An Evaluation of the Influence of Case Method Instruction on the
Reflective Thinking of MSW Students

by

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Dedication

I would like to dedicate this dissertation to my mother, Ofelia Morales, who has always inspired me to be and do my best. Your life-long commitment to excellence has encouraged me to press on to the next hill and let me know you understood when I had to forfeit our favorite Saturday outings.

I would also like to dedicate this dissertation to my students who I hope will benefit from what I have learned. Finally, I dedicate this work to my Lord and Savior, Jesus Christ, who is the wind beneath my wings.
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An Evaluation of the Influence of Case-Method Instruction on the Reflective Thinking of MSW Students

Marleen Milner

ABSTRACT

Social work practice requires that graduates be prepared to deal with complex, multifaceted problems which cannot be defined completely, do not have absolute, correct answers and can be approached from multiple perspectives. This study evaluated the influence of case-based instruction on MSW students’ reflective judgment, an aspect of critical thinking associated with the ability to reason through ill-structured problems. (King, Wood, & Mines, 1990). The Reflective Judgment Model, which describes a developmental continuum based upon epistemic assumptions regarding the source and justification of knowledge claims, served as the theoretical framework for the assessment of reflective thinking in this mixed methods study.

A quasi-experimental pre-post nonequivalent control group design was utilized to explore whether students who participated in a case method course demonstrated greater increases in reflective judgment than those who did not. MSW students enrolled in a case-based capstone course at a major metropolitan university in the southeast served as the intervention group, while foundation year students enrolled in a research methodology course served as the comparison group. Both groups completed the Reasoning about Current Issues Test (RCI), which is an online, standardized measure that
has been widely used to assess reflective judgment (Wood, Kitchener, & Jensen, 2002) at pre and posttest. Content analysis procedures were used to facilitate assessment of students’ initial and final case analysis papers for evidence of changes in the reflective thinking skills and problem-solving approaches utilized on initial and final case analysis papers.

The case method participants’ mean RCI scores remained unchanged between pre and posttest, while RCI posttest scores of participants in the control group decreased significantly. Pre and posttest comparison of students’ case analysis papers using a customized rubric based on Wolcott’s Steps for Better Thinking (2006) similarly indicated no mean changes in problem-solving approaches between pre and posttest. However, students who began the course using strategies associated with pre-reflective judgment increased their scores on the rubric significantly while those who exhibited higher levels of quasi-reflective judgment at pretest decreased at posttest. Strategies for designing a developmental curriculum to target the reflective judgment levels of MSW students are proposed.
Chapter I

Introduction

As professional problem solvers, social workers must have skills to assess multifaceted problems systemically based on information that is often ambiguous, inconclusive, and variable. Practitioners routinely make vital decisions regarding such conundrums without any certainty as to the “correct” solutions. Therefore, schools of social work are enjoined with the primary task of preparing graduates to “apply critical thinking within the context of social work practice” (Council on Social Work Education, 2003, p. 33). However, identifying effective teaching strategies that foster the types of reasoning skills required in social work practice has remained elusive.

Many educators in a number of disciplines have endorsed the case method of instruction, which is a student-centered approach that involves the analysis of open-ended, realistic practice situations, as a leading teaching strategy for preparing students to deal with ill-structured problems. While well-structured problems can be described with a high degree of certainty and solved using deductive logic, ill-structured problems can be understood from multiple perspectives, cannot be described completely, and do not have an absolute, correct answer (Altshuler & Bosch, 2003; King, Wood, & Mines, 1990).

This study evaluates the influence of case-based instruction on Master of Social Work (MSW) students’ reflective thought, an aspect of critical thinking that is linked to the ability to reason through ill-structured problems. Reflective thought involves
carefully considering beliefs or knowledge claims in the light of supporting evidence in order to bring closure to situations that are controversial or problematic (Dewey, 1933; King & Kitchener, 1994).

**Problem Statement**

A primary purpose of social work education is to empower students to alleviate perplexing problems such as poverty, oppression, and social injustice. These complex problems are not clearly understood; consequently, proposed solutions are based upon varying perspectives. Social workers routinely face such complex problems and make decisions that require the use of reflective reasoning. For example, social workers are required to make decisions regarding placing children who are at risk, intervening in the lives of the chronically mentally ill, and addressing the impact of social policy on individual lives and communities. The weight and significance of such decisions is clear.

