to be lower and primarily focus on whether the learner has the intellectual capability to participate (Mallory and Long, 2002, 2003).

It is important to build an understanding of the issues that surround accessibility for D/HH learners, especially those focused around the use and spread of educational technologies. But this understanding is often limited because it fails to include inclusive classroom communication (Schenker and Scadden, 2002).

One of the strengths of the online learning environment is its ability to build a community of learners who cooperatively share ideas, knowledge, and opinions (Dansereau, 1988; Phillips and Soltis, 2004). But Stinson and Liu (1999) found that the development of an e-learning community was problematic for D/HH learners.

Methodology

A survey was sent to 1,713 learners. Assisted by financial incentives they had a larger than expected response rate of 908 learners (53 percent). This survey was supported by a questionnaire that was given to learners at the end of their course.

One group consisted of 36 deaf respondents, 28 hard-of-hearing and 84 hearing learners who indicated that English was their second language. The remaining learners (n= 760) constituted the hearing learner group who had English as their first language.

Approximately 68 percent of the respondents were male. The vast majority of respondents for both groups were full-time undergraduate learners (96 and 85 percent respectively). The remainder were part-time and/or postgraduate.

Key Findings

The blended learning instructional format offered some distinct advantages for the respondents with hearing loss. For example, the provision of discussion boards and other online tools that facilitated written communications meant that the D/HH respondents could interact directly with their hearing instructors and peers.

This meant that the D/HH respondents had easier, increased, and more equal communication with peers and instructors. This led to more frequent and higher quality interactions between the D/HH respondents and their peers and instructors. 75 percent of the respondents with hearing loss said that other learners like them should have the opportunity to take a similar class in the future.

Limitations

A limitation of the study was that the communication preferences of the D/HH respondents were not identified. Some of the respondents may have relied on sign language for communication, while others used speech and lip reading.

Future Research

This should identify learners' communication preferences because they may be related to satisfaction with their online learning experience.

Online Graduate Study of Health Care Learners' Perceptions of Instructional Immediacy

Authors: Melrose, S., and Bergeron, K.

Background

This article focused on a qualitative research project that investigated the experiences, reflections, and feelings of healthcare learners during periods in their graduate online study program where they experienced or would have valued experiencing instructional immediacy. The research was guided by the following question: What specific instructional immediacy strategies do graduate healthcare online learners perceive as helpful in creating a warm environment rich in social presence and sense of community?

Methodology

The project's participants were learners enrolled in two nursing post-graduate programmes from Canada's Athabasca University. The study used an action research approach.

Key Findings

Without exception, the project participants commented on how instructor communications that were appropriately personal in nature and demonstrated immediacy engaged them. This was reinforced by the high value learners placed on language that reflected immediacy.

Instructor communications needed to be prompt, personalised, and frequent and include both advice and resources. They should take place in both institutional and non-institutional contexts. Adapting course requirements when life crises emerged for learners was also perceived by them as instructional immediacy.

Blended Learning: The Perceptions of First-year Geography Students

Authors: Mitchell, P., and Forer, P.

Background

Initial research into e-learning tended to have a relatively narrow focus on the 'impersonality of computers' (Hiltz, 1986), the practicalities of utilising ICTs effectively in teaching (Chou, 2002) and ICT use in distance education (Haythornthwaite and Kazmer, 2002). But in recent times as the range of ICTs used in educational contexts has broadened so too has the associated research.

For example, there is now a much greater focus on how to embed e-learning effectively within institutions (e.g. Vandenberg, 2005; Davis and Fill, 2007; Martin and Treves, 2007). Attention is also increasingly shifting to modelling the effectiveness of e-learning mechanisms and supporting these through the application of different teaching methods (Carver, Evans and Kingston, 2004; Sivo, Pan and Hahs-Vaughn, 2007; Chang and Tung, 2008).

Finally blended learning with its increasing acceptance and popularity (Centre for Educational Research and Innovation (CERI), 2005) is also an emerging focus for research. Blended learning was defined in this study as: "a mixture of traditional and e-learning mechanisms…typically run on campus" (Stubbs, Martin and Endlar, 2006).

