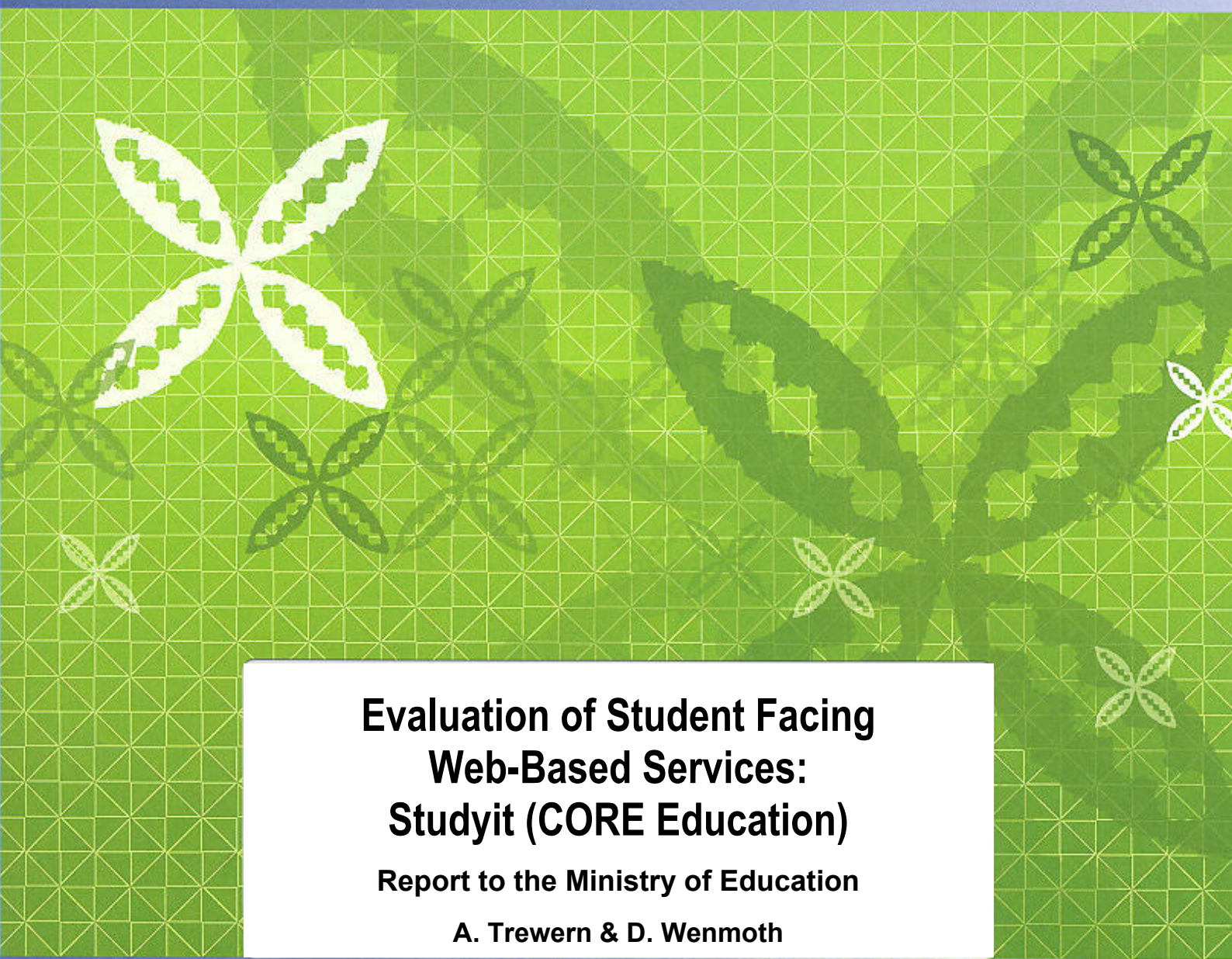




MINISTRY OF EDUCATION NEW ZEALAND

Te Tāhuhu o te Mātauranga Aotearoa



**Evaluation of Student Facing
Web-Based Services:
Studyit (CORE Education)**

Report to the Ministry of Education

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Studyit Final Service Report

Evaluation of Student Facing Web-Based Services: Studyit

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technology | innovation
learning | research

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Studyit - Final Service Report

Evaluation of Web-based Learning Services for Children and Young People in New Zealand

Introduction

This document provides a final service report on the *Studyit* website as part of a larger evaluation of web-based learning services for children and young people in New Zealand. The report is complemented by two similar reports relating to the AnyQuestions website and the WickEd website as well as a review of literature and an integrated summary of the suite of reports.

This report focuses on a qualitative interpretation of data, and is designed to also complement a quantitative evaluation of the *Studyit* website conducted by Nielsen Net Ratings.

The evaluation of *Studyit* is being conducted with a view to achieving two main objectives:

- Understanding more fully the impact of each service on users, teachers, schools, and the service providers themselves.
- Determining how web-based services (in general) are currently aligning and integrating with children and young peoples' overall learning experiences and outcomes.

Studyit was established as one of the Digital Opportunities (DigiOps) projects in 2004 and is described on the DigiOps Website¹ as “free online learning resource for all students studying maths and/or sciences to NCEA level”. The site also has a category for English advice and resources, and a fourth area where other subject advice is given. *Studyit* offers key resources with a high level of relevance to NCEA level students, as well as asynchronous forums where students are invited to interact with online maths, science and English teachers, and also other students, for assistance with their learning and NCEA related inquiries. The service is available 24 hours a day and 7 days a week. The following, taken from the DigiOps Website², explains how *Studyit* works:

¹ <http://www.digiops.org.nz/projects/currentprojects/Studyit/index.html>

² *ibid*

The Studyit website is not a homework service and does not provide students with answers to their exam questions! Instead it gives expert guidance and encourages students to engage their problem-solving skills so they reach the answer themselves.

The website is targeted to help with almost any topic a student may be having problems with in the maths or science curriculum areas. Along with advice, the website has links to New Zealand and overseas NZQA-approved websites, which provide additional supporting information, illustrations, and examples.

Responses to queries are usually replied to within 24 hours and students are also free to offer advice. However, their comments and advice is only posted on the website once it has been checked as accurate and appropriate.

As well as helping students with maths and sciences, the *Studyit* website has an open forum to discuss other related topics such as study techniques, sitting exams, dealing with stress and which information communication technology (ICT) works best for different purposes.

An operational characteristic worth noting here is the role of mentors in editing and screening the student posts to forums. Site operators report that this is done to ensure a particular ‘tone’ across the forums (ie supportive, encouraging, relevant). When editing the posts, the teacher mentors follow strict guidelines provided by the StudyIt team around suitable language and content.

Research Approach

The qualitative data for this research was gathered during the months of June and July 2005, which was the first year of operation of the *Studyit* website. The data comprises three key elements that includes analysis of the text-based forum discussions, interviews of students and interviews of mentors.

1. Transcript analysis

Questions or requests for help or information submitted to the asynchronous forums by students and the responses provided by mentors are fully archived and remain viewable on the *Studyit* website. A transcript is a single message if it stands alone or a thread of messages if replies are involved.

Transcripts were selected and analysed as follows,

- A sampling process was utilised. Fifty transcripts were selected from each of the three forums on the site using a random number selection process. A total of 150 transcripts were analysed and these comprised:
 - 50 science forum transcripts
 - 50 maths forum transcripts
 - 50 “other” forum transcripts
- A specially designed framework was used for the analysis. This is explained through this research report.
- At the time this research was undertaken the English area had not been established.

2. Student Interviews

- Fifteen invitations were sent to students to participate – ensuring a range of levels of participation (emails were supplied by the *Studyit* coordinator at CWA from the records they held of online participation.) Of these 5 invitations “bounced” – (invalid emails)
- A second batch of emails was sent and only 2 responses were received. One respondent declined because he didn’t want his parents to know about him being online with this site.
- After discussion with David Stuart (from the Ministry of Education research division) the research team agreed to look at alternative approaches regarding the use of focus group interviews. Three group interviews took place in schools in Auckland (1) and in Christchurch (2) involving a total of 15 students.

3. Mentor Teacher interviews

- Interviews were completed by email questionnaire and phone calls. Five mentor teachers were interviewed.

Special note

Quotes used in this report are presented in shaded panels referred to as Tables. These have been left unedited, except where portions have been deleted or identifying detail (eg names) substituted. Where this has occurred the substitution is contained within square brackets, or the deletion noted with ... The aliases of mentor teachers and individual student nom-de-plumes have been retained in some cases as they provide the reader with some of the flavour of the interactions. In other cases student aliases have been substituted with student A or student B etc

Summary of findings (analysis)

The summaries of findings in this section are collated from the transcript analysis that formed a major part of this research, together with evidence from the interviews with students and teacher mentors to support or interpret the findings from the data.

Each of the sections reports on a particular focus area of the analysis, and the interpretations that can be made. It should be noted that, for an overall picture of the effectiveness of the programme it is important to take into consideration all of these elements and the picture they paint. This is done in the final section of the report where this analysis is used to inform comments on:

- The quality of service provision
- Immediate learning for young people
- Alignment and transfer of learning for young people
- Learning for providers, teachers and schools

A sample of transcripts (n=50) from the each of the two subject forum areas (Maths Science) and a further set of transcripts (n=50) from an open forum area called ‘Other’ of the *Studyit* site were analysed using a coding system that is explained in each of the sections that follows.

Type of questions asked by students

A focus for the analysis of the interactions between students and mentor teachers in the *Studyit* environment was based on the type of questions asked by students. Questions posed by the users formed the starting point for the majority of interactions within the *Studyit* environment. Student initiated questions in transcripts were coded as either closed questions or open questions as is illustrated in Table 1 below.

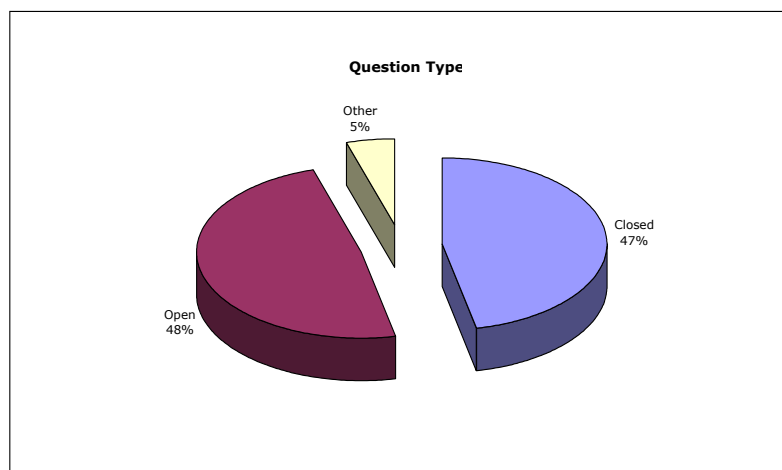
Code	Explanation
	The focus here is on how well the question is suited to pursuing an inquiry-based approach, as compared to simply “finding the answer”.
Closed	Question is coded as “closed” if the question ‘closes down’ the opportunity for further inquiry,
Open	Question is coded as “open” if it invites more discussion

Selected examples from the transcripts of the type of closed and open questions that occur on the *Studyit* website are listed in Table 2.

Table 2: Examples of the type of student inquiries and coding used	
Closed questions	<p>Hi, does anyone have any good explanations on the graphs of current and voltage vs. time for charging and discharging a capacitor.? I did use to have a good one memorised for current as it's charging... but its a bit sketchy now.</p> <p>Hey what do we have to actually know 'cause I looked through the criteria but I don't get it anyone go time to through it for me</p> <p>Does anyone know any good test sites for chem 1.7</p>
Open Questions	<p>How do you work out the common denominator in fractions?</p> <p>In question 4 - How did they get $P=0.28$?</p> <p>What are the different colours of the oxidants and reductants?</p> <p>My question is what is FSH and LH and what is their function?</p> <p>What's the difference between A,M,E in geology.</p> <p>Find the values of a and b if $x^2 + 8x + 5 = (x + a)^2 + b$</p>

The results of the transcript analysis can be seen Figure 1 which shows the proportion of open (48%) and closed (47%) initiating-requests by students. Five percent of questions were difficult to code into either category and have been labelled as 'other.'

Figure 1: Shows as percentages the type of questions asked by students



Interestingly there is quite a high proportion of questions that have been classified as open suggesting that students who were making use of the interactive aspects of the *Studyit* website may be asking questions

around topics for which they have already developed some prior understanding and are aware they need they need to expand this further.

Closed questions appeared to be more frequently asked in the maths forum areas. Open questions were more frequent used in the science forums. Open questions were often calls for general study help or ways to approach a particular standard. Open questions also generally elicited more frequent interaction from student peers.