Because effective problem-solving is so integral to routine practice, social work employers often cite the critical thinking abilities of future employees as a top concern (Jones, 2003; Wingo, Perry, & Orton, 2003; Dalton & Wright, 1999 as cited in Wolfer, Freeman, & Rhodes, 2001). A related concern is that it is estimated that only 10% of course based learning is transferred to on-the-job performance (Holten & Baldwin, 2000).

The current emphasis on evidence-based practice is expected to facilitate better decision-making, maximize service to vulnerable populations, and minimize judgment errors. However, the consistent use of evidence to support practice decisions requires a level of cognitive complexity that research strongly suggests is uncharacteristic of the average college senior and beginning graduate student (King & Kitchener, 2002;
Kohlberg, 1969; Kuhn, Ho, & Adams, 1979). Researchers have noted that most college seniors and adults in general fail to provide evidence to support their decisions (King et al., 1990). Many college students do not see the relationship among interpretations, judgments, and evidence, believing that interpretations are simply equally valid opinions. Master’s level graduate students fail to consistently differentiate strong from weak evidence, and often make judgments based on personal opinion rather than logic when faced with competing claims to truth (Brabeck & Welfel, 1985). Students using these problem-solving approaches will find themselves ill-prepared to make sound judgments in a field which is characterized by problems which rarely are understood completely or have easy answers, yet require careful decision-making in order to avoid further harm to populations already at risk (Gambrill, 1990; Gibbs, 1991).

Use of the Case Method to Promote Reflective Thinking

The case method has been promoted as a useful strategy to prepare graduates for the real world where solutions to complex problems are not found in textbooks and there is often not agreement regarding the correct solutions to difficult questions (Lynn, 1999). Adherents of the case method argue that it fosters critical and reflective thinking, facilitates students’ openness to multiple perspectives, prepares them to develop “anticipatory schema” to deal with the ambiguity of real world problems and assists them in clarifying their own beliefs and how those beliefs impact their decision-making (Lundeberg, Levin, & Harrington, 1999; Macaulay & Cree, 1999, p. 189).

Noting the widespread use of the case method in other disciplines, Cossom (1991) endorsed case-based instruction as a teaching medium with “high utility” for preparing
social work students to think critically and deal with the “plethora of value dilemmas, ambiguity . . . and difficult decisions to be made” (p. 153) in social work practice. “Case method teaching” originated at Harvard Schools of Law and Business in the 1870s, and was later adopted by other disciplines including schools of medicine, education, nursing, psychology, and social work (Gullahorn, 1959; Webb, Gill, & Poe, 2005). While there are numerous variations of the case method, this study will use the description offered by Wolfer (2006, p. 3):

The case method . . . involves in depth class discussions based on detailed, open-ended accounts of actual practice situations. These accounts, referred to as decision cases, require students to formulate problems and decide on potential courses of action.

Although the case method has been used extensively in business schools for over a century, the majority of empirical studies of case method outcomes have only been published over the last 20 years in the area of teacher education (Allen, 1995; Harrington, 1999; Lundeberg, 1999; Lundeberg, Levin, & Harrington, 1999; Lynn, 1999). Several authors have promoted case-based instruction in social work education (e.g., Cossom, 1991; Seelig, 1991), but it is only in the last decade that a handful of authors have published material regarding the process and outcomes of utilizing the case-study method in social work (Gray, Wolfer, & Maas, 2006; Jones, 2003; Jones, 2005; Wolfer et al., 2001; Wolfer & Gray, 2007). These works, which will be discussed in greater detail in the review of the literature, have advanced meaningful rationales for the use of case-
based instruction in social work education and provided preliminary evidence of positive learning outcomes.

This study contributes to the literature by providing empirical measures of the extent to which participation in a case-based course affects the reflective thinking of MSW students. In addition, this will be the first study in social work to utilize the Reflective Judgment Model, a cognitive developmental framework that has been widely used for the assessment of students’ reflective thinking in institutions of higher learning. After searching several databases including Social Work Abstract Plus, Social Sciences Full Text, and Soc Index, no publications were located within social work literature that utilized the Reflective Judgment Model. The following section provides a brief overview of the model.