The focus of this study was on a first-year geography course delivered in a blended learning format at the University of Auckland. This course was developed in the context of institutional embedding and modelling of effective e-learning and how this could be supported by different teaching methods.

There is an expectation that ICT will be increasingly used by institutions to support teaching. This is driven by three factors: the increased availability of ICT, its reduced cost, and rising

learner demand. But there has been a concern that the institutional rationale for e-learning has been unduly influenced by an expectation that it will reduce costs (Peters and Roberts, 1998).

Data collection at a national level in an e-learning context was introduced relatively recently in New Zealand.
This data collection is split into four distinct categories, of internet access requirements, for each course as follows:

- No Access. This is where no part of the paper or course is accessible online.
- Web-Supported. This is where a paper or course provides students access to online materials and resources. Access is **optional**, as online participation is likely to be a minor component of study.
- Web Enhanced. This is where a paper or course expects students to access online materials and resources. Access is **expected**, as online participation is likely to make a major contribution to study.
- Web Based. This is where a paper or course requires students to access the accompanying online materials and resources. Access is **required**, as online participation is **required** (Ministry of Education, 2006).

The data derived from these categories suggests that there was a majority of courses with no internet access. But there are growing numbers of Web-Supported and Web-Enhanced courses being provided by universities and polytechnics. These modes are also increasingly being used to deliver geography courses.

This finding was supported by international trends. CERI in their 2005 study, that involved nine tertiary-level institutions from 13 countries (including New Zealand); found that most tertiary institutions were developing "some form of central strategy for e-learning" (CERI, 2005, p. 13).

But CERI warned that e-learning had not yet lived up to its potential or promise. For example, physical campuses were not being replaced by virtual ones while the economic benefits of e-learning were often overstated. But this study did find that the major growth in e-learning globally was in courses that contained an enhanced or significant online component. New Zealand had a higher percentage of these courses than the United Kingdom or Canada.

Methodology
The course used for this study had 170 learners in 2007 which was the first full year of the blended approach. This represented a large increase in learners from 2006. In 2006 and 2007 two anonymous questionnaires were administered to learners at the course's beginning and end to allow for comparisons. Response rates were 44 percent in 2006 and 40 percent in 2007.

Key Findings
84 percent of the 2006 respondents had a basic understanding of e-learning. But in 2007 this figure dropped to 62.5 percent. 68 percent of the 2006 respondents saw lectures as a good way to learn. In particular they noted the extra detail available and the ability to identify nuances in content emphasis. The equivalent figure in 2007 was 91 percent.

But this value add was largely determined by the ability of the lecturer. Learners exhibited no clear preference for the e-learning or traditional delivery parts of the course, instead adopting a flexible, 'mix and match' approach which used each component when appropriate or relevant.

Flexibility is often noted as a major benefit of e-learning (Forer, 1998). This was supported by the study's findings with a clear majority of respondents (over 60 percent in 2006 and 2007) acknowledging the flexibility and increased choice provided by e-learning. It also allowed home to become a study environment for a sizeable minority of respondents (29 percent).

A large minority of the 2006 respondents (41 percent) stated that e-learning had improved their attitudes and approaches. But in 2007 a bare majority of respondents (50 percent) stated that e-learning had led to no change in their attitudes and approaches.

Learners were asked if they would use their mobile phones to communicate with their lecturer. 72 percent of respondents stated that they would. But in the 2006 class only two out of 27 learners actually did so (8.5 percent). This aligns with the 2007 survey where using a mobile phone to communicate with lecturers received a negative response. 39 percent of respondents saw it as too personal or informal and there were widespread concerns about the lack of detail in this form of communication.

Only a small majority of respondents in both 2006 and 2007 used the institutional Learning Management System (LMS). This was a lower than expected participation rate as the LMS was an integral part of the respondents e-learning experience.

Most of the respondents indicated that they would use chat rooms if they were provided outside the LMS. But regardless of its location the chat rooms needed a critical mass of participants to be effective and sustainable. Most of those respondents who would not use a chat room preferred face-to-face communication and interaction.

Limitations
Compliance with strict ethical guidelines significantly reduced the demographic data available for reporting and analysis.

Persistence of Women in Online Degree-Completion Programs

Author: Müller, T.