Table 3: Shows the correlation between open and closed questions and the subject area

	Science		Mathematics	
	Number of questions	Percentage	Number of questions	Percentage
Closed	17	35%	31	63%
Open	27	56%	17	35%
Other	4	8%	1	2%

It is interesting to observe that online teachers managed many of the ‘closed’ questions in ways that led to further inquiry or investigation for students. Several examples are illustrated in Table 4 below. Mentor-teachers appeared adept at providing opportunities for students to deepen understanding of the topic.

Table 4: Examples of ways online teachers developed and attempted to deepen student's knowledge and understanding around a closed question.

Teacher supplies further information for student B to check out answers and suggests refining the questions.

Student A - Hey I need some help on reproduction. My question is what is FSH and LH and what is their function?

Teacher - follicle stimulating hormone and Lutenising hormone

http://arbl.cvmb.colostate.edu/hbooks/pathphys/endocrine/hypopit/lhfs_h.html - If too complicated, let me know.

Student A - Thanks ST that helped me heaps

Student B - Hi, what are we expected to know for human bio 1.5-maintenance of the body...I'm unsure of what I've done for this topic this year as the teacher tends to go off-topic. Cheers

Student C - Hey, it will cover all the homeostatic systems in our body i.e. glucose content, water content, salt content, temperature and oxygen content. How these conditions are maintained in our body. Also the organs, glands and hormones involved in homeostasis.

Teacher [to student B]

positive or negative? Check this site out and then try and ask more specific questions.

http://www.besthealth.com/besthealth/bodyguide/reftext/html/endo_sys_fin.html#homeostatic

Go to this section:

Homeostatic feedback mechanisms

Teacher supplies an answer that leads to further questions from the student

Student: can we draw log graphs on the graphics calculator?

Maths Teacher: Yes you can! The graphic calculator only uses base 10 or base e BUT... for example if you are to draw $y=\log_2 x$ then using the logarithm laws this is the same as drawing $y=\log_{10} x / \log_{10} 2$ and you have all of the G-Solve features at your disposal.

Student: Thanks MT

so for $y=-\log_2(x+3)+4$ we do $-\log(x+3)+4/\log_2$

Maths Teacher: Hi ... Not quite BUT close!

Example 1: $y=\log_n(x+3)$

Then $ny = x+3$

$\log_{10} ny = \log_{10}(x+3)$

$y \times \log_{10} n = \log_{10}(x+3)$

$\therefore y = \log_{10}(x+3) / \log_{10} n$

Example 2: $y=\log_2(x+3)+4$

$y-4 = \log_2(x+3)$

<p>Teacher raises questions of clarification around the topic leading to further discussion</p>	$2(y-4)=(x+3)$ $\log_{10}(2(y-4))=\log_{10}(x+3)$ $(y-4)\times\log_{10}(2)=\log_{10}(x+3)$ $(y-4)=\log_{10}(x+3)/\log_{10}(2)$ $y=\log_{10}(x+3)/\log_{10}(2)+4$ <p>See how you go with your equation.</p> <p>phpBB Group: I did a search for Biology 3.4 on the web but yielded nothing. What's the difference between Gibberellins and Auxins? And Cytokinins and Abscisic acid? The role of ethene is very obvious in plants.</p> <p>Science Teacher: Do u want the chemical difference or differences in effect on plants? Is this site and the links any help? http://www.plant-hormones.info/auxins.htm</p> <p>phpBB Group: Hello there. Thanks for the URL, ST. Yeah, it does seem pretty quaint [sic] not to have my question answered within few hours of time! Can you explain to me where is the subapical region?</p>
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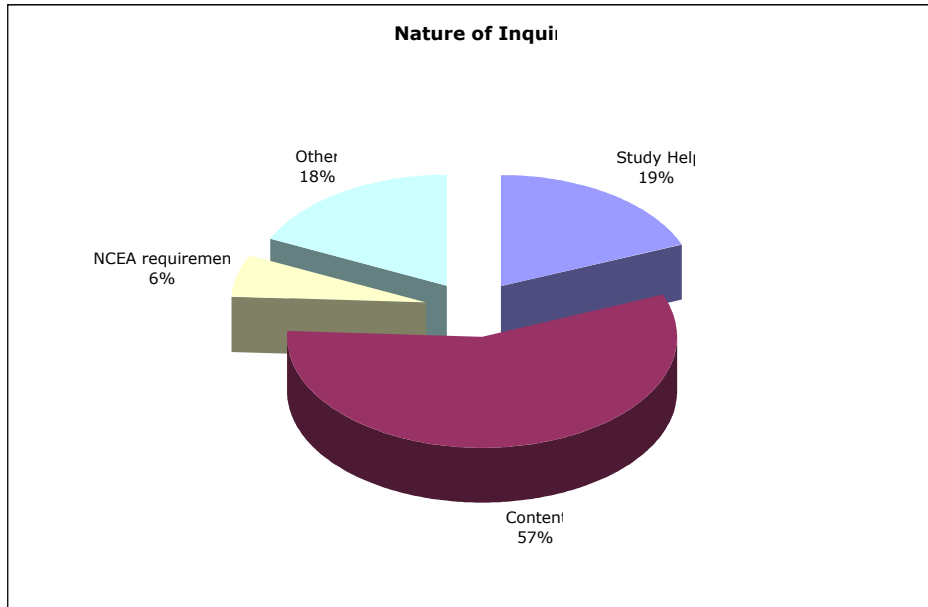
Nature of student inquiries observed in Studyit

An analysis of the frequency of initiating requests based on the nature of a student inquiry was also undertaken. Most requests could be categorised into the four main areas outlined in Table 5.

Code	Explanation
Select ion was based on the one that most appropriately described the focus of the inquiry:	
1. Study help	Study help – seeking assistance with how to study
2. Content	Content – seeking help with specific content issues
3. NCEA requirements	NCEA requirements – seeking help or information relating to the NCEA rules/regs or requirements etc
4. Other	Other – use this if none of the above apply

Figure 2 reveals that the majority of initiating requests by students (57%) were around specific domain content. Study help and more general requests (listed in Figure 2 as 'Other') comprised 19% and 18% of the interactions respectively and requests about NCEA requirements comprised some 6% of interactions.

Figure 2– Nature of the student inquiry as revealed by transcript data (n=150)



In interviews various mentor teachers provided further information about the nature of student questions commenting on the origin of inquiries, level of specificity of inquiries, types of problems students were encountering and what they sort of responses they required. Some mentor teachers' perceptions are presented in Table 6 below.

Table 6: Mentor perceptions of the nature of student inquiries

Sources for inquiries	Usually the students will post questions from assignments, text and homework books and exam papers....(<i>Mentor feedback</i>)
Questions may be general or specific	<p>Questions may be general such as "I'm having trouble in formulating equations to solve in algebra; advise please." Or giving a specific problem(s) that the student does not understand'. (<i>Mentor feedback</i>)</p> <p>A typical question usually begins with... "I do not understand this topic, how do I do questions like this?" (<i>Mentor feedback</i>)</p>
Students require help to get them started on a problem.	In level 2 science a student has asked [about] a specific physics problem and how to start it if it occurred in the external exam. (<i>Mentor feedback</i>)
Requests to clarify process	[Students will] ask you to explain how a certain answer was reached. The brighter students often look for ways to start a problem and then work through it themselves and the less able tend to want the series of steps they need to take to get the right solution (<i>Mentor feedback</i>)
Feedback sought on essays etc.	...the second is feedback on essays or work students have done (<i>Mentor feedback</i>)
Content support a common request – often resulting from lack of or inadequate notes or materials being supplied	<p>The majority of enquiries fall into two sections - the first is content support (where to find more information on a particular text)... (<i>Mentor feedback</i>)</p> <p>The lack of direction of students to the standards and explanatory notes. For many of these students they did not know they exist. (<i>Mentor feedback</i>)</p>
Students use the site to clarify, reinforce or expand on what has been introduced in school	<p>Repeat requests for the same question is very common</p> <p>Lots of comments from students about things they were taught at school but not quite "getting it". (<i>Mentor feedback</i>)</p> <p>Lots of kids 'pushing' themselves (<i>Mentor feedback</i>)</p>
Help sought with content and structure of essays	Students want clarification of requirements for internal assessment and help with essay writing. (<i>Mentor feedback</i>)

Mentor teachers also provided further information about the ways they handled inquiries and some of the strategies they used to assist students is revealed in the comments provided in Table 7. The researchers found evidence that there were small learning communities developing within some of the essential learning areas. Students are encouraged to contribute to and critique their peers learning and can be clearly observed doing so. One teacher mentor noted that some students continue to contribute to the *Studyit* forums and help contribute in knowledge sharing even after they have left school.

Table 7: Teachers used a range of strategies to assist students with their queries

Provides links to information and hints about how to begin the problem.	I usually refer the student to the appropriate content pages on <i>Studyit</i> , to any relevant posts previously responded to on the forum and then hints on how to begin their problem, leaving them to work through it and come back for additional help if required (<i>Mentor feedback</i>)
Providing a process for students to follow	My response was to go over how these diagrams are done and the steps to follow. (<i>Mentor feedback</i>)
Students expect teachers to respond to posts	[There is a] tendency for students to wait for the Mentor Teachers to respond first to a question that is posted. (<i>Mentor feedback</i>) Some students don't realise that it's quite OK for them to respond first (<i>Mentor feedback</i>)
Some students continue to use <i>Studyit</i> after they leave school	A number of students have left school and are now up to second year university and are still coming on to <i>Studyit</i> to help other students. (<i>Mentor feedback</i>)

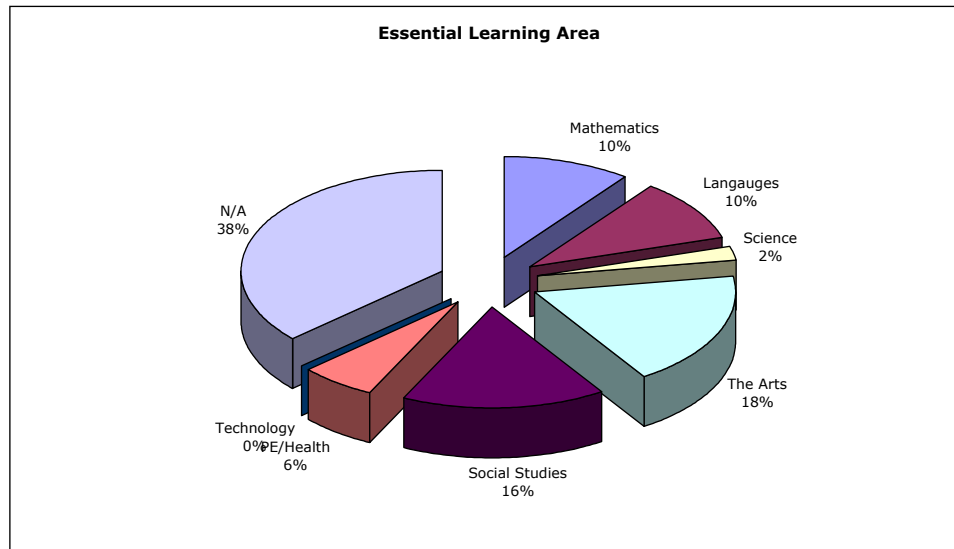
Essential learning areas

The aim of the *Studyit* website is to provide opportunity for both peer and expert support for students in the specific subject content areas of Maths and Science. This section of analysis applies only to the sample of transcripts that were analysed from the 'Other' forum (n=50). The purpose of analysing the content of other forum only has been to ascertain to what extent students were bringing other essential learning area queries into the *Studyit* learning environment. The coding in Table 8 was used to classify the transcripts

Code	Explanation
Mathematics	The ELA that is the main focus of this transcript was identified
Language/s	
Science	
The Arts	
Social Studies	N/A was used for any transcript where the discussion was not curriculum related
PE/Health	
Technology	(Only one option was chosen)
N/A	

Figure 3 shows the results of the analysis of the range essential learning areas students wanted to discuss in the ‘Other’ forum.

Figure 3 – Shows the range of essential learning areas students wished to cover in the discussions in the ‘Other’ forum



The largest proportion of messages (38%) in the ‘Other’ forum labelled N/A in Figure 3 relate to questions raised by students about how to study, and rules and regulations relating to NCEA and examination techniques. Queries relating to the Arts essential learning area comprised 18% of queries and Social Studies topics including economics, geography, history and classics comprised 16% of queries. What was surprising was that even though Mathematics had a forum of its own 10% of the queries posted to the other forum also related to mathematics topics. Language queries also comprised 10% of messages. In addition to the existing Mathematics and Science forums it was clear that students were interested in discussing topics in, the Arts, Social studies and language which could be recommended as areas for future development for *Studyit*.