**Reflective Judgment Model**

King and Kitchener’s Reflective Judgment Model (RJM) has been described as the most rigorously and extensively researched model of epistemology (Hofer & Pintrich, 1997) and the best known model of adult cognitive development (Pascarella & Terenzi, 1991). According to King and Kitchener, people’s assumptions about knowledge guide the way that they reason about and justify their own judgments when considering ill-structured problems. Although this model has not previously been utilized in social work education, its emphasis on how individuals approach decision making about problems that cannot be defined or resolved with absolute certainty, makes it a particularly compelling model for assessing and encouraging the most critical reasoning competencies demanded in daily social work practice (Teare & Sheafor, 1995).
The Reflective Judgment Model (RJM) operationalizes seven developmental stages of reflective thinking based upon epistemic assumptions. The first three stages, which are based to varying degrees on the assumption that knowledge is absolute and comes from authoritative sources, are “pre-reflective.” Learners do not perceive complex issues as problematic because knowledge is certain and issues are right or wrong, black or white. When uncertainty is evident, these individuals believe that it is temporary and will be resolved when those in authority discover unavailable information or are able to resolve the problem conclusively.

Stages 4 and 5, which are more typical of college seniors and graduate students, are called the “quasi-reflective” stages. In Stage 4, students perceive the uncertainty of ill-structured problems. However, they are uncertain how to deal with the ambiguity and believe that competing perspectives merely represent the “opinions” of those who espouse them. Consequently, students with Stage 4 assumptions tend to use evidence selectively to support their own opinion, rather than considering neutral or disconfirming evidence. At Stage 5, students understand that knowledge claims are subject to interpretation and contextual realities. Students demonstrate the ability to analyze complex problems comprehensively and to use evidence objectively and consistently. However, they are unable to establish criteria for selecting between viable alternatives and therefore have difficulty defending their conclusions.

Stages 6 and 7 represent beginning and advanced levels of “reflective thinking.” At Stage 6 of reflective thinking, individuals understand that although knowledge is not certain, conclusions can be reached based on interpretations of the available evidence.
The implications and consequences are subjected to overarching principles that can be applied across contexts. At Stage 7, individuals assume responsibility for constructing and evaluating knowledge claims on an ongoing basis and use evidence to reach decisions based on “the most complete, plausible, or compelling understanding of an issue” (King & Kitchener, 1994, p. 7). The Reflective Judgment Model Stages two through seven are summarized in Table 1 in Chapter II. Stage 1 is not included because it represents reasoning approaches that are common to young children.

The Reflective Judgment Model (RJM) was selected as a theoretical framework for this research for the following reasons: (1) RJM delineates the levels of reasoning utilized in thinking through ill-structured problems, which are the types of problems most frequently encountered by social workers; (2) it is well-suited for the assessment of the effectiveness of fostering reflective thinking by analyzing decision cases, which by definition are ill-structured; (3) the stages of the RJM have been rigorously tested in longitudinal and cross-sectional studies that validated the stages as organized, hierarchical, and sequential; and (4) the Reasoning about Current Issues Test, which is based on the RJM, provides a standardized measure of reflective reasoning. A description of the model, research supporting it, and the corresponding instrument will be discussed in the review of the literature.

In summary, although the limited number of studies regarding case method instruction show promise regarding its potential to enhance the reasoning aptitudes and skills of future social work practitioners, empirical studies using objective measures to assess growth in students’ cognitive development are lacking. To date, the majority of
publications across disciplines are descriptive, emphasizing methods rather than outcomes. Because of the urgency of producing graduates that are able to grapple with complex, multi-faceted problems, the need to develop evidence-based strategies that will encourage the development of the reasoning skills required to “think like social workers” is clear. Therefore, the purpose of this study is to address a significant gap in the profession’s educational theory and practice by furthering knowledge regarding how the academy can best prepare graduates for the significant challenges ahead of them.

**Research Questions**

This study considers the following questions:

1. Do MSW students participating in a case method course demonstrate improvement in reflective thinking on a standardized measure of reflective judgment?

2. Do MSW students participating in a case method course demonstrate greater gains in their reflective thinking skills than graduate students who are not exposed to a case method course? Are the gains greater than those that might be expected based on educational experience and maturation?

3. Do final written case analyses, by MSW students participating in a case method course, reflect changes in the way they reason about ill-structured problems when compared with their initial case analyses?

4. What, if any, demographic factors are associated with Reflective Thinking?
Chapter II

Review of Selected Literature

This chapter will review selected literature regarding the significance of critical thinking as an educational outcome, the relationship between critical and reflective thinking, the use of case-based instruction to increase students’ critical and reflective thinking, and the use of the Reflective Judgment Model to assess how students reason through ill-structured problems.