Background
In the past 10 years women aged over 40, who were solo-parent, and from minority backgrounds and low-income households became the largest group amongst adult learners (Peter and Horn, 2005). Many of these learners were engaged in online and/or distance learning because it provided them with the flexibility they required to complete their studies while still being able to meet their other substantial external commitments (Kramarae, 2003).

But these external commitments make online completions a challenge (von Prümmer, 2000). This is one of the reasons why online and/or distance learning courses have significantly lower retention rates (Carr, 2000; Wojciechowski and Palmer, 2005).

The problem identified by this study was that although adult women enrolled in online education in increasing numbers, educators may not sufficiently understand the factors that contribute to or inhibit their persistence (Furst-Bowe and Dittmann, 2001). To address this problem the study aimed to gain an in-depth understanding of factors that influenced women learners' persistence in undergraduate and graduate online degree-level programmes at a college in the north-eastern region of the US through the following research questions:
- Why do women learners persist in online courses?
- Why do they fail to persist or drop out?
- What factors affect women learners' persistence?

Literature Review
There is a vast range of literature relating to retention in online contexts (e.g. Moore, Bartkovich, Fetzner and Ison, 2003; Bocchi, Eastman and Swift, 2004; Packham, Jones, Miller and Thomas, 2004; Zirkle, 2004). There are numerous examples of a focus on different perspectives within the literature.

These include previous online experience and Grade Point Average (Dupin-Bryant, 2004; Morris, Wu and Finnegan, 2005), learner needs (Furst-Bowe and Dittman, 2001), and retention

strategies (Cross, 1981; Garland, 1993; Simpson, 2003). But there is no consensus amongst researchers regarding online persistence factors and these studies did not focus specifically on gender differences.

Methodology

The design of the study was based on an interpretive approach that assumed participants gave meaning to their experiences through interactions with others. Purposive sampling was used to extract information-rich cases. These cases involved 20 learners. These learners (nine undergraduate and 11 postgraduate) participated in digitally recorded phone interviews. An open coding process was used to underpin the subsequent data analysis.

Key Findings

There were some significant barriers faced by these women in completing their online courses. They included a preference for the traditional delivery environment because of the social interactions and the immediate feedback. Learning online was frequently stressful, in part because it was accompanied by technical issues. More than half of the women felt overwhelmed by the demands of the coursework and they struggled to balance its demands with those of their families and jobs.

In addition to these personal and technology related barriers a lack of faculty interaction was a major factor in their lower rates of satisfaction. This supports the relevant research literature. This lack of engagement took different forms. This included a lack of feedback and instructors not sufficiently challenging the learners or in some instances being absent after the initial processes had been established.

But despite these barriers most of the participants persisted in their courses. The main reasons cited by participants for their persistence in their courses were their engagement in a learning community and that they experienced personal growth. However the convenience of an online degree-level option, building social relationships with their peers and instructors, and seeing value in their education were also important factors in their persistence.

Limitations

The study only focused on women and had a small sample.

Future Research

- The extent of other factors in supporting or hindering the persistence of women learners in online courses who have full-time jobs, as well as family and community responsibilities.
- Exploring the institutional and demographic variables that may significantly influence women's online academic success at this college and at similar institutions.
- Investigating how disparities in professional and economic status affect women's ability to pursue a higher education degree that is delivered online.

Business Undergraduates Learning Online: A One Semester Snapshot

Authors: Petrova, K., and Sinclair, R.

Background

The undergraduate programme at the New Zealand university used in this study had eleven separate majors with a wide range of learners. The programme first used online learning in 1999. Online learning can be defined as an implementation of e-learning that uses web-based technologies (Petrova, 2001). E-learning on the other hand is often used as a comprehensive term to identify the use of a variety of ICTs to enhance and support learning, sometimes blending their use (OECD, 2005).

The purpose of this study was to investigate learners as stakeholders in the online teaching and learning process and the usage pattern of the online platform in terms of learner time spent on it. The study addressed the following research questions:

1. What are the trends and patterns of the general learner use of the online platform including time dimensions and functional components usage?
2. What are the trends and patterns of learner perceptions and perspectives of online learning (enhanced and flexible)? These include satisfaction with, and the perceived value of, online learning.