The quality of learning observed in the *Studyit* message boards

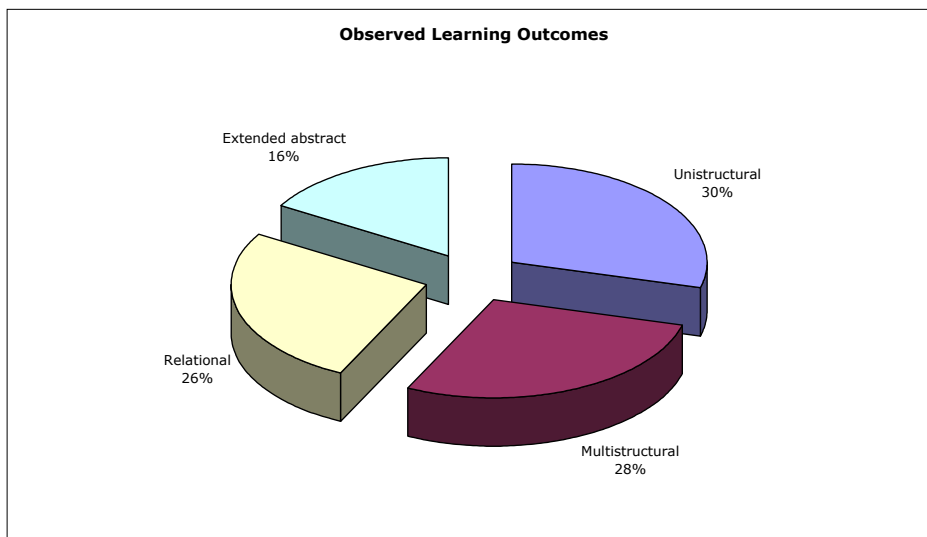
One of the issues of qualitative analysis of text-based forum postings is the lack of stable, easy to use instruments for measuring learning within and comparing and contrasting findings across learning environments (Rourke, et al 2001). For this report the SOLO taxonomy (Biggs and Collis, 1982; Hattie and Purdie, 1998) has been used as a means of assessing the degree or depth to which the students understand or process knowledge from their online interactions on the *Studyit* website. Hattie and Purdie suggest the SOLO taxonomy can be applied to evaluation of student learning across a range of content domains, and that the model allows for evaluation of partial knowledge, an aspect of the model that is useful in online learning environments where the full learning process of an individual is rarely, made explicit.

The transcripts have been coded according to the following categories listed in Table 9. The first two categories, Unistructural and Multistructural, are described as ‘surface level’ responses, while the second two, Relational and Extended Abstract are described as ‘deep’ responses.

Table 9 - Coding for observed learning from online interactions		
Code	Explanation	
Select the one category that represents the highest level of thinking evident in this transaction		
Unistructural	Surface level	Unistructural - requires the knowledge or use of only one piece of given information, fact, or idea, obtained directly from the problem
Multistructural		Multistructural - requires knowledge or use of more than one piece of given information, facts, or ideas, each used separately, or in two or more distinct steps, with no integration of the ideas
Relational	Deep level	Relational - requires learners to impose an organising pattern on the given material.
Extended abstract		Extended abstract - requires the respondent to go beyond the given information, knowledge, information, or ideas and deduce a more general rule or proof that applies to all cases.

Coding the selected Science and Mathematics forum transcripts according to the SOLO taxonomy reveals the depth to which student learning could be discerned in Figure 4 below. Coding individual messages and transcripts where a request might be dealt with over time, and represented by a number of interactions, was not as straightforward as hoped for the research team. For senior maths physics, chemistry and biology in particular, it was sometimes difficult to determine which of these most correctly described the conversational thread and for many an informed guess needed to be made.

Figure 4 – Shows the depth to which the students understand or process knowledge from their online interactions on the Studyit website



Almost one-third of messages were considered to be unistructural in nature containing only one obvious piece of information coming directly from factual information. More than one quarter of student requests were classified as multistructural requiring two or more discrete and separate pieces of information. In total 58% of the randomly selected transcripts of interactions from Studyit could be classified as ‘surface level’

requests. That a majority of interactions should fit this category is unsurprising given the nature of text-based online medium in which the *Studyit* interaction occurs and the nature of the mathematical and scientific content with which some of these students are dealing. Also for many students, the expedience of using *Studyit* to ask for specific help around a specific question is likely to be a significant reason for the larger percentage of surface level questions. There was a connection observed between NCEA level and the depth of learning exhibited. More in-depth responses were evident at higher NCEA levels.

What is of interest arising from the analysis is that 42% of the interactions could be classified as being at the 'deeper level' of understanding. Twenty-six percent or just over one quarter of interactions contained some aspect of 'relational' complexity where several aspects are integrated so that the whole has a coherent structure and meaning (Hattie & Purdie, 1998) and 16% of interactions could be classified as extended abstract where students had taken their knowledge and understanding and generalised it to a higher level of abstraction (Hattie & Purdie, 1998). The quality of learning on the *Studyit* website can generally be seen to be very high. A range of examples of surface and deep interactions are provided from the transcripts in Table 10 below

Table 10: Selected Examples from transcripts illustrating Student Observed Learning Outcomes (SOLO) classifications

<p>Unistructural - requires the knowledge or use of only one piece of given information, fact, or idea, obtained directly from the problem</p>	<p>Does anyone know how high the standards are</p> <p>Could you explain to me the significance of Christianity on art in the 14th century</p> <p>Does anybody know when the effects of Agent Orange started becoming apparent - you know, babies being born with three heads</p>
<p>Multistructural - requires knowledge or use of more than one piece of given information, facts, or ideas, each used separately, or in two or more distinct steps, with no integration of the ideas</p>	<p>Hey I need some help on reproduction. My question is what is FSH and LH and what is their function?</p> <p>Did anyone get that the cricket ball was thrown 20m high also were the forces on the ball unbalanced or balanced?</p> <p>When you collect CO₂ from mixing CaCO₃ with HCl you collect CO₂ through a tube into an upside down container in a beaker of water. In the exam it said that it is better for the water in the beaker to be warm. Why is this?</p>
<p>Relational - requires learners to impose an organising pattern on the given material.</p>	<p>Hi, does anyone have any good explanations on the graphs of current and voltage vs time for charging and discharging a capacitor. I did use to have a good one memorised for current as its charging... but its a bit sketchy now. Id really appreciate some in depth but user friendly explanations on this</p>
<p>Extended abstract - requires the respondent to go beyond the given information, knowledge, information, or ideas and deduce a more general rule or proof that applies to all cases</p>	<p>I was at the park, yes, because i am really cool. I was swinging on the swing, and was wondering, would it be physically possible for me to do a 360 on the swing? I sat there for ages pondering about the physics behind it.. and concluded you'd need be going at a very high speed.. but is it possible? Your thoughts..</p>

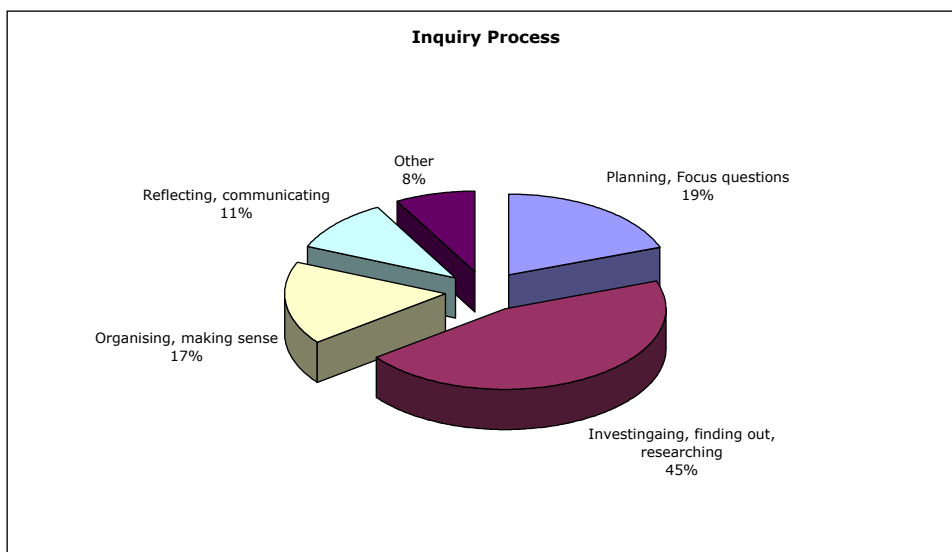
For what steps in the learning process are these students making use of the Studyit website?

The interactive message boards of Studyit provide a service that offers an open invitation to assist students with their learning needs. Because Studyit cannot offer the support for all aspects of the learning process that teachers can offer it is necessary to analyse which elements of the learning continuum students are finding of most use in the interactive environment. Messages have been analysed within the framework of a simplified four-stage inquiry model. The normal end points of the inquiry process that include evaluation and synthesis stages of learning such as final assignments, projects, presentations or examination responses are rarely contributed in an online help site but are being presented elsewhere to teachers examiners or classroom peers. The classifications used for the transcript data is outlined in Table 11.

Code	Explanation
1. Planning, focus questions,	The <i>highest</i> stage in the inquiry process that is reached in each interaction was chosen.
2. Investigating, finding out, researching	
3. Organising, making sense	
Reflecting, communicating.	

Figure 5 reveals that the majority of student requests (45%) can be classified at the ‘investigating, finding out and researching’ stage of the personal inquiry process. Most student users have been provided with the impetus and initial steps to the their inquiries through school assignments, worksheets, problems, and homework activities.

Figure 5 – Indicates those aspects of student inquiry where Studyit is most supportive



It is interesting that almost one-fifth (19%) of student inquiries were classified as being within the planning, and focussing stage indicating as teachers have stated that many students often do not know where to start with a problem. Once they have been given some direction they are able to continue independently. Seventeen percent of student inquiries were classified at the organising and making sense stage and 11% of messages were classified at the reflecting and communicating stage.

The number of interactions that fall within the first two stages in particular (total = 64% that is almost two thirds of interactions) reinforces the value of *Studyit* in assisting students to find the information they need from relevant, quality resources that are supporting and complementing what they are doing at school. Most students wanted help to understand how to do a particular problem, particularly in the maths and science forums. The general study help type questions and the ones about how others found the examinations appeared more in the 'Other' forum.

It is interesting that more than one quarter of interactions (total = 28%) involve the middle to upper levels of the inquiry process. This may reflect the type and maturity of the student who is involved in *Studyit* and also the type and level of content that is at the centre of the discussions.

Table 12 illustrates some examples of student requests that have been categorised into the various levels

Planning, focus questions,	<p>i've got to find artists to model my work on. Any ideas?</p> <p>Any essays that people wrote last year or the year before would be a great help!</p> <p>Stanley Palmer was my chosen NZ artist. I like his style and am really focused on landscapes. But I want to widen my subject choice, as well as my medium choice.</p>
Investigating, finding out, researching	<p>It's supposed to be really good for studying etc... never tired it b4 and will only know the affects once results come out has n e one else ever tried it</p> <p>i am doing mine on poverty and really have no ideas for the diagrams and charascitics [sic] any help would be appreciated [sic]</p> <p>What kinda [sic] extracurricular activites [sic] are they looking for?</p>
Organising, making sense	<p>How do you describe in detail the process by which a Roman Empereor [sic] became a god? Do you just mention how they promoted themselves as gods?</p> <p>Whats better to take history or history of art..which one is harder? Please help...I have been tossing between the two for a while</p>
Reflecting, communicating	<p>Do they serve a different purpose and benefit some type of business more than others?</p> <p>my advice would be to get a good grip on all the concepts of good essay writing describe; achievement level</p> <p>discuss merit level</p> <p>explain: excellence level</p> <p>I think they should send the marking schedules to our schools so our teachers can assist us in making decisions about reconsiderations.</p>

The following Tables 13 and 14 examples are provided that illustrate the high the level of engagement in learning that is exhibited in many of the forums on the *Studyit* website.

The example in Table 13 illustrates ‘a wondering’ expressed by a level 2 NCEA student about a physics problem relating to rotational inertia and angular momentum and the application of theory to a situation in practice. This delightful example also illustrates the depth of interaction occurring between a student and mentor teacher.