Critical Thinking as an Educational Outcome

Educational literature provides ample evidence that critical thinking has become the single most prized student outcome at all levels of education (Blai, 1992; Boostrom, 2005; Facione, 1998; Halx & Reybold, 2005; Norris, 1985; Paul & Elder, 2006; Phillips & Bond, 2004). Literature regarding the importance of critical thinking has proliferated since the early 1990s. A search for full-text scholarly articles available through the EBSCO Academic Search Complete Database with critical thinking in the title or abstract published between 1990 and 2009 yields 1882 articles. A Google search uncovers dozens of university websites dedicated to the topic and more than 26,000,000 matches.

National concern regarding the diminishing educational outcomes of American schools has resulted in a growing critical thinking movement and the initiation of national and statewide reforms (Facione, 1998; Facione, Facione, & Giancarlo, 2000; Paul, Elder, & Bartell, 1997). For example, in 1989, Goals 2000 charged colleges and universities to
devise strategies to improve the abilities of students to think critically, solve problems, and communicate (Halonen, 1995). Yet, in spite of concerted efforts to address these concerns on a national level, effective strategies for the achievement and assessment of these fundamental educational outcomes have remained elusive (Ennis, 1993; Halonen, 1995; Halx & Reybold, 2005). Nearly 10 years after Goals 2000 was conceived, the Boyer Commission (1998), which was tasked with making recommendations for the reconstruction of undergraduate education, reported that many graduates were unable to integrate learning between courses, think logically, write clearly, or speak coherently.

*Defining Critical Thinking*

The most frequently cited impediment to increasing critical thinking among students is the lack of agreement among educators about an operational definition of critical thinking (Bissell & Lemons, 2006; Boostrom, 2005; Brookfield, 1987; Ennis, 1993; Ennis, 1991; Facione, 1998; Halonen, 1995; Paul et al., 1997; Shermis, 1992; South Carolina Higher Education Assessment Network, 1996). According to Halonen (1995), the complexity and familiarity of critical thinking qualify it as a “mystified concept,” which is a concept so routine that it rarely elicits questions and yet is little understood (Minnich, 1990, p. 51, as cited by Halonen, 1995). A number of researchers contend that although most educators give lip service to the importance of teaching critical thinking, few can clearly define it, and fewer still can demonstrate that they are teaching it (Bissell & Lemons, 2006; Boostrom, 2005; Browne & Freeman, 2000; Halx & Reybold, 2005; Paul et al., 1997).
The complexity of the construct of critical thinking is evidenced by the fact that the NPEC Sourcebook on Assessment (U. S. Department of Education, National Center for Education Statistics, 2000) identified sixty-nine distinct skill sets and fourteen dispositions that are included in the twelve most widely used measures for the assessment of critical thinking. Definitions range from the minimalist to the elaborate, but many authors agree that commonalities across definitions can be clearly identified (Allegretti & Frederick, 1995; Bissell & Lemons, 2006; Boostrom, 2005; Paul et. al., 1997; Plath, English, Connors, & Beveridge, 1999; Shermis, 1992). Frequently cited themes include the ability to frame problems, identify and evaluate assumptions, analyze and synthesize information, make correct inferences from data, assess the credibility of arguments, consider alternate perspectives, deal with ambiguity, support claims with evidence, and reflect on one’s own thinking (Mumm & Kersting, 1997; Paul et. al., 1997; Plath et al., 1999; Ringel, 2003; Shermis, 1992; Terenzi, Springer, Pascarella, & Noram, 1995).

Based on the difficulty of reducing the construct to a few clearly defined skills, numerous authors have asserted that it is contingent upon the specific disciplines to come to a consensus as to a definition that best fits the requirements for reasoning skills and dispositions of that field (South Carolina Higher Education Assessment Network, 1996). Others have argued that thinking skills, per se, are domain specific, and can only be defined and developed within the context in which they are used (Glaser, 1984; McPeck, 1981; Smith, 2002).
Critical Thinking and Social Work Education

In spite of the fact that critical thinking skills have been described as “integral” to social work practice (Gibbons & Gray, 2004), relatively little has been written about it in professional literature when compared to other helping professions such as teaching and nursing. Early in the 1990s, Seelig (1991) noted the failure of social work education to contribute to the expanding critical thinking movement and challenged the profession to recognize the importance of critical thinking and to emphasize it as a component skill of social work practice.