Literature Review

The increased growth of e-learning is leading to the recognition of the importance of including learners in its development and progress. Learner participation in, and their perceptions of, online learning in particular have been the emphasis of a significant research effort (e.g. Swan, 1995; Lizzio, Wilson and Simons, 2002; Phillimore, 2002; Lindh and Soames, 2004; Sahay, 2004; Selim, 2005; Wells, Fieger and de Lange, 2005). One of the key findings from this literature is the importance of learner perceptions in the process of e-learning development.

Methodology

To investigate the first research question, the inbuilt statistics that were available from the university's Learning Management System (LMS) were used to collate data about the use of its functional components (including the time when learners accessed it). To investigate the second research question, data was collected through the use of two anonymous questionnaires – one for each of the two online learning models.

These questionnaires were designed to differentiate the flexible from the enhanced mode but at the same time to allow for a comparison between them. In addition each questionnaire included a section about the perceived learner usage of LMS components.

Key Findings

While most courses (including all the core ones) in the programme used the LMS there were variations. Most online learning was found in the management major. The most popular time for learners to access the LMS was between 10am and 6pm. The most common learner usage of the LMS was for content or accessing the group area with course related announcements and the discussion board being a distant second.

The responses indicated that 75 percent of learners agreed they would choose another course in enhanced mode and 58 percent would recommend it to others. The majority of the respondents agreed or strongly agreed that the enhanced mode met their expectations, and that it supported assessment (66 percent) and communication (72 percent).

About half of the respondents perceived their enhanced and flexible courses in a positive way. A small majority of respondents preferred online learning to traditional delivery. But the most extensive use of online learning was to enhance traditional delivery, with 48 percent of the respondents using online learning for this purpose. While courses delivered by flexible mode were less prevalent they were the most likely to be used to increase learner capabilities.

Limitations

It only investigated the learner perspective. The programme orientation meant there was a lack of specific data related to individual course design and subject.

Integrating content-based language learning and intercultural learning online: An international eGroups collaboration

Authors: Walker, U., and vom Brocke, C.

Background

University graduates are expected to be able to operate effectively in an increasingly international and culturally diverse job market. Skills and capabilities to support this include excellent communication in multiple languages, intercultural communication, and an ability to

cope with diverse workplaces. Language learning will play a key role in meeting these requirements.

However current language learning provision does not adequately support the simultaneous acquisition of language and adequate intercultural communication skills. But developing this type of provision is challenging because it requires a multi-disciplinary approach using different skills (Bell, 1996; Stryker and Leaver, 1997). These challenges are exacerbated by the persistently held view that only native speakers can effectively teach their language even though this is not necessarily supported by the evidence (Medgyes, 1992; Alptekin, 2002; Davies, S., 2003b).

This paper proposed a solution to this problem by introducing a pedagogy that promoted learner collaboration which would simultaneously develop language and intercultural communication skills. eGroups was a project based online learning community involving learners who despite being from differing linguistic, cultural and disciplinary backgrounds had first language command of each other's learner language. They agreed to work collaboratively.

The overall objective of the eGroups project was to adopt learner reciprocity and collaborative autonomy as the basis for joint knowledge construction. Learners were expected to become more active participants (Berghoff, Egawa, Harste and Hoonan, 2000) including taking on some teaching roles. Supporting technologies included private discussion boards and wikis.

Literature Review
While e-learning offers opportunities for increased participation, studies on communication outside the course and the development of cultural competence have revealed problems such as learner cognitive overload. There are also problems if participation is assumed because miscommunication can occur (Wegerif, 1998; Chun and Plass, 2000; Warschauer and Meskill, 2000; Belz, 2003; O'Dowd and Ritter, 2006; Cohen, 2007).

But a collaborative environment affords opportunities for inquiry based learning and increased cognitive engagement (Mangenot and Nissen, 2006). Increased, staged interactivity can also enhance learner-centred learning (Salmon, 2002, 2004).

Online learning has the potential to expose learners to unfamiliar conceptual systems that can help facilitate their cultural awareness development (Kramsch and Thorne, 2002). It also more easily supports and allows interactions to occur across linguistic and cultural boundaries. This assists in developing intercultural competence (Belz, 2003; Baumann and Shelley, 2006).