Table 13: Sample transcript illustrating engagement in inquiry process arising from a non-exam question

Commentary	Transcript
Question posed by student arising from application of science thinking (non-exam related)	Izy - I was at the park, yes, because i am really cool. I was swinging on the swing, and was wondering, would it be physically possible for me to do a 360 on the swing? I sat there for ages pondering about the physics behind it.. and concluded you'd need be going at a very high speed.. but is it possible? Your thoughts..
Science teacher responds with a scientific explanation.	scienceteacher3 - Yes. You just need enough kinetic energy at the bottom so that your speed at the top is such that the centripetal force required to keep you moving in a circle is provided by gravity. Mathematically the minimum speed at the top is found from $mv^2/r = mg \Rightarrow v = \sqrt{rg}$. The energy lost in reaching the top will be $mg2r$ so you can work out the necessary speed at the bottom using an energy argument. As the chain wraps around the top bar, your radius and therefore your rotational inertia will decrease so in a no-friction situation you will speed up because of conservation of angular momentum. You can see this effect if you tie a string to a pencil and swing a small weight around - as the string winds around the pencil the weight speeds up.
Student responds informally	Izy - I so wanna try this... Haha.. holidays are great aren't they... Thanks ST3
Science teacher prompts thinking about next year's courses	scienceteacher3 - They certainly are. Are you doing Level 3 Physics in 2005? Rotational inertia and angular momentum will make a lot more sense then.
Second student picks up on the science teacher's response	Darksentinel - But it is practically impossible isn't it? I mean, how would you get sufficient speed to actually swing around the bar?
Science teacher responds with further physics	scienceteacher3 - Absolutely. You would have to have an external source of energy. With a non-rigid chain, if you swung yourself you would reach the horizontal without any problem but would have a hard job going past that point. You would simply fall from your highest point.
Second student applies this to personal experience	Darksentinel - I thought as much...never worked for me. Even with an external force it'd be hard with a chain. I mean, it never works even when you try and swing and empty swing over the bar
Humour from Science teacher recognising the limitation of this thinking!	scienceteacher3 - Darn! Another case where secondary school physics fails to reflect the realities of playgrounds. Ah well, the physics we have discussed is sound, it's just a question of how much energy you can provide. Do not use younger members of your family (or pets) to test this. <i>[Posts continue...]</i>

The example in Table 14 below illustrates a second example of the level of engagement in learning and co-construction of knowledge that is observable in the *Studyit* forums. This example is illustrative of the high

level of peer interaction among the interactive group in *Studyit*. Here five students provide both information and personal opinion on a student query about the NCEA Level 3 classics syllabus. Clearly there is more than knowledge building happening in an interchange such as the example above and below.

Table 14: Sample transcript illustrating engagement in inquiry process re course selection

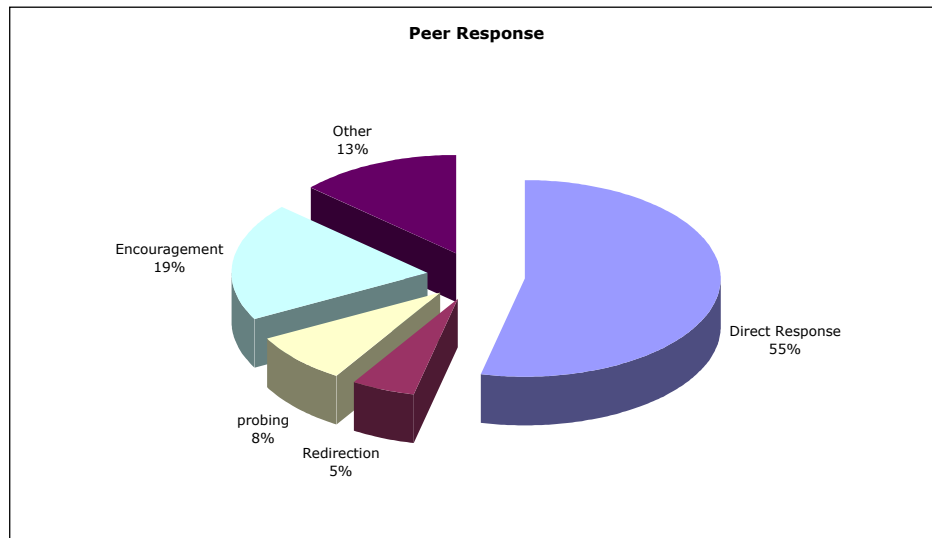
Commentary	Transcript
Initial student inquiry	Gc - Hey, wat topics did u cover 4 classics this year? I havent done much study so far, how are u going with studyin 4 it???
First response from another student based on experience – very detailed with reference to standards included	Darksentinel - Our school has a classics class of, wait for it: 2 people! So we basically do our own study, sort of like the rest of this year (we did it via correspondence). Anyway, in Level 3 Classics (you should really post your year level too) we covered: Greece, it's history, mythology and culture/society. Attical Comedy: Aristophanes' The Wasps and The Frogs (For 3.1) Greek Vase Painting (For 3.2) Alexander the Great, his character and his conquests (For 3.3) Rome, it's history, mythology and culture/society. Juvenal's Satires (For 3.4, the internal) Virgil's The Aeneid (For 3.1, as an additional option). I haven't started studying for it, cos [sic] I've got 3 exams this week, but I'll probably just go over the material covered, make sure I know all the Vases, Battles, and written bits'n'pieces. Same as for History or English I guess...
Third student provides another perspective	al'Astair - We did Aristophanes (great guy he is), Alex the great, Roman Art & architecture and Greek Science. We spent like two terms on Alex, and the last week and a half of the year on the greek science. I hated doing Alexander so I'm doing the science for the essay. For study I'm just gonna [sic] read the plays and the notes for the Literature, and write some practice essays for the Essay one. Because the Classics exam is an afternoon one, I'm gonna [sic] learn all the set works (for the art) the morning of the exam, so that they're fresh in my mind. oh and I beg to differ; is there not a topic called ' Greek SCIENCE '
Fourth student provides an aside comment	xandim - hahahaha... not even THOUGHT about classics study yet... but this year i did it by corro [sic] (7th form) and we did greek vase painting, attic old comedy, alexander, and virgil (alternative to attic old comedy) i'm just gonna try learn it all off by heart.... wish me luck.... (omg!!! i [sic] hate learning the vases!)
Fifth student with another perspective	rhythm28 - We did Democracy, Art n Architecture and Homer. I'm jus reading my notes over and over and over again... that it's on the same day as calculus tho'
Second student rejoins...	Darksentinel -Lol the Art set pieces are awful...but actually not too bad once you've got a general idea of them all... I personally find the literature stuff the hardest (yay for me not doing english!).
<i>[forum continues with 21 more posts from students only]</i>	

Peer Response

One of the unique and particularly strong features of the *Studyit* website is not only the involvement of the experts or mentor teachers but also the high level of student-to-student interaction that is encouraged to aid the learning of users. There is a high level of social interaction in the forums, as well as a range of observable online social skill development that includes communication, building relationships, empathy and the ability to assist others. Transcripts were analysed and classified according to the framework outlined in Table 15 and the results are provided in the graph in Figure 6 below.

Table 15 - Coding for Peer Response	
Code <i>(All that applied were selected)</i>	Explanation
1. Direct response	Direct response – specific information or an answer is provided, models or illustrations used
2. Redirection	Redirection – student is re-directed to another source of information or expertise
3. Probing	Probing – deeper levels of thinking or discussion are prompted, usually through questioning.
4. Encouragement	Encouragement – use of encouraging or affirming statements to indicate that things are on the right track
5. Other	Other – use this if none of the above apply

Figure 6 reveals that student peers in *Studyit* provided quite a range of responses. Most responses by peers (55%) were of the direct response type.

Figure 6 – Illustrates the range of peer responses evident in the message board transcripts

This was common for both peer and expert responses. The use of encouraging or affirming statements was also quite high with almost one in five transcripts (19%) containing examples of empathy, readiness to assist others, modelling solutions, and encouragement. Probing for deeper levels of thinking and understanding could be observed in 8% of transcripts and some redirection to further information or expertise in 5% of transcripts. The segment labelled 'Other' tended to be tangential comments or social remarks.

Examples of the kind and range of responses from peers, categorised above are illustrated in Table 16.

Table 16: Selected examples of peer interaction and support on Studyit.	
Peers also tended to provide the most examples of empathy/encouragement	Student: I had to make the same decision at the end of last year, it actually caused me quite a bit of concern, I was just so uncertain.
Direct responses from peers were often extremely helpful and practical	Student: Hi to be able to get some old NCEA exam papers you go on to the NZQA site and click on to the NCEA tab and then enter in the subject [sic] you want and the level and what you want ie the report from such and such a year, this lets you know why and how people went wrong or you could just want the exams and exemplars so you chose out of a list that they have and it takes you to what you want hopefully
as well as being hard-headed	Student: I too am in Yr 12 doing stats, and find it really easy. The internals are a breeze. got two E's and an A with WAY less effort than internals in other subjects. Yea i liked L2 calc better, but again: if you want the marks go with stats. It is also a more practical subject i think if your gonna[sic] do business? money stuff etc. but if engineerin [sic] or sumthng [sic] then calc would go nicely with physics i think.
Peers were also willing to share useful tips and strategies	Student: Oh, i'll share my neat [sic] way i remember the order of organic thingee'ma'boobens [sic] My edible [sic] pineapples bite people's heads, help oranges name ducks. Methane.. Ethane.. PROpane... etc I'm 'special' Just do it as you would if you were actually solving an equation normally. And a golden rule is that whatever you do to the equation you do it to both sides, that way you can't go wrong!! yeah just be careful with the rounding of numbers, and you've got quite a bit of time, so think thru ur [sic] answers before u start writing, cos [sic] with the excellence question it's quite long, which means on "screwup" early on in ur [sic] answer will result in u having to cross out a whole page of working out...
	Student: I record my notes onto my computer and replay them, when i'm surfing the net or doing other things, although i'm not focused on them, you'd be surprised [sic] with how much you take in. (in saying this, i wouldn't rely on it as your only study method [sic]). Also, even reading the notes outloud is a good idea

There are a number of interesting observations that can be made by looking through the message boards. Student anonymity is a striking feature of *Studyit*. Students are choosing to identify themselves by a wide range of nom de plumes. These include Darksentinel, xandim, pinkypanda, deadperson252 and many others. The use of aliases and the factor of anonymity certainly appear to assist in the openness which prevails on the *Studyit* site. It is also interesting how well the mentor teachers on the site handle the use of student aliases. Also helpful for assessing commitment of students to *Studyit* is the display underneath the alias of the length of time an individual has 'belonged' to the community, and number of postings an individual has contributed over the time since joining.

A second noticeable feature of *Studyit* is the genderless nature of the messages posted. It is not immediately clear whether a male or female student has contributed the postings. Messages are responded to by both teacher mentors and peers in light of the information they contain and ideas purveyed.

Table 17 illustrates a range of peer support provided by three students from a continuous thread in a transcript.

Table 17 illustrates a range of peer support provided by three students from a continuous thread in a transcript. Table 17: Sample transcript illustrating student advice	
Commentary	Transcript
Initial student inquiry	Student A - Do we need to remember all the dates?? and where all the hominids came from.. herectus in east africa etc. I saw a Q and you had to match the names to where they came from. Im not sure if thats still part of the subject bc it was a 1987 Q in the meg bayly txt bk
Second student response with advice	Student B - Nope but ill probably get them stuck in my head anyway - i just wanted to make sure ive got the dates in the relative right order in case we have to label a phylogeny diagram or something Scholarship might want us to give approximate dates though...
Third student clarifies requirements re scholarship	Student C - i doubt that... Scholarship seems to test your deep understanding of the subject. By giving you a question like that, it just tests how good are you in memorising dates We have a subject called history for that.

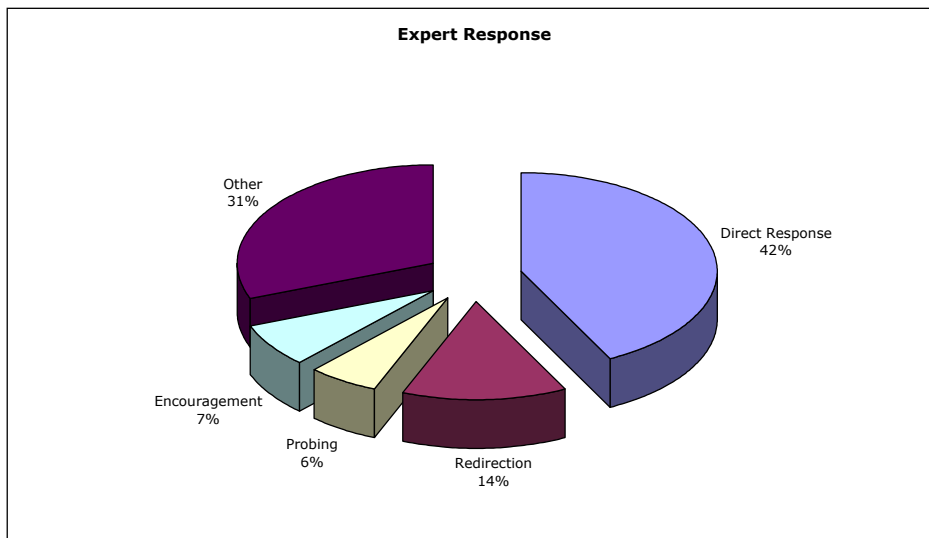
Expert Response

The commitment of the mentor teachers to supporting students in *Studyit* was most noticeable. Mentor teachers responses were generally prompt and this high level of access to ready solutions and expertise appears, from comments posted on the *Studyit* website and student interviews, to be highly appreciated by students. Mentor teachers as well as students use aliases and are generally known by the content area they service and a number for example Science teacher 4. The ways and extent that mentor teachers managed student inquires was analysed and classified according to the framework outlined in Table 18.