Gambrill and Gibbs began addressing the gap in the literature by authoring a number of books and journal articles that argued the importance of encouraging critical thinking skills in social work students and practitioners by training them to reason scientifically (Gambrill, 1990; Gambrill, 1997; Gambrill, 1999; Gambrill, 2006; Gibbs, 1991; Gibbs et al., 1995; Gibbs & Gambrill, 1999). Gambrill defined critical thinking as “the careful examination and evaluation of beliefs and actions in order to arrive at well-reasoned ones” (1997, p. 125). She further described the process as “clearly describing and taking responsibility for our claims and arguments, critically evaluating our views no matter how cherished, and considering alternative views” (p. 126).

Social work models for teaching critical thinking run the gamut from a post-positivist perspective (Gambrill, 2006; Gibbs, 2007; Kersting & Mumm, 2001) to a constructivist paradigm (Gibbons & Gray, 2004; Plath et al., 1999). Those who focus on a post-positivist approach tend to build critical thinking skills around the use of scientific reasoning, rational decision making and the concept of evidence-based practice (Gibbs,
2007), while those with a constructivist approach center on experience based learning and reflective practice (Laird, 1993). While they share a common focus on the role of criticism in the evaluation of knowledge claims, the approaches adopted to facilitate the development of reasoning skills from these perspectives are based on disparate epistemologies.

From the post-positivist perspective, although knowledge is subject to change, “scientific criteria” and “systematic effort” (Gambrill, 1997, p. 83) can be used to acquire knowledge and minimize judgment errors. Consequently, efforts to foster critical thinking skills focus on error elimination strategies by identifying common fallacies in logic, increasing objectivity, teaching rational problem-solving methods, and honing the skills necessary to carefully scrutinize knowledge claims (Gambrill, 1997).

Constructivists view knowledge as a social construction that is limited, contextual, and relative, and therefore agree that knowledge claims must be examined critically. However, the underlying assumption that people must construct or make sense of reality for themselves results in a focus on experiential learning rather than error-elimination strategies. According to Gibbons and Gray (2004) “critical thinking…can only be learned and refined through practice within a particular discipline, through doing and reflecting on what we have done and why we did it that way” (p. 20). Strategies for fostering critical thinking from this perspective emphasize the structuring of tasks or experiences that will trigger perplexity and doubt about one’s current view of reality, thus encouraging the learner to engage in reflective thought considering knowledge claims carefully (Dewey, 1933).
Gambrill and Gibbs have been major proponents of the post-positivist approach, which challenges educators to equip social work students with the skills to use sound logic and reasoning strategies to examine knowledge claims, test assumptions, identify fallacies, and make optimal decisions that represent “best practice.” Social work educators have proposed numerous strategies to foster critical thinking skills based on this perspective. These include providing specific content on the use of inductive and deductive logic and argumentation, research, evaluating the quality of online resources, analyzing social work theories, and using logic models, logic games and exercises (Alter & Egan, 1997; Gambrill, 1997; Gibbs, 1991; Gibbs & Gambrill, 1999; Lister, 2004; Lynch, Vernon, & Smith, 2001; Mumm & Kersting, 1997; Vandsburger, 2004).

A review of the literature indicates that the majority of the methods proposed to teach critical thinking in social work use a post-positivist perspective and focus on instruction regarding the use of logic and identification of reasoning errors. For example, the workbook, *Critical thinking for Social Workers: Exercises for the Helping Profession* (Gibbs & Gambrill, 1999) presents students with numerous exercises focused on identifying fallacies in thinking and developing skills in logic and argumentation. The PRIDE1 (Gibbs et al., 1995) and the Professional Thinking Form (Gibbs & Gambrill, 1999) require that students *correctly* identify fallacies in reasoning. These tasks require the type of critical thinking skills associated with solving well-structured problems, i.e., students must discover the correct answer by applying course content on the use of logic (King & Kitchener, 1994).
While these basic skills are required to evaluate knowledge claims effectively, they do not adequately prepare students to think reflectively when addressing issues that cannot be resolved with certainty based on existing knowledge (Gibbons & Gray, 2004; Gould, 1996; King & Kitchener, 1994; Sung-Chan & Yuen-Tsang, 2008). Critics of the post-positivist paradigm argue that social work practitioners are often faced with complex problems that cannot be resolved by applying professional principles based on existing knowledge (Gibbons & Gray, 2004; Sung-Chan & Yuen-Tsang, 2008). According to Schön (1987), professionals regularly encounter problems that cannot be solved with “rule-governed inquiry” based on existing professional knowledge, but require practitioners to generate new theories that are subsequently tested and revised (p. 34). Luitgaarden (2009) has argued that the extensive complexities of social work practice make rational decision-making models that rely on deductive and statistical reasoning unsuitable models for practice.