Methodology
Five groups consisting of 20 learners from a German (n = 15) and New Zealand (n = five) university took part. The research methodology used was an action research approach.

Key Findings
Learners used the e-groups to jointly define tasks and their meaning. This was supported by an emerging sense of group orientation and community. This finding illustrates the importance of a group establishing a common target. Joint communications within the group assisted learners understanding of key, complex concepts.

Learners taking on some of the teaching roles contributed to the co-construction of knowledge. They were also able to work together to increase their understanding of the language learning objectives rather than relying on the teacher.

The success of these collaborations was underpinned by good working relationships and mutual respect for each other's knowledge and contributions. These collaborations also promoted intercultural competence and capability by assisting not only the non-native but also the native learner's deeper understanding of their own cultures and assumptions.

These exchanges represented an important step towards learners developing a critical perspective, becoming self-reflective, and building on common tasks which assisted in articulating and defending their positions. These are also important attributes in developing lifelong learning skills and abilities.

Text-based synchronous e-learning and dyslexia: Not necessarily the perfect match!

Authors: Woodfine, B. P., Nunes, M. B., and Wright, D. J.

Background

The growing prevalence of the internet and ICT is putting increasing pressure on higher education institutions to implement e-learning applications and networked learning programmes. This is not only to save money and increase efficiency but also to accommodate new and innovative learning models and strategies (Dearing report for the UK Government, 1997).

However these networked learning programmes must now take into account the UK's 2001 Special Education Needs and Disabilities Act. This means that all internet environments and resources used for learning must be accessible to disabled learners. But this emphasis on accessibility has meant comparatively little attention has been paid on how disabled learners are using these environments and resources.

Text-based synchronous activities can marginalise and de-motivate learners with dyslexia, who usually have difficulties in reading, spelling, word order, and argumentation. For the purposes of this study dyslexia was defined as: "…difficulty with words (based on) a difference in the brain area that deals with language. (This) affects the underlying skills that are needed for learning to read, write and spell" (British Dyslexia Association, 2005). The underlying research question was: will learners with dyslexia be at a disadvantage when engaged with learning activities in a synchronous e-learning environment?

Literature Review

Learning occurs through interactions with rich learning environments. These interactions involve engagement in authentic activities, and social interaction and negotiation with peers and teachers. This implies that a number of different learning strategies must be adopted (Nunes and Fowell, 1996; Bonk and Cunningham, 1998; Wilson and Myers, 1999).

Adopting these different strategies often leads to what Grabinger and Dunlap (1995) termed Rich Environments for Active Learning (REAL). In these REAL environments interaction and social negotiation usually occur through, and are supported by, computer mediated communication (CMC).

CMC technologies are currently used as the primary infrastructure to support educational communication requirements in networked learning environments. But their use varies according to different teaching and learning requirements (Ash and Bacsich, 2003; McAteer, Tolmie, Crook, MacLeod and Musselbrook, 2003).

CMC technologies can be broadly categorised into two different types: asynchronous and synchronous. Asynchronous is where an instant response is not required or expected e.g. email. In contrast synchronous technologies often closely replicate a face-to-face conversation and as such an instant response is required or expected e.g. video-conferencing.

Most internet-based synchronous CMCs are text-based (Ingram, Hathorn and Evans, 2000). These synchronous CMC learning environments may be highly disadvantageous for learners with dyslexia. However there has been relatively little literature devoted to the subject of dyslexic learner interactions and learning in CMC environments.

Methodology

The research design was informed by Bryman and Cramer (1992) and Galliers (1992). It consisted of three stages: theory building, testing, and extension. Theory building was conducted through the legislation outlined above and the study's literature review. Testing was done through a null hypothesis. Extension involved the learners with dyslexia being able to fully interact with their peers in a synchronous e-learning environment.

Two experiments were used, one with a total of 12 learners and the other with a total of 20 (split into groups of three and five respectively). Learners with dyslexia were selected on the basis of their Adult Dyslexia Diagnostic score (an assessment carried out by the participating university).

In the groups of three only one of the learners had dyslexia. Data was collected from a pre-experiment questionnaire, a log of learners' conversation(s), and a follow up post-experiment questionnaire.

