Complex approaches to wicked problems: Applying Sharon Berlin's analysis of "dichotomous thinking"

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The progress of any profession depends on the effective decision-making of its practitioners, the successful transmission of knowledge, values, and skills by its educators, and the dynamic generation of scientific understanding by its scholars. All of these accomplishments are demanded by society, promised by professionals in exchange for the privilege to practice, and therefore are critical for the survival and flourishing of professions (Koehn, 1994). Furthermore, these activities demand careful attention to the types of thinking, reasoning, and decision-making processes clinicians, teachers, and scientists employ as they move through their daily tasks. This attention to thinking should not be neglected by substituting automatic conduct of professional activities, nor minimised by prioritisation of political strategising, nor bypassed by the apotheosis of any particular epistemology. However, it is very difficult to think about thinking because this asks professionals who are naturally oriented to actively solving client and social problems to become unusually reflective and self-critical.

The philosopher Rudolph Carnap describes an intellectual focus on 'external questions' as inquiry about problems external to any designed language or symbol system (Bird, 1995). It is plausible to argue that if applied to a profession, then external questions would be those that ask about the ultimate purposes of a profession's existence, as opposed to those asking questions about the technical approaches necessary to actually complete specific professional and scientific tasks. Along with a philosophical astuteness, asking external questions demands patience, enthusiasm, humility, and risk-taking because such queries are often unwelcome and dismissed as irrelevant or obstructionist – accusations particularly inimical for professionals.

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External questions tend to be the province of professional scholars and theorists. How important it is then for those professionals

charged with the 'stewardship' of a profession (Golde & Walker, 2006) to ask external questions in order to strengthen the profession. And it is critical that theorists ask useful and significant external questions as opposed to convenient, resolvable, and simply vivid external questions. It is tempting to choose that approach because, in fact, the identification, delineation, framing, and articulation of significant external questions are extremely demanding tasks that can as easily lead to failure as to success.

This article will consider one approach to 'thinking about thinking' as developed in Sharon Berlin's early but seminal paper on dichotomous and complex thinking. While Berlin would proceed to develop her ideas and clinical strategies even more fully in her later work with Jeanne Marsh (Berlin & Marsh, 1993) and then in her major book on clinical theory (Berlin, 2002), the 1990 paper raised provocative problems that merit close reading and discussion. The article concludes with some extensions of Berlin's analysis and their relevance for contemporary social work.

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Dichotomous and complex thinking

Sharon Berlin (1990) explored several external questions in an unusually timely and effective contribution to the *Social Service Review* entitled, "Dichotomous and complex thinking". She made a number of arguments that continue to be important to consider in our contemporary situation as we think about the problems associated with effective social work practice and knowledge generation. When the paper first appeared, the American social work profession was embroiled in the so-called 'qualitative versus quantitative debates' that had ignited in the 1980s and would not dampen down until the early 1990s. Articles promulgated in various social work research journals, as well as presentations and speeches delivered at social work research conferences, tended to highlight the polarised positions taken by advocates who, on one hand, argued for the necessity of the objective, experimental paradigm of doing science in order to join the modern techno-scientific world. On the other hand were those opposing researchers who argued that social work's growing, exclusive reliance on the positivist, experimental paradigm as the way to knowledge was obsolete, patriarchal, and clinically invalid. (See Tyson, 1995, for a collection of these critiques). Faced with this dichotomy, Peile (1988) attempted to soberly describe the claims of both camps (which he designated as empiricism and normative paradigms) and argued for a "creative synthesis" (p. 13) in social work research. Although his paper sought common ground and brought historical and philosophical perspectives to the debate, it was unclear exactly how this synthesis would emerge or how it would look in operation.

The most visible advocate for the normative or 'heuristic' critique was Martha Heineman Pieper (1995) who later succinctly summarised her position as follows:

> *"In summary, if social work and the other social and behavioural sciences adopt the heuristic paradigm, researchers will cease the single-minded pursuit of the chimerical goal of neutral, value-free science, and will be able to integrate the more attainable values of the recognition and regulation of bias with*

their traditional humanistic values … into their scientific activities" (p. xxv).

Heineman Pieper did not see the acceptance of the heuristic paradigm as an epistemological preference. Rather, she appraised the 'positivist' approaches of her colleagues as truly destructive, undermining both poles of social work's mission to individual enhancement and social justice:

"Further, both the effort of critiquing the positivist claim for the superiority of interventionist research and the concomitant argument for the scientific standing of naturalistic social and behavioral research are matters of great concern, because for so many years unwarranted positivist strictures have limited the range of data that are considered legitimate, which in turn restricts social and behavioral researchers' ability to study clinical practice in all its complexity and to be effective advocates for social reform" (p. xxvx-xxvi).