Table 18 - Coding for types of expert or teacher mentor response	
Code (select all that apply)	Explanation
Direct response	Direct response – specific information or an answer is provided, models or illustrations used
Redirection	Redirection – student is re-directed to another source of information or expertise
Probing	Probing – deeper levels of thinking or discussion are prompted, usually through questioning.
Encouragement	Encouragement – use of encouraging or affirming statements to indicate that things are on the right track
Other	Other – use this if none of the above apply

Figure 7 reveals that mentor teachers in *Studyit* utilised quite a range of strategies when responding to students. Most responses by experts (42%) were of the direct response type. This approach was high for both peer (55%) and expert (42%) responses. The use of encouraging or affirming statements was much lower for teacher mentors with 7% of messages being classified in that category compared to 19% for peer responses. Probing for deeper levels of thinking and understanding could be observed in 6% of transcripts and redirection to further information or expertise in 14% of transcripts. Redirecting students to seek out information from other sources was a much more likely strategy from teacher-mentors than from peers. Teachers are more concerned with assisting students towards following lines of independent inquiry and independent solutions where possible.

Figure 7– Illustrates the range of Expert Responses in *Studyit*.



Teachers most commonly provided direct responses but the most productive interactions also involved probing and an injunction to the inquirer to try to reach the answer for themselves (rather than simply being provided with the answer).

Teachers re-directed when the topic had been discussed in another thread or was covered in another part of the site. Teachers tended to be more content focused and less encouraging than the students but occasionally provided this in ways that showed some knowledge of the student for example,

That doesn't sound like you at all! Don't panic, as it may well have been a once off if you have never experienced it before.

In the same well-facilitated thread, the teacher took time out to make sure everyone was with him/her for example,

PS. Is everyone OK with binding energy?

Examples of the ways and the extent to which the teacher mentors responded to and supported students are illustrated in Table 19.

Table 19: Examples of the ways and the extent to which the teacher mentors responded to and supported students.

Commentary	Transcript
Direct response	<p>Student: A...thing that's been bugging me is in Rutherford's experiment, why was it conducted in a vacuum? Is it to prevent interference from other atoms or something?</p> <p>ScienceTeacher: Totally. He only wanted the gold atoms to affect the alpha particles. Alpha particles hardly leave the starting blocks in air.</p>
Redirection	<p>Student: I don't know the model of atom of Dalton. I know the model of atom of J.J. Thompson. and I don't know the model of atom of Rutherford.</p> <p>ScienceTeacher: Try this, as an introduction, then come back with any questions http://www.infoplease.com/ipa/A0905226.html</p>
Probing	<p>Student: do we have to know any equation for this paper? because my teacher never talk about equation when teaching this 2.5 Atoms and radioactivity.</p> <p>ScienceTeacher: There are no formulae listed for this AS but you will need to know how to work out half-life stuff. Also you will need to be able to balance nuclear reactions.</p> <p>Student: so what is the equation for that? and if got example is really appreciate</p> <p>ScienceTeacher: OK see if you can do this A radioactive sample has a half-life of 16 days. How much will be left after 48 days? How long will it take for the sample to reduce to 3.125% of its original mass? Uranium 238 has 92 protons. It decays by alpha emission to Thorium 234. Write a balanced nuclear reaction for this decay.</p> <p>Student: after 48 days----> original sample/8 take 80 days to reduce the sample 3.125% 238---->4 + 234 U---->He+Th 92---->2 + 90 yay!!</p>
Encouragement	<p>Student: Ok, I'm really panicking now! I'm actually doing Physics schol, I thought I'd understood my physics, but WHAT ARE YOU PEOPLE TALKING ABOUT? Why does the mass of nuclei increase with speed?</p> <p>ScienceTeacher: Please don't panic. The additional mass is just the mass of their kinetic energy.</p>

Some of the perceptions mentor teachers have of the responses they have given to student's queries are compiled in Table 20.

Table 20: Mentor perceptions of students inquiries and the responses given.

Response will depend on the nature of the inquiry	<p>Questions may be general such as "I'm having trouble in formulating equations to solve in algebra. Advice please" or giving a specific problem(s) that the student does not understand.</p> <p>A typical question usually begins with... "I do not understand this topic, how do I do questions like this?"</p>
Difference in approach to catering for needs of 'brighter students' and 'less able' ones.	<p>Usually the students will post questions from assignments, text and homework books and exam papers asking you to explain how a certain answer was reached... the brighter students often look for ways to start a problem and then work through it themselves and the less able tend to want the series of steps they need to take to get the right solution.</p>
Teachers use a range of strategies to assist students with their queries.	<p>I usually refer the student to the appropriate content pages on <i>Studyit</i>, to any relevant posts previously responded to on the forum and then hints on how to begin their problem, leaving them to work through it and come back for additional help if required</p>
Working step-by-step through a problem with students is one strategy	<p>In level 2 science a student has asked a specific physics problems and how to start it if it occurred in the external exam. My response was to go over how these diagrams are done and the steps to follow.</p>

In some threads it was obvious that some teachers chose to not intrude on productive conversations in which:

- other participants were providing reliable guidance
- general approaches/tips were being shared
- the focus was on how people found the exams.

It may be that if teachers had used more "wait-time" there would have been greater engagement in some threads but on balance this is difficult to judge. There is also clear evidence that one of the reasons that the interactive areas of *Studyit* are effective is because students could be sure they were going to get a near immediate response from an expert. Access to a teacher on *Studyit* was like having a distributed classroom to support additional study at home. However it is also noted that the more extended the thread, the greater was the chance for students to reveal their own knowledge and misunderstandings.

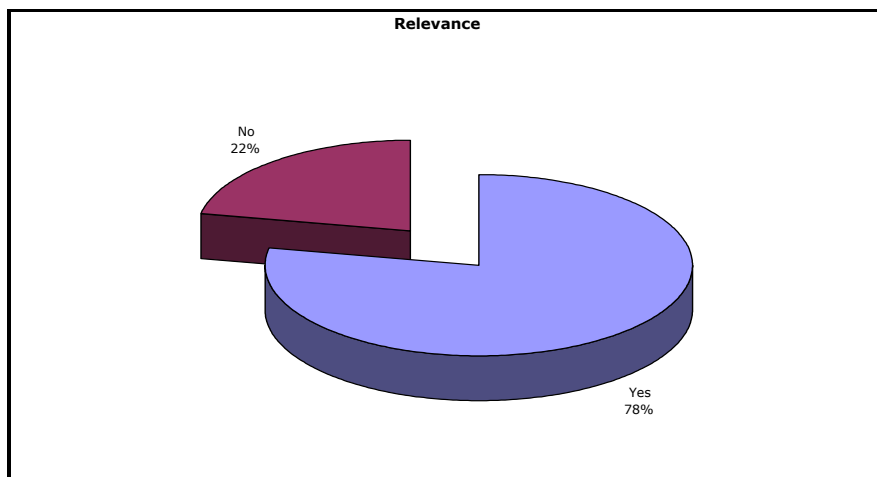
Relevance

The relevance of student inquiries to their schoolwork was also analysed in the selected transcripts according to the coding framework in Table 21 below.

Code	Explanation
Yes	Where there was evidence in the thread that participants are relating things back to their own work/context was coded yes.
No	Where there was evidence in the thread that participants are relating things back to their own work/context was coded no

Transcript analysis has revealed that students have referred to schoolwork or learning needs in over three quarters (78%) of messages. Only one in five messages were considered not to be directly relevant to student's schoolwork.

Figure 8 – Alignment of learning for students – Relevance



Most threads appeared to be closely related to the students' work context in ways such as:

- *I have this problem I have to do for 2.2*
- *I failed my mocks in 3.2 and was wondering...*

There are strong indications that students were not taking part in *Studyit* in order to socialise.

Most threads in the science and maths forums were relatively short 1-1 or 1-2 interchanges between a single teacher and a student. They were not discussion threads so much as an ask an expert facility in which a question was asked and an answer or explanation given.

Queries that were classified in the ‘no area’ of Figure 8 largely related to students looking to their future prospects such as which subjects to take in the future and careers options. The changes that occurred in the type of discussions happening after exams are an interesting feature of *Studyit*. The number of more socially orientated questions and open-ended discussions increased after exams. Quite a different tone was also evident in the conversations at this time.

Revisiting

Whether students revisited their initial postings and persisted with expanding their understanding of the problem was also investigated and analysed according to the framework in Table 22.

Code	Explanation
Yes	Where there was evidence in the thread of the initial question being re-visited by the instigator of the thread this was coded yes.
No	Where there was no evidence in the thread of the initial question being re-visited by the instigator of the thread this was coded no.

Revisiting the queries and threads posted is a strong indicator of relevance and alignment of learning for students and the results of this analysis are illustrated in Figure 9.

Figure 9 – Revisiting

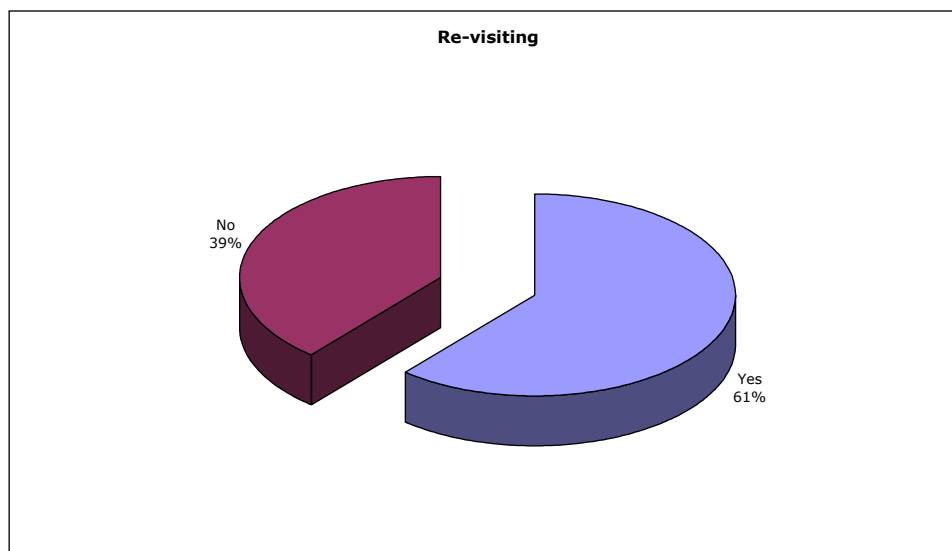


Figure 9 above reveals that in 61% of cases the student initiating the thread returned to the discussion within a short time. In maths and science “revisiting” tended to be achieved by teachers setting examples of the same sort of task or problem in order to draw students into further discussion, deeper thinking and alternative perspectives around the task. Students are prepared to engage in the discussion around the question, and not simply post it and wait for an answer.

An example of a transcript where a student revisits an initial posting is illustrated in Table 23 below.