Based on a constructivist paradigm, social work educators at The University of Newcastle in Australia have utilized an integrative curriculum utilizing a problem-based and experiential learning model that infuses critical thinking assignments throughout the BSW curriculum. An intensive critical thinking unit at the end of the curriculum teaches critical thinking as a specific social work skill set. Faculty assess critical thinking throughout the program based on students’ self-awareness, ability to make well-reasoned arguments, and ability to communicate their views effectively in consideration of alternate perspectives (Gibbons & Gray, 2004). They expressed concern that in spite of a strong emphasis on meaning-making and taking responsibility for one’s perspectives, a
survey of students indicated that they continued to associate critical thinking with an objective, or scientific view of the reasoning process rather than a strategy for dealing with the uncertainties involved in social work practice.

Altshuler and Bosch (2003), and Coleman, Collins and Baylis (2007) proposed Problem-Based Learning to simulate situations that social workers will inevitably encounter in the field. In this model, students are presented with situations that they do not have sufficient knowledge to resolve, requiring them to search for solutions. Instructors serve as consultants rather than authorities and learning takes place in a collaborative, small group environment.

Sung-Chan & Yuen-Tsang (2008) proposed an action research approach to bridge the gap between theory and practice in social work education. They criticized the prevailing educational models in social work education in light of the complexity and uncertainty of social work practice, especially in the context of non-Western cultures such as mainland China. A reciprocal reflection and experimentation cycle based on Schöns’s reflective practice model was proposed to deal with the gap between students’ espoused practice frames and the development and testing of new solutions to narrow the gap. Other strategies that have been suggested to target critical thinking based on a constructivist model include self-reflection, student journals, the development of portfolios, and the use of decision cases (Coleman, Rogers, & King, 2002; Haulotte & Kretzschmar, 2001; Jones, 2003; Jones, 2005; Nesoff, 2004; Ringel, 2003; Scales et al., 2002; Wolfer et al., 2001).
In summary, while educators from both perspectives seek to foster students’ ability to evaluate knowledge claims critically, and to assume personal responsibility as consumers of knowledge, the methods used differ and may target different aspects of critical thinking. Post-positivist approaches focus on teaching students principles that support effective argumentation and the avoidance of common fallacies in reasoning, while constructivist approaches tend to focus on experiential or transformative learning, self-awareness, and integration of theory with practice. Based on the distinctions proposed by and Brabeck (1980) between critical and reflective thinking, the post-positivist pedagogical approaches may target general critical thinking skills, while constructivist approaches target the development of reflective thinking.

*Relationship between Critical Thinking and Reflective Thinking*

In his seminal work, *How We Think*, Dewey (1933) defined reflective thinking as “active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusions to which it tends” (p. 9). This necessarily involves many of the commonly agreed upon elements of critical thinking such as framing problems, identifying assumptions, analyzing and synthesizing information, and making inferences from data. However, although it shares some commonalities with critical thinking and at times is used interchangeably, there are important distinctions between the two constructs. Based on a comparison of student performance on critical thinking measures and the RJI, Brabeck (1980) concluded that critical thinking is “necessary but insufficient” for reflective thinking. The distinctions between the two are addressed below.
Problem Structure

A primary difference between critical thinking and reflective thinking is that critical thinking skills may focus on resolving well-structured problems, which can be resolved with certainty, regardless of the level of difficulty, using deductive or inductive logic. These problems require that the learner find an applicable problem-solving procedure to discover, compute or recall the solutions. In contrast, ill-structured problems, which have no verifiable correct answers, cannot be resolved with logic alone. Problems such as child abuse, mental illness, poverty, juvenile delinquency and racism cannot be resolved conclusively with logic or specific knowledge. They cannot be resolved with certainty by referring to the claims of authorities, as authorities frequently disagree as to the best solutions for these types of issues. Instead, they require that inquirers identify the facts and theories that may apply to the situation, evaluate their credibility and relevance within the current context, and generate potential solutions. These solutions must then be evaluated in the light of existing information and contextual realities, and decisions must be made based on the best available evidence/information.