Berlin's examination of dichotomous thinking, therefore, did not just involve the selection and discussion of a particularly interesting type of cognitive operation, but also explored an important external question for social work research through analysing the bipolar manner in which many important debates about epistemological and methodological problems had been framed. Indeed, she noted that "… even though bipolar constructions sharpen distinctions, they also obscure the complexities that are necessary for full understanding" (p. 48). While she saw the usefulness of emphasising the merits of quantitative and qualitative positions, the debate had regressed toward vociferous exchanges in which "excessive reliance on one philosophical and methodological passage to knowledge seem to 'overshoot the mark' and result in substituting one excess for another" (p. 48). Eschewing the readily available *ad hominem* attack, Berlin was not suggesting this outcome was the function of the personal shortcomings of various advocates, but that it derived from the bipolar nature of the debate itself.

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Berlin correctly asserted that dichotomous thinking was not restricted to the unique controversies to be found in social work's qualitative-quantitative debate. In fact, dichotomous thinking was also generated by powerful structural forces, especially those social-historical norms and roles that helped people create essential polarisations such as 'clients versus clinicians' and 'clinicians versus scientists.' For example, in this first dichotomous relationship, clinicians (healers) are more likely to identify the biases and erroneous thinking of their clients (sufferers). In fact, most psychotherapists begin with the assumption that the client presents with significant and often self-generated cognitive distortions that drive chronic error patterns. While this is often the case, the bipolar nature of the treatment relationship can lead clinicians to ignore their own biases and heuristics that have become habitual through

years of professional training and practice, and then to overconfidently hold these judgments as veridical (Garb, 1998).

Paradoxically, those outside the profession who appreciate the benefits that such 'expertise' can provide, also can quickly point out that strong beliefs generated by highly restricted perceptions will inevitably spell trouble. Drawing on folk psychology for this idea, recall that the French expression *déformation professionnelle* (a pun on the notion of professional formation) is suggestive of the expert's tendency to view the world through a prestigious but idiosyncratic framework, sometimes even in those situations that might better be served by a more commonsense, generalist, layperson's perspective.

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Berlin argued that dichotomous categorisation was a natural habit of mind with evolutionary advantages. Citing the work of constructionist psychologists such as George Kelly and Michael Mahoney and the information processing theory proposed by Susan Fiske and Shelley Taylor, she described the potentials inherent in dichotomous thinking to reduce complexity, resolve ambiguity, enhance certainty, assist in prediction, and test the outer boundaries of any continuum. Fortunately, Berlin did not fall into the self-contradiction that dichotomous thinking is bad (and to be eliminated) while complex thinking is good. In fact, she argued that defining and exploring polarities can be the first step in synthesising higher levels of understanding and organisation, as found in many Eastern religions and Ilya Prigogene's systems theory.

And as Berlin (2002) would later describe in greater depth, neuropsychological evidence has pointed to the importance of polarisation in assisting the brain in human memory storage, suggesting that this bi-hemispherical organ may actively generate dichotomous frameworks and binary data processing. In sum, it is evident that bipolar, dichotomous perception, thinking and remembering are intrinsic to the natural operation of the human mind. However, this type of brain-based 'natural' and 'automatic' operation can also increase the likelihood that people become overconfident in its range and infallibility.

Implications for theorising

It is important to note that public intellectuals and academics routinely employ dichotomies as they theorise. Ian Shapiro (2005) has criticised this practice as one example of academia's widespread tendency to use 'gross concepts,' (e.g. concepts such as 'positive versus negative liberty'). Gross concepts are usually detached from empirical, historical, and contextual models of explanation, i.e. they are stand-alone ideas that are supposed to transcend time, place, and socio-economic contingencies. While they are not usable for any practical or political tasks, they are advantageous for social scientists more interested in developing "… political theory which endures mainly by feeding off its own controversies because we depend on it for our livelihood" (p. 174). Indeed, such debates over 'gross concepts' are myriad in human behaviour theory, probably because they provide cognitive shortcuts for students attempting to master complex systems of thought. For example, think of the standard textbook polarity employed by comprehensive examination authors: 'Describe and analyse the divergent approaches to human behaviour and behaviour change in the theories of Sigmund Freud and B.F. Skinner.'