Table 23: Sample transcript illustrating student persistence in the inquiry process

Commentary	Transcript
First student posts complete question from test paper	<p>Pinkypanada: ST, could you help me with some questions please...</p> <p>(g) When dilute acid is added to a solution containing the nitrate and iodide ions, iodine (brown) is formed and a colourless gas is given off. This gas, when it mixes with air, forms a brown gas.</p> <p>Oxidation half reaction: $2I^- \rightarrow I_2 + 2e^-$</p> <p>Reduction half reaction: $NO_2^- + H_2O \rightarrow NO_3^{2-} + 2H^+ + e^-$</p> <p>Total balanced equation: $2I^- + 2NO_2^- + 2H_2O \rightarrow 2NO_3^{2-} + 4H^+ + I_2$</p> <p>I don't think it's right, where have I gone wrong??</p> <p>Secondly</p> <p>(h) When a solution containing Mn^{2+} ions is boiled with an acid solution of potassium periodate (KIO_4), the solution turns purple. (the periodate is reduced to the iodide ion.)</p> <p>Oxidation half reaction: $9e^- + 8H^+ + IO_4^- \rightarrow I^- + 4H_2O$</p> <p>Reduction half reaction: $4H_2O + Mn^{2+} \rightarrow MnO_4^- + 8H^+ + 5e^-$</p> <p>Total balanced equation: ???</p> <p>Please help!!!</p>
Teacher responds with a detailed analysis of the equations	<p>Scienceteacher-</p> <p>For the reduction reaction, it is NO_3^- going to NO_2 (the brown gas) so you need to redo that equation.</p> <p>any time you get electrons on the same side, take a look at it because one needs to be reduction and one needs to be oxidation.</p> <p>For the second one, (the good news is that periodate is not examinable - AND I have never heard of it!).</p> <p>For your electron balancing, it is IO_4^- so overall it is 8e not 9e.</p> <p>Then you will need to multiply the top line by 5 and the bottom by 8.</p> <p>Once you have done that, you can cancel waters and H^+ that appear on both sides.</p> <p>Let me know if you still can't get it and I can type them up in Word and paste them in.</p>
Student responds to correct the question phrasing	<p>Pinkypanada</p> <p>You have actually posted the first question wrong. The question says:</p> <p>(g)When dilute acid is added to a solution containing the nitrite and iodide ions, iodine (brown) is formed and a coloules gas is given off. This gas, when it mixes with air, forms a red-brown gas.</p> <p>Your oxidation half reaction is right but in the reduction reaction, it is nitrite ions NO_2^- going to nitrogen monoxide NO.</p> <p>Thus the reduction half reaction is: $NO_2^- + 2H^+ + 3e^- \rightarrow NO + H_2O$</p> <p>and then you can do the total balanced equation.</p> <p>Does that help?</p>
Science teacher responds with further reasoning	<p>Scienceteacher - It definitely forms NO_2 rather than NO- NO is a colourless gas and NO_2 is a brown gas. As for nitrate, I suspect that is more likely to be the case than nitrite unless your teacher is being extra tricky - and considering they gave your periodate, then maybe it is nitrite!! .</p>
Student persists with own reasoning	<p>Pinkypanada - Im definitely sure that is it nitrite, but couldn't nitrogen monoxide be formed and then when reacted with air it form nitrogen dioxide? Because this would explain how a colourless gas is produced and then turns red-brown after it mixes with air. Thus the reaction will still include it going to nitrogen monoxide... i duno, just a thought. .</p>
Teacher confesses to missing something Second student adds a thought	<p>scienceteacher - Fair enough! I didn't read the middle part of the question properly</p> <p>deadperson256 - Right, now we've got it sorted...that clarifies lots of things. How can you get the NO_2^- ion and then NO_2 gas? What happens to the electron and/or the nitrogen and oxygen? .</p> <p>P.S. And there's only one electron in the nitrite equation, otherwise you have a 2-</p>

Response from teacher with further confession regarding reading the question.	<p>charge on the left side. .</p> <p>scienceteacher - Hi This is why it isn't a L2 question, or even L3 for that matter. You have to do the 2 parts, Nitrite to NO and then NO to NO2 which is how it is described in the question I never read properly!</p>
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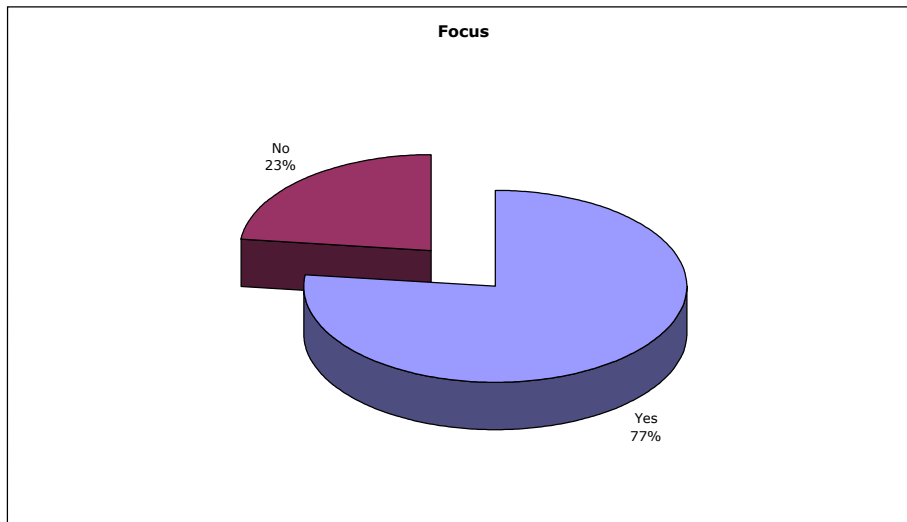
Focus

Evidence of a tight focus on discussion content is also an indicator of alignment of learning and relevance of the site for participating students. The extent to which students remained focussed on a topic throughout a thread was investigated and analysed according to the framework in Table 24.

Code	Explanation
Yes	Where the thread stayed on the topic defined by the initial inquiry, it was classified as yes.
No	Where the thread digresses from the topic defined by the initial inquiry then the classification given was no.

Figure 10 shows that in over three quarters (77%) of cases, threads remained tightly focussed on the initiated topic. In less than a quarter (23%) of cases did the discussion go off-track. While the majority of threads were of a question and answer type between the inquirer and teacher, there was also some considerable maturity shown by online participants that highlighted a deeper understanding of online forum netiquette. Where participants are not familiar with online forums they tend to enter the forum area and talk about what they want to talk about and that may bear no relation to a previous message. In *Studyit* students would politely start a new forum when a change of topic was needed indicating a high level of maturity of use of the online environment and forums.

Relevance was an important aspect of maintaining highly focussed discussions. Where there is a genuine reason for inquiry, students are strongly motivated to return for the answer, solution or redirection. Other students often had their own experience of learning about specific aspects of content and were freely able to share their experiences.

Figure 10 – Focus

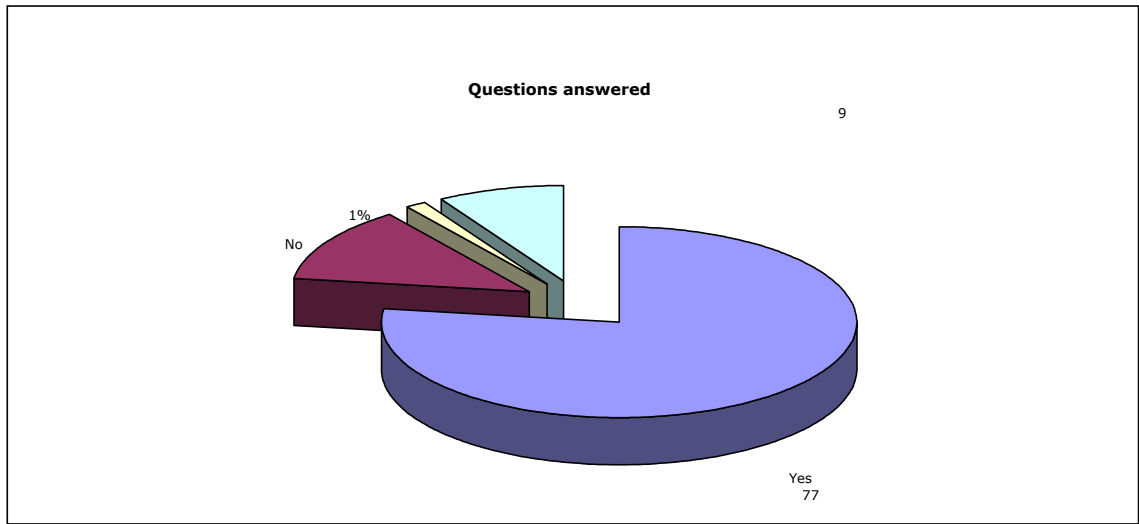
Questions Answered

The extent to which student questions were answered satisfactorily within a thread was analysed in the next section. The method of classification is illustrated in Table 25 below.

Code	Explanation
1. Yes	Yes was chosen if the question was answered in this session (ie contained in URL, teacher provided answer, student recognized answer etc)
2. No	No was chosen if the question wasn't answered and the student ended the session without any apparent answer or assistance.
3. Redirected	Choose Redirected was chosen if the outcome for the student meant they had better focus for where to look for the answer and/or a better understanding of the question they need to ask.

Figure 11 shows that over three quarters of student questions were answered or resolved in the session in which they were initiated in comparison to thirteen percent of student questions where a direct answer to the question asked was not evident in the thread. Only 1% of questions were redirected. Sometimes a teacher redirected a student when the topic had already been covered elsewhere. Other examples of redirection were where other students or teachers provided a link to an external web site where the answer could be found, although these were often intended to augment an answer being provided.

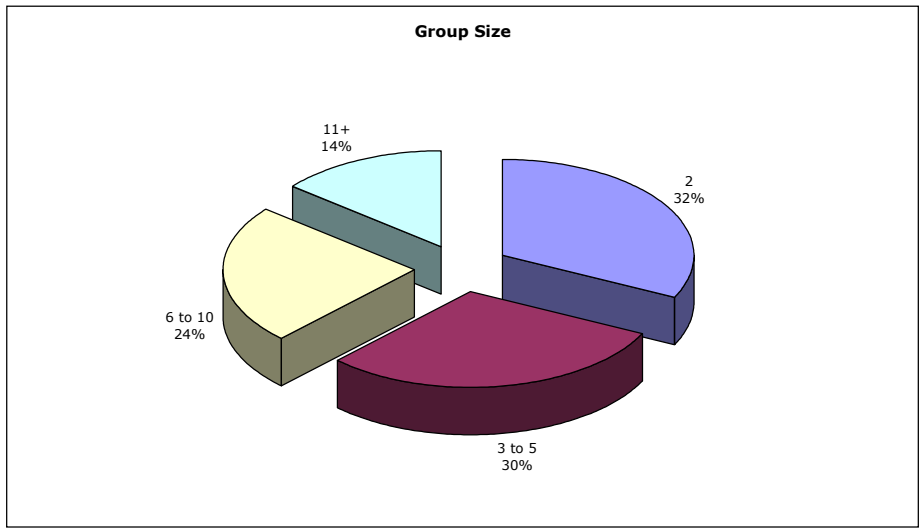
Figure 11 - Questions Answered



Group Size

The number of student participants in a thread were analysed for this section. The results are illustrated in Figure 12. Almost one third (32%) of threads comprised just two participants in most cases a teacher and a student. Thirty percent of threads analysed involved three to five participants. Nearly one quarter (25%) of threads involved 6 to 10 participants and 14% of threads involved eleven and more participants. It is interesting that such a high proportion of threads (total = 38%) involved anything from 6 to 11 or more participants.

Figure 12- Group Size



Larger group involvement in a high proportion of threads and the number of messages posted by some individuals, and the length of time that many participants have been active in the site indicates that there is a committed core of supporters for the *Studyit* website. In the experience of the authors the extent of participation in the forums is higher than observed in other forum areas.

Quality of service provision

Partnership arrangements and project management

Studyit was conceptualised and developed as a free online resource to support senior secondary students initially in mathematics and science to NCEA level. The project was funded as a Digital Opportunities project and first went live in April 2004.

The design, development and management of the *Studyit* website was undertaken by CWA New Media, as lead agency in a joint venture with Multiserv Educational Trust (now Cognition Consulting Limited), who initially worked with focus groups of students through the medium of video conferencing and also with visits to schools, to develop a strong and workable concept. The site was designed to reflect what students specifically wanted. This included easy access, no distractions, not too many choices and a site devoid of frills such as unnecessary animations and images. The language used on the site had evolved through careful consideration and discussion by site developers and reflects an attempt by them to avoid the explicit school/teacher/student relationship. The lead development team were keen to ensure the student voice would be heard on the site. This has been very successful.

The Ministry of Education determined the choice of subjects offered as the focus of the original Digital Opportunities projects round was a mathematics and science one. The intention was to eventually develop all areas of NCEA on a gradual basis. Since the data was gathered for this report English has been added as a subject area. Additional Digital Opportunities funding in 2005 was used to support the development of the English area of *Studyit*. Inclusion of English as a new area and service extension has been successfully achieved.

Teachers moderate the interactive, asynchronous forums, and are required to respond to a student request within 24 hours. Moderators were recruited by a variety of means that included advertisements in the Education Gazette, shoulder tapping and word of mouth. One teacher found the *Studyit* website by accident, like what she saw and contacted the *Studyit* coordinator to offer her help. Ministry of Education personnel recommended teachers to moderate the English forums. Quality mentors were sought and are paid on the basis of 6 hours per week. The teachers involved were passionate about the site and the benefits that participation with students in the online *Studyit* world had to offer.

Evidence from the findings on student online interactions earlier in this report indicates that the conceptualisation of the project around senior secondary students NCEA needs has provided a focus for student involvement that revolves tightly around study and the incentive of internal and external assessment. *Studyit* is clearly a successful endeavour for both developers and users but the reasons for this success are highly complex and comprise many factors that together make this learning environment work as a viable learning community. Development of the environment based on elements identified by students themselves as being important has been a novel and successful approach. The level of ease of access to the site, and ease at which materials can be located are commendable. Encouragement of student ownership through use of aliases, the transparent approaches utilised in *Studyit* forums, the quality of the static support content all combine to provide an excellent model for a site such as this.

Knowledge and capabilities of the online mentors

The online mentor teachers contribute significantly to the success of the *Studyit* project. In interviews the mentors indicated they needed to be confident, and comfortable about being online as well as very knowledgeable about subject matter. Ideally online teachers needed to be teaching NCEA classes because they were often required to be more knowledgeable about various rules, regulations and other aspects of NCEA than many teachers needed to be. The mentor teachers also noted that classroom teaching and online facilitation were very different roles and teacher mentors needed to be able to readily transfer from one environment to the other. Teachers also needed to be able to explain or describe their knowledge via an online text-based messaging which requires a range of different skills to classroom teaching. Also the philosophy underpinning support for students in *Studyit* was to provide guidance rather than actual answers.