Key Findings

The findings suggested many negative emotions for dyslexic learners. These included shame and embarrassment at their inability to interact effectively. These negative emotions contributed to their withdrawal. The main factor for this situation seems to lie in the fact that communication in these environments depends on reading and writing in real time. For dyslexic learners this is a difficult task because of their inability to comprehend and respond to multiple messages in a timely manner.

The lack of skills that dyslexic learners have is manifested through inaccuracies in their written communications and an inability to correct these mistakes. This means that their contributions often lack credibility and are rejected by the group. This suggests there will be a discernable difference between the interactions of a learner with dyslexia in a synchronous e-learning environment, compared to a learner who does not have dyslexia.

Future Research

To investigate the technological, mentoring, and teaching strategies that are required for dyslexic learners to be successful in synchronous e-learning environments.

Supporting Collocation Learning

Author: Wu, S.

Background

ESOL learners find it difficult to acquire fluency and accuracy in English because they lack collocation knowledge. At its simplest collocation can be defined as words which learners would not expect to find together (Woolard, 2000). Without collocation knowledge complex ideas are hard to express and learners' writing is less effective (Lewis, 1993; Hill, 1999; Conzett, 2000; Wray, 2002; Nesselhauf, 2003).

But collocation knowledge is difficult to obtain because of its complexity and quantity (Goulden, Nation and Read, 1990; Lewis, 1997; Hill, 2000). Because of this and the emphasis on grammar as well as limited classroom time collocation teaching is often neglected (Farghal and Obeidat, 1995). According to Swan (1996) learners with limited time will not learn appropriate collocations unless they are deliberately selected, prioritised, and incorporated into their supporting language material.

This is compounded by the need to ensure that this information is both accessible and relevant. This limits the usefulness of standard resources such as printed dictionaries and concordancers[21] (Peachey, 2005).

[T]These are software packages used through a website to search access and analyse language from a corpus

ICT also has limitations in collocation teaching and acquisition. These include the volume of resources required, an over focus on particular topics, and de-contextualisation. These limitations can be addressed through corpus data. But this needs to be carefully designed and organised to avoid overwhelming learners.

The British National Corpus and internet allow learners to study phrases in different contexts. The British National Corpus which is available online is comprised of a wide range of spoken and written words (90 and 10 million words respectively) in the British English language.

The internet is generally supported by a search engine to assist learners make more sense of the vast array of available information and resources such as collocation exercises. The internet also allows for the construction of corpora by teachers and/or learners using concordance tools. Specialist computer programmes are now also available to assist learners (Bowerman, 1993; Debski, 2003; Dodigovic, 2005).

To support and enable collocation learning a system called Collocation Learning System (CLS) was developed which is comprised of resources and a learning platform. The platform enables learners to complete relevant exercises. The resources are split into three collections: web phases starting with pronouns, web collocations organised by syntactic pattern, and web phrases of up to five words.

The study focused on the use of these collections to support writing tasks by tracking the way in which learners formulated search queries and how they made use of the search results in the texts they wrote. It investigated the impact of the use of the CLS on their writing and identified its strengths and limitations. The major objectives of this study were to investigate how corpus data should be presented for collocation learning and construct and evaluate a system that helps learners systematically strengthen and enhance their collocation knowledge.

These objectives would be achieved by proving or disproving the following hypotheses:
1. Corpus data can be processed and organised in different ways to help learners expand collocation knowledge.
2. For a given collection of language learning text, pedagogically valuable collocations can be automatically identified and incorporated into a learning environment that facilitates the key activities of noticing, retrieval, and generation.

Noticing occurs when the learner deliberately pays attention to an item as part of the language, rather than as part of a message. Retrieval is the process of remembering an item. Generation is the process of enriching and stretching the learner's knowledge of an item.

Methodology
All the participants were ESOL learners. They were from three separate courses: a general intermediate language class (n = 12), writing preparation class (n = eight) and eight learners who were writing a Masters thesis proposal. The language class learners ranged in age from 19 to 40 and were evenly split between male and female. Six different languages were represented: Korean, Argentinean, Colombian, Chinese, Dutch, and Japanese.

The writing preparation class learners were predominantly male, ranging in age from 18-30 who spoke five different languages (Chinese, Japanese, Arabic, Korean and Chilean). They wrote an essay using the Web Phrases and Collocations Collections supported by a system user guide. They were prohibited from using dictionaries.