Yet, closer examination of Skinner's intellectual development has recently uncovered his multiple areas of agreement with and incorporation of Freudian concepts about the unconscious and human nature (Overskeid, 2007). Paul Meehl, co-author of the MMPI and the supposed arch-enemy of 'clinical' inference, enjoyed describing the distress of his 'actuarial' minded colleagues when they observed the portrait of Freud above the analytic couch residing in his faculty office at the University of Minnesota (Meehl, 1989). Edwin Boring, the intransigent experimentalist, routinely wrote letters encouraging theoretical tolerance in his unsuccessful attempts to quell the internecine fighting between operationist and psychodynamic psychologists working in Harvard's psychology department (Nicholson, 2005).

If theoretical dichotomisation is not essential to or even can be proven to inhibit scientific and professional progress, why does it persist? Why can it not simply be rejected in favour of more complex intellectual frameworks? The answer is because there are distinct benefits that derive from dichotomous thinking and bipolarisation. Political and academic polarities can help people stake out powerful and coherent intellectual positions that are reinforced by ongoing, vociferous debates among founders and disciples who resolutely and profitably skirmish with enemy troops. While it is remarkable how historical studies of these seemingly irreconcilable theories reveal common intellectual heritages and assumptions, the deep schemas shared among theoretical schools, formed by decades of training, teaching, writing and conferencing, are notoriously difficult to relinquish. While social cognitive psychology can elucidate the biases and heuristics that drive individual dichotomous thinking, it is also crucial to understand the sociology, social psychology, and economics of intellectual rituals, habits, and institutions maintained by communities and social networks (Collins, 2000; Sunstein, 2003).

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Clinicians and scientists

Berlin's second example of an important professional dichotomy, 'clinicians versus scientists', has a long and sometimes notorious history, especially in the profession of psychology. The aforementioned qualitative-quantitative debate in social work pales in duration, significance, and acrimony as compared to clinical psychology's long-running 'clinical versus actuarial' debates (Garb, 1998). With social work's widespread embrace of evidence-based approaches in the twenty-first century, it is imperative that the advantages and disadvantages of clinical psychology's polarisation be understood in order to avoid unnecessary and repetitive error. Again, in its most simplistic rendition, this dichotomy arranges that clinicians work as emotionally involved, intuitive and outcome-biased professionals, while scientists pursue dispassionate investigation as unemotional, objective, and intellectually open truth-seekers.

This vision of the scientist owes much to R.K. Merton's (1973) sociology of science which delineated scientists' communalism, universalism, disinterestedness, and organised scepticism, as well as Carl Hempel's (1966) logic of natural science, which centralised deductive-nomological explanation. Berlin challenged this

version of science from her vantage point of many years of clinical and scientific work.

> *"Nonetheless, scientists are human instruments of knowledge formulation … Like the rest of us, scientists are not dispassionate. They are persuaded by prevailing social values; on a quest for certainty; deluded by vivid examples, biased samples, and selective perception; and shaken by disconfirming findings" (p. 54).*

The history of science (as opposed to the philosophy of science) and the contemporary studies of the lives and careers of scientists (Runyan, 2006) have confirmed Berlin's observation that "emotionalism is not necessarily antithetical to science, and especially, it is not antithetical to *scientists*" (p. 55, emphasis added).

Recent biographies of 'giants' of twentieth century science such as Albert Einstein, Robert Oppenheimer, and Richard Feynman also illustrate that the 'messy' lives of scientists and their discontinuous approaches to doing science defy simplistic characterisation

Sherwin Nuland's (2004) study of Ignac Semmelweis, the Hungarian physician who investigated and discovered the source and transmission of puerperal fever, is especially instructive. Semmelweis practiced medicine with a mid-nineteenth century scientific knowledge base – a century which would close with the germ theory developed by Louis Pasteur. Nonetheless, by 1847 Semmelweis successfully used a quasi-experimental clinical trial combined with careful archival research to determine that physicians whose unwashed hands probed the female patients in Vienna's prestigious research hospital were transmitting some type of infectious matter into their obstetric patients, thereby causing high rates of childbed death. In fact, Carl Hempel's description of scientific logic in his 1966 classic, *Philosophy of Natural Science*, argued that Semmelweis' empirical approach and scientific reasoning was prototypical of the rigorous scientist at work.

On the other hand, Nuland painstakingly documents how Semmelweis' *distress* over the painful deaths of the mothers and infants in his care and his *ambition* to achieve professional recognition motivated him to relentlessly pursue the problem. This same passionate approach to medical science led to his failure to disseminate his discoveries to colleagues and to gain the professional and academic prestige he has received only posthumously. In fact, Nuland persuasively shows that Semmelweis employed a rigorous mind that was ultimately thwarted by his volatile reactivity to professional criticism, his stubborn unwillingness to revise his confusing and often incendiary manuscripts and professional correspondence, and the sense of ethnic inferiority that came from being a Hungarian living and working in an Austro-German intellectual community.