Mentor teachers were experiencing, and having to deal with, a different aspect of student learning in *Studyit* compared to their classes. Mentors observed that many of the actively participating students tended to be high achievers and there was evidence of a number of senior students '*pushing themselves.*' Also it was common for actively participating students to say things about what they were taught in their respective schools but were simply not understanding or not quite '*getting it.*' Participating students wanted to talk to a science or mathematics teacher to gain clarification or often simply to gain a different perspective on a problem. Mentors also felt it was necessary to respond to students in ways that both supported the student and did not undermine the classroom teacher.

I felt I had to be careful in my reply. So that the teacher was supported while the student was given a fair answer. The reason I felt the answer needed care was that I didn't want a situation where teachers started to see Studyit as a threat to them professionally. (Mentor teacher interview)

Mentor teachers live in various parts of the country. Although there was an opportunity to get together for a face-to-face meeting one day early on, the mentor teacher group mainly communicated with each other and with the coordinator via email. In view of the role and importance of the mentor teachers to the success of the interactive areas there appears to be some need for more support and preparation for both the online response and support role and developing familiarity with the internet resources that can be recommended to students. Several mentor teachers indicated that they were given or emailed a 6 to 7 page set of guidelines, outlining policy and procedures. Another teacher felt s/he was '*flying blind initially.*' Another said she '*brought herself up to speed by doing a lot of googling.*' Mentor teachers indicated they would like more support especially with websites they could suggest and more feedback on performance. Another suggested a forum for the mentor teachers as a possible future addition to the site.³

Evidence of students appreciation of the role of the mentor teachers could be observed on the website and noted scattered throughout the interviews. Students clearly and frequently expressed 'their thank yous' to ST (Science teacher) or MT (Maths teacher) in the threads and supported the role of online teachers in the message boards.

³ Since the time of this data collection the mentor induction and ongoing support is now more intensive and extensive. The guidelines for mentors have been significantly expanded and new mentors are now apprenticed to experienced mentors. There is also a development site, not available to the public, where mentors can practise in private.

How students found working in the online environment

Students reported finding working with the site very easy. Few people encountered troubles with locating and finding what they needed.

The look and feel of the site was considered to be *'pretty bland'* by one student who added, *'but appearances aren't important – its not going to make me visit the site any less'*.

Further student comment relating to their views on using the site is listed in Table 26.

General NCEA information provided	The study advice provided on the site was really useful. (<i>Student Interview</i>)
Value of discussion groups/forums	I use this part of the site most as well as the subject content – I print that off at the start of the topic (<i>Student Interview</i>)
Up to date information	its quite relevant as it's got the achievement standards etc (<i>Student Interview</i>)
Ease of use of the site	The site is easy to use - user friendly and cuts the unwanted things. (<i>Student Interview</i>) Very easy. I have no trouble with it (<i>Student Interview</i>) Well I love the layout and easy to use navigation of the website. Unlike the NZQA site you can find what you want quickly and also the forum helps a lot. (<i>Student Interview</i>)
Responsiveness	The teachers are so fast in their replies. I am very grateful to have heard about this site. (<i>Student Interview</i>)

The majority of students appeared to be accessing *Studyit* from their home computers. There are no indications from the evidence that any students were encountering issues or problems with accessing the site or with slow download times. Students indicated they were mainly using the site as part of a repertoire of study resources that included textbooks, study guides and homework or assigned schoolwork. When they encountered a problem they would simply hop onto *Studyit*. It was like having a teacher handy to answer those quick and often unsolvable questions. The purpose of the site for students was strictly for just in time practical study advice, support and feedback. The site appeared to be well designed for students to achieve these aims, quickly and effectively.

One 'gripe' that did emerge in student interviews was the tendency to misplace requests by putting them in the wrong forum area. One student said,

I hate how some people just add random questions in the forum when they could have put their question in the thread already dedicated to the topic. It just clutters the discussion board. (Student interview)

The software used for the forum areas of the site works only in linear mode, that is messages are viewed as they are sent. There appears to be a lack of ability by the forum software being used to allow for finely threaded discussions so that students can respond to a message that is several days old and place their new message close to that discussion or the ability of the teacher mentors to move messages that are wrongly placed to a better forum. Some forum softwares allow for students to make personal preferences about how they view the messages. They can change the forum-viewing mode from linear to threaded, and some offer both options as a hybrid viewing mode providing an index of the forum message list. Teachers also mentioned the need to have the latest messages appear at the top of the message list. The possibilities of linking to a social book marking site such as del.icio.us would also be an additional feature worth consideration for *Studyit* allowing students to connect to a broader range of interactivity that can '*serve to sharpen and extend thinking and pique intellectual curiosity*' as well as '*help each other to do better*'. (Coogan 2006 p20).

Overall the research team presenting this report considered the tightly focussed nature of discussions in the forums to involve a greater level of in-depth and well ordered thinking than that often found elsewhere including well-focussed adult sites.

Operational characteristics

Studyit operates as an asynchronous student help site for students who have access to the internet. Both static and interactive forums are available twenty four hours a day, seven days a week. Teachers noted that support for students was generally outside of school hours. Students usually posted requests from after school until 10.30pm and then before school in the morning.

Mentor teachers generally worked within the area of subject expertise although there were some who also provided support for the 'other' forum offering support for study skills and NCEA information as well.

There were a far greater number of registered users who looked at the material on the site but who never actively participated in the forums. This is considered to be quite usual practice for online interactive forum sites.⁴

At the time of the data gathering for this report there were 7 mentors operating in the site⁵. Currently the *Studyit* site offers support for Mathematics, the Sciences and English and the number of mentors has been increased. There is a desire to expand the site so that other NCEA curriculum areas can also be offered. Extending the scope of Study raises issues for expanding the number of mentors and how they should be trained, as well as the impacts on organisation of the site that comes with expansion.

⁴ Information provided subsequent to the time of the original research period by the site operators indicates that in November 2006 there were 267 unregistered users of the Studyit site, compared with just 55 who were registered. This would indicate that the core group of active forum participants (you can only participate if you are registered) is a proportionately small number of Studyit users overall.

⁵ Subsequently the number of mentors has now risen to 24 in 2007

Immediate Learning for Young People

From the evidence provided in earlier sections of this paper it is clear that *Studyit* provides a valued source of immediate learning for those 15 – 18 year old NCEA students who are actively involved. There is likely to be immediate learning value for those students who are registered and who use the site but do not actively participate. This group were not able to be included in this investigation. While the main focus of *Studyit* is to provide support for students in the Science and Mathematics curriculum areas and also in English, there is evidence of students finding support across all essential learning areas as well as study skills support and help with understanding the rules and regulations around NCEA.

The *Studyit* learning environment is a visually simple, no frills, resource that invites students to seek help by posting requests to the interactive forums and also to check out a wide range of static information resources. The role of the interactive forums in student learning has been the primary focus of this report. The interactive forums are based on a linear message board system. Messages are posted in the order that they are received and can only be viewed in that order. There is no opportunity for students to go back and add a comment some time later and nest the message in a previous thread. This means that threads are quickly started and completed within short timeframes of several days at the most, which maybe ideal for the age group. It also encourages students to post their request without searching for possible answers that may have already been given to the same or similar questions.

Investigation into ‘what learning is happening’ for students on the *Studyit* website has revealed that for maths there is a higher number of closed questions and for science in particular there is a high number of open questions (see Figure 1 and Table 3) While mentor teachers were quite adept at guiding students towards solving their problems themselves rather than providing a direct answer there appears to be some difference in the pedagogical approaches utilised between the two subject areas investigated for this report. There also appears to be a greater expectation among student users that they may need to follow up leads for inquiry rather than be given a direct answer. The data revealed that students were tending to work at higher levels of the personal inquiry continuum in *Studyit* (see Figure 5) compared to, for example AnyQuestions. There are a high number of messages and threads where organising, making sense, reflecting and communicating what has been learned, by suggesting a different example, can be observed.

A particularly interesting aspect of *Studyit* is the in-depth questioning and thick discourse observable in the forums that was analysed using the Student Observed Learning Outcomes (SOLO) taxonomy. That forty-two percent of the interactions (see Figure 4) could be classified as being at the ‘deeper level’ of understanding is indicative that the quality of learning on the *Studyit* website can generally be seen to be very high.

Students most value the forums because it is here they can get *specific* feedback related to their particular issues or learning needs. The findings indicate this with more than half of student inquiries directly related to science and maths content and nearly 20% to improving study skills. Specificity is very important to student learning and is a prime reason for the success of the site with its committed user group. Over three quarters of the messages analysed indicated a direct link to schoolwork. Nearly two thirds of threads indicated students returned to check for replies and added further questions or comment. Over three quarters of threads analysed remained completely focused on the designated topic.

Table 27: Student interview comment about the immediate value of Studyit for learning

Value of <i>Studyit</i> compared to the teacher(that is the value of the forums)	<p>Although you get useful verbal information from a teacher, on <i>Studyit</i> is written down you can access it any time and for each subject there is a list of everything you need to know for each topic in a subject. (<i>Student interview</i>).</p> <p><i>Studyit</i> helped me a lot because at home I cannot ask my teacher what the answer to a question is. So its like I have a teacher I can ask questions to anytime. (<i>Student interview</i>).</p>
Value of <i>Studyit</i> compared to books and study-notes (That is the value of the notes and information available on <i>Studyit</i> .)	<p>On study it teachers can answer specific questions that you need to know and if you do not understand something in the book or your study notes then you can directly ask one of the teachers in the forum. (<i>Student interview</i>)</p> <p>For my subject, English, It is as useful as the study guides. (<i>Student interview</i>).</p> <p>Its better - as most books only tell you the answer and not how to get there (<i>Student interview</i>).</p>
Keeping students focussed in studies	Study fits in with my overall studies quite well. I have developed a routine when I get stuck I either ask my teachers or the teachers on the site. Most of the time it's the site teachers. (<i>Student interview</i>).
There is no cost to students	Study it has the particular advantage of no cost to students as long as they have internet at home (<i>Student interview</i>)
Real value in Maths and physics	I mostly use it for Maths and Physics as those are the subjects with specific questions that require working. With biology I can just read over notes and make the links on my own.
Value of discussion groups/forums	I use this part of the site most as well as the subject content – I print that off at the start of the topic
Allows students to feel they can keep up with their studies	It's been pretty good to me. When I hit a rock in my exercises, I am delayed momentarily. It prevents me from getting too far behind in my classes.
Belief that <i>Studyit</i> is making a difference	If I don't understand something the teachers or other members of the site help me...Just generally study it tells you what you need to know and I believe that it really did have an effect on my results at the end of the year.

Students believed that *Studyit* helped them with their study in the following ways,

- The study advice provided on the website
- The relevancy of subject information to what students were asked to do at school

- The value of the support students had received out of the discussion forums which kept student focussed
- The ‘up-to date-ness’ or currency of the information available on the site
- Helping to keep students focussed and motivated
- A New Zealand place for students to talk and share their doubts and solutions.

The teacher mentors are highly visible on the site. Nearly one third of all threads contain messages where a student interacts with an expert teacher. However a closer analysis reveals that two thirds of all threads involve three or more people in interaction and a staggering 14% of threads involved 11 or more participants. This is indicative of a particularly high level of commitment by the core group who are using the site.

At first glance the student users do not appear use the site as a communal social space and yet a great deal of empathy and support focussing on NCEA issues and the emotional issues encountered by many exam students who have high expectations is observed to be peppered throughout the site. The researchers also noted quite a change of dialogue type once examinations were over and a quite different, almost euphoric feeling prevailed. The nature of interaction became far more fluid, reflective, meta-cognitive and included evolving conversations about, for example, approaches to study for next year.

One of the unique features of the *Studyit* site is the amount of support the site provides with both teacher experts and students who volunteer support for incoming requests for help. Also unique is the unusual level of equality that appears to exist between the teachers and the students on the site. There are a number of examples of students challenging the answers provided by teachers. Both students and teachers operate under aliases. Use of aliases may account for the appearance of a lack of hierarchy in the environment and may also be responsible for a unique level of openness from students in their postings.

Although teacher-mentor’s mentioned that students involved in the site varied in ability there appears to be a large number of high ability and high achieving students involved who worry a lot about excellence grades and scholarship passes. Mentor impressions of student participants are listed in Table 28.

Table 28: Mentor impressions of the core group of Studyit participants

Range of abilities...	The students range of ability varies from low ability to very high ability where these high ability students do and are encouraged to help the low ability ones
... but predominantly those with higher ability concerned to do better...	Many of these students seem to be the more able students. They worry about excellence grades and scholarship passes.
... or international students needing extra help.	Many of the students appear to be enthusiastic about their studies. Some of the students appear to be international students needing extra help.