The Masters thesis learners were aged 25-30 from Samoa, Cambodia, and the Solomon Islands. They were given two months to read literature and one month to write a draft literature review. Two tests were conducted to give an indication of their vocabulary size and collocation knowledge.

The learners' grammar and reading was assessed using the Oxford entry test which gave a score for each skill. Writing and speaking were assessed by a writing task and interview that were both conducted by the teacher. These were also allocated a score. To compare their pre and post system use ability participants were asked to write a 150-200 word description about the system.

The learners' system use was recorded in detail and analysed alongside their written text. The writing class learners were also supplied with a system user guide to support their study. A second two hour follow up session was then held to explain the system in more detail.

The vocabulary test was conducted using the Nation and Laufer Levels test (1999). In addition two of the participants completed a questionnaire to establish if their understanding of the concept of collocation had increased as a result of using the system and to understand why it was not used more frequently.

Key Findings
Participants using the system adopted one of two strategies. Most used it to check work they had already completed for errors. However some generated text by using the system to help find the correct usage of a word and then incorporating the suggested suitable sentence structures.

The use of the system by participants can be broadly categorised as follows: checking grammar, or generating, confirming, or expanding text. But despite this system use there were a number of errors identified in their work such as incomplete sentences and incorrect sentence structures.

One of the challenges facing the participants was locating the correct words. They tended to adopt one of four basic strategies if a simple search was insufficient: change the word form, explore lexical resources for related or associated words to find alternatives, consult a dictionary or teacher or simply give up. On average 3.5 searches were required to generate a useful word(s) or phrase(s). These were used correctly 90 percent of the time.

There was an equivalent correlation between the searches, their results, and the text generated. There was a preference for the internet over the British National Corpus perhaps because of its reduced complexity. The findings suggested that only the most advanced learners were likely to explore alternative language usage and use the system to generate text. In contrast less proficient learners used the system mostly to revise text.

Most of the errors from the writing class participants were grammatical and/or lexical such as incorrect or inappropriate word combinations. Teachers had highlighted these errors so unsurprisingly participants actively used the system to check these with an average of five queries per error. Errors were generally corrected by replacing the highlighted text with alternatives found using the system. Some gave up after a few unsuccessful attempts to resolve the errors. However two participants rewrote their text by using system generated phrases.

Most participants utilised the web phrases collection more frequently than the collocations one. This could be because the former had a more user friendly interface. But many did not appear to understand the structure of the collections and what they could offer. Participants often did not use correct or appropriate search terms. For example, they used the whole phrase as a query. However the more advanced learners had greater precision in their search terms. But the less advanced learners tended to adopt frequently used words.

Of concern was the fact that only three participants looked up examples of the search results before using them in their text. This could have been due to time constraints and/or limited training on effective system use to support their study. But despite this the system managed to correct 88 percent of the errors although these were mainly lexical.

While fewer grammatical errors were resolved it was still a small majority (55 percent). This high success rate does suggest that participants were both willing and able to use the system to revise their work. If these grammatical errors are excluded the overall success rate was 70.5 percent. But participants achieved a higher success rate on their own – 77 percent.

Only by using the smaller vocabulary list did a limited number of the Masters thesis participants reach acceptable levels. But none of the participants reached acceptable levels using the largest list. Their collocation knowledge was also limited. They were given a one hour tutorial on how to 'cherry pick' collocations from the three collections built for them.

The thesis participants tended to select long and common collocations. Using the system did improve their understanding of collocations and its importance in academic writing. But this was determined by vocabulary with the learners who had a more limited vocabulary more likely to pick frequently used words or collocations. Furthermore they did not make more extensive use of the collocations they generated as they were not particularly useful after they changed topic.

Time pressures also limited more extensive participant use of the system. A lack of guidance about how it would inform their literature review also hindered its uptake. But despite this these learners did view the system favourably citing its ease of use and ability to improve their collocation knowledge if used regularly.

Limitations
The time allocated to the evaluation and the limited number of learners who participated in this study.

Future Research
Longitudinal research should be conducted to assess the impact of using this study's system on the development of collocation knowledge of ESOL learners.