Eventually, Semmelweis came to consider himself as the enlightened adversary of almost every leading medical scientist in Europe. For example, he invariably and formally accused those obstetricians who did not accept his theories as 'murderers' of childbearing women, thereby impeding the dissemination of his important conclusions about infectious disease transmission. Additionally, because he sent himself into exile by prematurely returning

to Hungary, he removed himself from the scientific and clinical centres that would have made possible future collaborations, and precluded the research designs that might further have developed his original work and moved him toward a fuller understanding of the pathogenesis of puerperal fever (Nuland, 2004).

This troubling life history reveals the profound humanity of an intellectual and clinician whose emotional vulnerabilities motivated him to great scientific achievement while ultimately thwarting him from achieving personal and professional success. Recent biographies of 'giants' of twentieth century science such as Albert Einstein (Isaacson, 2007), Robert Oppenheimer (Bird & Sherwin, 2006), and Richard Feynman (Gleick, 1993) also illustrate that the 'messy' lives of scientists and their discontinuous approaches to doing science defy simplistic characterisation. Writing about the scientific spirit, Michael Mahoney (2005) rejects scientism's purely rationalist model of scientists and argues that "Beyond the particular questions and answers, science expresses awe. At its best, science brings us together in a community of seekers who freely share adventures in the service of collective understanding" (p. 343).

Wicked problems and complex thinking

In the United States, social work was founded by a number of complicated people pursuing a number of complicated agendas designed to respond to the many complicated personal and social problems facing Americans in the early twentieth century. The historical, evolutionary advantage lay in social work's multiplicity of professional purposes, contexts, and strategies. The disadvantage was that this multiplicity defied the cogent development of a singular mission or purpose some saw as necessary for professional unity and enhanced social influence.

It is interesting to hold onto the idea that social work's multiplicities may have contributed greatly to the profession's idiosyncratic analytic powers and creativity. On the other hand, those irritated by this seeming incoherence and conceptual untidiness often prefer to characterise the profession's work as a dichotomous commitment to individual and society, which has frequently been recast as service to individuals versus service to society. While such dichotomies fall short of the everyday phenomenology of practice, they suggest interesting starting points for describing social work's commitment to persons and societies.

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Indeed, C. Wright Mills (1959) argues that the 'sociological imagination' required for understanding modernity's social problems requires simultaneously employing multiple levels of analysis:

> *"Know that many personal troubles cannot be solved merely as troubles, but must be understood in terms of public issues – and in terms of the problems of history making. Know that the human meaning of public issues must be revealed by relating them to personal troubles – and to the problems of the individual life" (p. 226).*

The nature of social work's historical entry into American society as a profession has led

to its being animated (some would say plagued by) recurring controversies about its bipolar (split) mission to address individual distress and social injustices. Mills' definition of the dynamic relationship between personal troubles and public issues appreciates the dichotomy but urges the more complex thinking that characterises his ideal – 'the sociological imagination.'

One argument for appreciating, but not settling for, dichotomous thinking is to acknowledge the complexity of the problems social workers grapple with daily. In fact, the ubiquity of professionals' dichotomous thinking might paradoxically indicate the intractable difficulties professionals confront, whether these problems emerge from personal or public contexts. A provocative description of this situation is provided by Horst Rittel & Melvin Webber (1973) who define these as 'wicked' problems. Wicked problems reveal the "... weak strut in the professional's support system [that] lies at the juncture where goal-formulation, problem definition, and equity issues meet" (p. 156). These problems are quite different from those faced by scientists, mathematicians or engineers who tackle problems that usually can be precisely formulated and solved, and who work in task environments where it is clear when problems have been finally solved. In contrast, social workers and the others in the social professions are:

> *"... misled somewhere along the line in assuming they could be applied scientists – and that they could solve problems in the ways scientists can solve their sorts of problems. The error has been a serious one ... [problems] of social and policy planning are ill-defined; and they rely upon elusive political judgment for resolution. (Not 'solution.' Social problems are never solved. At best they are only re-solved over and over again)" (p. 160).*

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Wicked problems cannot be formulated unless one can generate the alternative solutions to those problems long before trying out those solutions. They have no 'stopping rule', in the sense that professionals can determine that the problem has been finally resolved. Solutions are "not true-or-false, but good-or-bad"; solutions are ambiguous and open to multiple interpretations (p. 162). There are no ultimate tests of solutions to these problems, and usually no opportunity to run multiple tests to try out different solutions. The social and financial costs of the main effects of attempted solutions to wicked problems are usually high, and the impact of their unintended side effects sometimes even more costly, so "every attempt counts significantly" (p. 163).