Although no firm data was gathered to support this, the general impression of the research team is that those making most use of the site appear to be higher achievers (in the merit/excellence category), students who are intrinsically motivated to do well, and who accept they have a personal responsibility for their own learning. In many ways the site could be seen as catering for those who have least need of it but are most motivated to use it. The very active students are encouraged to help the less able and clearly do so.

Many of these students also appeared through the observable discourse to be highly engaged in their studies and in some of the concepts they were mentally playing with. An excellent example of this is illustrated in Table 13, on p.17 where 'Izy' shares a wondering with 'Scienceteacher3'

Students indicated they visited the site daily especially around exam time, or when students did not understand something from their class work. *Studyit* was considered to be as much a part of the repertoire of accessible examination resources as books study notes, teachers and friends.

Alignment and transfer of learning for young people

The bigger picture

Studyit is a web based ‘Question and Answer’ site that has a focus on providing students the opportunity for asynchronous ‘just in time’ interaction with an expert – in this case a secondary school mathematics or science teacher. As such *Studyit* is representative of a genre of online ‘help sites’ to support student learning such as Using English.com <<http://www.usingenglish.com/>> an international forum for English language learners and Sparknotes <<http://www.sparknotes.com/>> which offers study guides and interactive forums on subjects from math to chemistry as well preparation for the scholastic aptitude tests for entry to North American Colleges.

What is unique about *Studyit* is that it offers subject content and interactive forums that specifically relate to the NZ senior secondary syllabus and NCEA examinations for Science and Maths and more latterly English. It is this unique focus that provides the driving reasons for involvement by the core active group who use the site as part of a repertoire of tools for independent study that include class lessons, school notes, study guides, textbooks and friends. *Studyit* is very specific in intent and purpose and it appears that this specificity is what appeals to the current group of core active users as in illustrated in Table 29.

Table 29: Specific areas of help - students

Forums provide access to advice and guidance from teachers and other students	... asking questions mathematics such as questions in old exams etc. If I don't understand something the teachers or other members of the site help me. In all the forums you can put down your essays etc. and people can help you improve them.
Learning from what others had posted on forums after traditional information sources failed be of help	I needed help learning the chain rule in Calculus. The NCEA website did not help me in that case, nor did the tki.org.nz site help me. I saw a question by someone in the forum on chain rule. I saw it and practised it and I learnt it. The ‘subject content’ helped me to keep up with all the stuff I needed to know.
Providing help in revising subjects with calculations and formulae	I mostly use it for maths and physics. As those are the subjects with specific questions that require working. With Biology I can just read over notes and make the links on my own.

What is also unique about *Studyit* is that it encourages a participatory culture where participants believe that their contributions matter, and feel some degree of social connection with one another. *Studyit* is a community that provides strong incentives for active participation through a communal problem solving approach.

Support for wider educational goals /landscape

Participating students make most use of the site from home and it is this point of connection between home and school – where students sit down and independently try to work through their homework assignment

where *Studyit*, as a support service, comes into its own. Students use the resource as a just in time help for study. When they get stuck, they hop onto *Studyit* and post the question. This is regarded as extremely valuable by the students interviewed.

As one student said s/he finds *Studyit* of most use for help with maths and physics problems because unlike biology, for example, the text book doesn't quite guide them through the problem starting point and assist with the process of solving the problem the way a person with expertise can. Other support for student learning that bridges home and school is listed in Table 30.

Table 30: Evidence of links between classroom and home

<p>Reinforcing or practising what they have begun at school</p>	<p>Many of the students use <i>Studyit</i> to reinforce what is being taught at school at a particular time AND for their own individual revision leading up to NCEA. (<i>Teacher interview</i>).</p> <p>Students ask each other for notes on what they are studying...so they are building on what they have done in the classroom. They are practising essay writing based on what they have done in the classroom. (<i>Teacher interview</i>).</p>
<p>Seeking clarification or greater depth of understanding of something that has been introduced in school</p>	<p>Some have mentioned that they don't understand something they have been taught in school and just want a bit of help.</p> <p>What has been taught in school is often discussed and clarification or a more detailed explanation is asked for on <i>Studyit</i>. (<i>Teacher interview</i>).</p> <p>Students often say they have not understood a concept at school or it has not been covered and they see that it is required in an achievement standard and ask for extra information or assistance. (<i>Teacher interview</i>).</p>
<p>Striving for excellence in assignment work – cross-referencing advice given in class time.</p>	<p>Students ask for help with their homework and how they can they can apply what they have learned to assessment questions.</p> <p>There are quite a few enquiries based on work students are doing at home for their class assignments/ internal assessment. Quite often students quote their teachers in their enquiries – especially where their seeking clarity on something a teacher has said to them. Often they are looking to improve work a teacher has asked them to do further work on and are keen for extra feedback before handing it in to their teacher. (<i>Teacher interview</i>).</p> <p>[Some] want to explore perhaps excellence questions and do this off their own backs so <i>Studyit</i> helps them as well. (<i>Teacher interview</i>)</p>

There was evidence uncovered that revealed some teachers were recommending and even using the site. Many students indicated that they found out about the site from a teacher. One teacher mentioned using *Studyit* in the following way,

I print off the achievement criteria page of Studyit at the beginning of reaching each

standard and photocopy for my class as it is easier for the students to understand than the standard on NZQA

Table 31: Evidence of use within the school environment

<p>Student online activity registered during school hours</p>	<p>Some students ask questions during school hours, other students seem to find out by chance. Having said this I wonder whether there are some students who have not heard of <i>Studyit</i> yet. (<i>Teacher interview</i>).</p> <p>Have multiple students registering at same time during the school day. (<i>Teacher interview</i>).</p>
<p>Site actively promoted during school time in some cases</p>	<p>At our school departments are offering this to students.</p> <p>Whenever there is an email sent to principals or HODs about <i>Studyit</i>, we notice a significant increase in usage</p> <p>Many new students on <i>Studyit</i> begin with “my teacher told me about this site” (<i>Teacher interview</i>).</p>
<p>Despite this, there is doubt about the extent to which the site is known about</p>	<p>I don't think <i>Studyit</i> is really 'out there' yet and I doubt many teachers are aware of it and its benefits. I certainly didn't realise how useful it was until I became a mentor and have introduced my students to it because I think it's fantastic. (<i>Teacher interview</i>).</p> <p>No evidence from what I've read on line. (<i>Teacher interview</i>).</p>

Learning for providers, teachers and schools

Impact on school and teacher practices

It is not the aim of the *Studyit* service currently to provide professional direction for schools or for teachers although this is a service and new direction that *Studyit* could explore in the future and still keep to its central aims of providing help and support for students working towards New Zealand NCEA qualifications. Its innovative and educative role is to provide personalised and individualised learning for students who may not be able to access this within their schools for a variety of reasons.

While the place for *Studyit* as a resource for the classroom is limited, there is no doubt a role for teachers to introduce the site, and particularly the forums, to students as a class activity. There is some evidence to suggest this sometimes happens but the main purpose of *Studyit* is to support students with individual and independent study, not to integrate the site into classroom activities.

Positioning as learning environments by teachers and schools

The key role of schools is to act as a recommender and reminder to students that the resource exists. Listing the resource on the school intranet or learning management system for those students who may stay to complete homework in the information technology or computer lab during lunchtimes and after school, and including information about *Studyit* and the web address in school newsletters that go home to parents should be widely encouraged.

The senior secondary school is rapidly developing a very different look for many students who are facing a range of teaching and learning options that are muddying the distinctions between schools and some tertiary institutions. Student involvement in Star and Gateway programmes, and the increasing take up of virtual teaching across groups of schools, mean that some schools are beginning to need to include learning and study facilities to support students who have flexible timetables and locations for study. *Studyit* has an obvious role to play in the context of more flexible senior school teaching and learning landscapes.

It is suggested that other teachers could learn a great deal from the *Studyit* site even if they only visit and look. Perusing the discussions reveals the kinds of questions that are being asked and just what students are encountering difficulties with.

This is also a programme where teachers could participate. There is nothing to stop other teachers from becoming involved from time to time in the discussions. More specialist expertise available to support students, would be ideal. One mentor suggested the need for including scientists involved in fieldwork. Another mentor suggested the idea that to begin to train student-mentors to help students on the site might be a worthwhile innovation.

Mentor teachers found they gained considerable benefit from their involvement with *Studyit*. Mentors indicated they enjoyed it when students clarified some knowledge demonstrating they had ‘got it’, getting to know these students with their aliases through their messages, and when students answer each others questions – something that is not seen in classrooms. One teacher mentor said,

This site is a lifeline for many kids in schools where there is a high turnover of staff—particularly teachers coming in from overseas half way through the year and don't know anything about NCEA. (Mentor teacher interview)

Learning for front line service providers and the partnering organisations

Although the net of potential students that could be included in this site is quite large, involving about three – fifths of the current secondary school population, the site remains used by a relatively small group of committed and active users who are themselves only a small percentage, 14% (Ingrey & Marlow, 2006), of the total number who are registered⁶. This level of involvement in online text-based forums is not unusual.

Current website design and development, devised with input from student groups, aims for active student involvement in *Studyit* and is undoubtedly a successful one for the largely high achieving group that are currently involved. This can be clearly observed throughout the site and is highlighted in the earlier findings and analysis section of this report. The original *Studyit* focus on elements of interactivity, language, tone and design is mentioned in the literature review accompanying this suite of reports (Nielsen Gorman report, 2005 in Coogan, 2006, p35), as important factors that attract teen users who have a greater tendency to target particular sites for particular purposes than do younger children. The centrality of a website's usefulness for schoolwork and communication with peers was among a list of attractants for teens that highlighted by the Nielsen Gorman report.

This research team believe that *Studyit* is one of the most successful online forum sites they have observed in terms of the frequency of interaction and depth of learning evident from contributors and the level of inquiry that is supported by the teacher mentors.

Teacher mentors were aware of the changed pedagogical approaches in *Studyit* and several mentioned that approaches were completely different from those they used in the classroom. They enjoyed working with students in co-constructing knowledge where they could concentrate on knowledge building rather than issues of management; and support and improve the quality of collaborative thinking for students through both explicit pedagogical processes (that is the way interactions in the forums are structured and encouraged) and through setting tasks for students to try out. Effective teaching could be observed in the forums with examples of reciprocal teaching, cooperation, negotiation, hints, feedback and prompting for questions and elaborations.

Effective teaching through task setting could also be observed with setting instructions, suggestion of domain specific formats of task representation particularly evident in many of the mathematics and physics problem transcripts, re-tailoring tasks so that students can co-perform them in slightly different ways, and modelling of strategies that scaffold student's domain knowledge construction, as well as developing understanding and acquiring skills.

This group of student users and teacher mentors are very happy with the service and see enormous value in it. There is clearly a level of customisation and personalisation in *Studyit*, which for many students, was

⁶ See also footnote on page 35

unavailable in their instruction at school. Users tended to see possible improvement in terms of providing more of the same, for example more detailed notes, faster responses, more subjects covered and other refinements. At one level it would be recommended that new directions would involve a slow and gradual expansion of the *Studyit* service into a broader range of NCEA subject areas and also possibly a more specialised teacher area that would offer help and assistance to teachers needing to know or check up about NCEA rules and regulations for students but also as first level checking service for NCEA moderation issues and other concerns teachers may have around NCEA. On another level changes to the group size and composition, incentives for involvement and currently successful process and task structures may impact negatively on key success elements such as the support structures, dialogue and interaction and maintenance of the joint problem space. This is a successful but also extremely complex and fragile learning environment.

Currently, the reach of the service, and the breadth of involvement, appears to be limited. Several mentor-teachers commented on the fact that the site ‘was not widely known about’ and ‘needed more promotion’. To what extent *Studyit* had been previously marketed at the time of data gathering is not clear to this research team but it is recommended that more extensive marketing be considered. Lifting the profile of *Studyit* for specific target groups such as rural students and teachers, students who may be taking a non offered subject in the school by correspondence, and international students seems appropriate.

The group of students unable to be recognised in this report are those who are registered users and who visit the site to look and learn but who never participate openly. It is recognised that this non-participant group can, as is the case in most online text-based forums, be of significant size and that it cannot be assumed that no less learning is taking place for them than for those who are active. Key feedback ideally needs to be gathered from this group about what it would take to get these interested but non-active students involved. It may be that this group need more of those features which attract teenagers to websites generally especially, personalisation, careful use of visuals and interactivity whereby content is delivered through, for example, games and a greater social element. Any marketing of the service to a potentially larger group that is wider than the group currently engaged in *Studyit* needs to be carefully considered. It is recognised there is also the possibility that involving this group may be beyond what can be practically resourced. How to actively engage a greater number of users is one that is faced by online learning environments everywhere.

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