Trial-and-error designs are usually impossible. At the same time, the sets of possible solutions to wicked problems are neither bounded nor finite – human (political) judgements may enlarge or restrict the type and number of alternatives under consideration. Additionally, 'tame' problems can be categorised into sets that have common characteristics and can be addressed with similar strategies. Wicked problems usually vary enough across contexts and time periods that they contain extra dimensions that may render previous strategies ineffectual. To make things more complex,

"every wicked problem can be considered a symptom of another problem" (p. 165). For example, child maltreatment can be seen as an example of family violence and addressed at that level, while it also can be defined and addressed as a symptom of profound poverty and social inequity. The decisions regarding at which level child maltreatment should be formulated and addressed are characterised by serious scholarly, technical, and political disagreements.

While science encourages refutation of hypotheses under the aegis of 'crucial tests', those tackling wicked problems soon find that there are so many alternative explanations for the sources of problems and so many opinions debating whether a problem has been successfully addressed, crucial tests are not possible to design. Evaluation researchers are often accused of 'rigging the game' in that they necessarily select problems, inputs, and outcomes (successes and failures) that exclude viable, alternative formulations. "That is to say, the choice of explanation is arbitrary in the logical sense … The analyst's 'world view' is the strongest determining factor in explaining a discrepancy and, therefore, in resolving a wicked problem" (p. 166). Finally, the "planner has no right to be wrong" (p. 167) and professionals become liable for the harms generated even by their well-intentioned and rigorously designed efforts.

Some readers might be tempted to surrender at this point, given this rendering of the murky problems and impossible tasks which confront professionals. On the other hand, many readers will consider Rittel & Webber's (1973) characterisation of wicked problems to serve as a reasonably accurate phenomenology of doing contemporary social work. While the purpose of the present article does not allow a complete analysis of their argument, they have provided plausible descriptions of the problems and task environments in which social work practitioners and researchers operate. Their analysis also offers an explanation for why social work has been 'slow' in rushing to adopt exclusively scientific approaches to practice and policy-making despite much external and internal criticism. While science holds the promise of launching more reasoned and testable practice approaches, science is certainly useless for addressing the non-rational dimensions of wicked problems. This situation continues to produce the seemingly endless debates featuring the truculence of unreasonable practitioners and the irrelevance of ivory-tower researchers – yet another iteration of Shapiro's (2005) gross concepts at work.

To effectively address wicked problems, professionals need to employ many different types of thinking – dichotomous, complex, paradoxical, dialectical, analytic, synthetic, reductionist, hermeneutic, statistical, historical, biographical, and economic approaches are called for

However, gross concepts do not help professionals address wicked problems. To effectively address wicked problems, professionals need to employ many different types of thinking – dichotomous, complex, paradoxical, dialectical, analytic, synthetic, reductionist, hermeneutic, statistical, historical, biographical, and economic approaches are called for. Academicians and practitioners need to work across disciplines and professions to develop imaginative and vital intellectual networks to bring to bear exponentially more

powerful and richer analytic capacities than experienced in the social sciences thus far.

Sharon Berlin presented this idea eloquently at the close of the paper under discussion:

> *"All of us are well-advised to pursue a variety of passageways to understanding, allow the tension of contrasts, consider the partial nature of what we know, look for and ponder disconfirming information and monitor our own judgement process. The kind of flexible, self-searching, reflective perspective that is advocated here would keep us open, keenly observant, ready to change our minds, ready to think differently, ready to try differently, and appreciative of multiple theoretical and intervention possibilities" (p. 57).*

In other words, it is ultimately up to all stewards of the profession to urge social workers to develop the tolerance (and excitement) for remaining sceptical and hopeful, or more precisely, pragmatic, as we approach complex problems. This is easier said than done. For example, the emergent popularity of evidence-based practice in the United States hopes to succeed where the carefully wrought clinical-scientist (Boulder) model of clinical psychology has failed. The integration of professional values, ethical imperatives, cultural-social mandates, and even professional intuitions with the scientific-rationalist approaches to problem definition, analysis, and testing is a tall order, but appears to approach the complex thinking required to address wicked problems. The 'knowledge problems' raised by Sharon Berlin will continue to challenge us in the decades ahead. The best hope of making significant gains is to be able to consistently tackle them with the humility, intelligence, and intrepid energy she urges the profession to employ. Humility will include being open to counterintuitive, non-ideological, and uncomfortable ideas – a rare trait for a profession that has sometimes equated unity of purpose with conformity of thought and political position.

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