Gill and Hicks (2006) note that a primary distinction between ill-structured and well-structured problems is the relationship between the task complexity and the amount of discretion called for in order to fulfill the requirements of task performance. Task performance that calls for individuals to rely primarily on domain-specific knowledge, such as formulas or proven principles, allow little discretion in the number of viable paths that may be chosen. In contrast, ill-structured problems are characterized by a significant amount of discretion in the number of acceptable paths one may chose to resolve the
problem or complete the task. For example, a clinical social worker may rely upon
domain specific knowledge to come to a conclusion regarding a client’s DSM-IV
diagnosis of clinical depression, but will have considerably more discretion in
determining an appropriate treatment plan based on client characteristics, contextual
factors, and available resources. However, discretion alone may not elicit reflective
thought as many tasks that allow for discretion become routine as the practitioner comes
to rely on increasing knowledge, experience, and expertise (Crook, 2001; Gill, 2006).

Uncertainty

Perceived uncertainty regarding problem formulation and resolution triggers the
processes involved in reflective thought. Dewey (1933) argued that “felt difficulty” and
uncertainty are the genesis of reflective thinking. According to Dewey, “general appeals
to a child (or a grown-up) to think, irrespective of the existence in his own experience of
some difficulty that troubles him and disturbs his equilibrium, are as futile as advice to
lift himself by his boot-straps” (p. 15). The role of conflict and controversy as essential to
cognitive growth, learning and conceptual change has been widely espoused in the
literature. Piaget’s theory of equilibration postulates that the experiences that promote
cognitive development are those that not only incite curiosity but also create a state of
conflict that the individual seeks to resolve (Piaget, 1964). Similarly, Kohlberg (1969),
whose stages of moral development were based on Piaget’s learning theory, believed that
movement from one stage to the next occurred as ones’ views were challenged through
the discussion of moral dilemmas with others. Schön (1983), a proponent of reflective
practice, described “reflection in action” as an intuitive process that involved developing
an awareness of a problem that could not be resolved through previously employed means, reframing the problem from a new perspective, and generating new hypotheses, which were subsequently tested in practice. Echoing themes in Dewey and Schön’s work, Mezirow (1998) also asserted that reflection followed a “disorienting experience” which led to the critique of previously held beliefs in the light of alternative explanations of experience.

**Relationship to Epistemic Assumptions**

An additional difference between critical and reflective thinking is the central role of epistemic assumptions in the internal logic used to resolve ill-structured problems. King and Kitchener (1994) argue that traditional attempts to define critical thinking based on skill sets involving basic logic and problem-solving fail to account for the differing worldviews that impact how individuals approach problem solving. According to cognitive theorists (King & Kitchener, 1994; Kuhn & Dean, 2004; Perry, 1970), the process of making judgments about ill-structured problems involves the construction of beliefs, which requires individuals to utilize underlying cognitive structures related to their understanding of the limits, certainty, and criteria for knowing. These underlying beliefs differentiate “authority-based thinkers” from reflective thinkers. The Reflective Judgment Model is based upon empirical observations of a distinct developmental progression in the epistemic assumptions and related reasoning strategies of learners as they become increasingly effective in dealing with uncertainty. Figure 1 depicts the relationship between epistemic assumptions, uncertainty, and problem-solving strategies used when individuals between stages 3 and 6 encounter an ill-structured problem.
Figure 1. Epistemic Assumptions and Ill-Structured Problem Resolution

Assumptions About Knowledge

Pre-reflective
- Knowledge is certain and comes from authority
  - Problem is perceived as well-structured;
    - **certainty**
      - Solution based upon expert knowledge

Quasi-reflective
- Knowledge is uncertain and based on personal experience/opinion
  - Problem perceived as ill structured;
    - **ambivalence**
      - Solution based on opinion/experience
      - Solution based on context

Reflective
- Knowledge is constructed based on the best available evidence
  - Problem perceived as ill structured
    - **perplexity**
      - Solution based on comparison of evidence and opinion

Approach to problem-solving

3. Find correct answer
4. Find support for personal opinion/beliefs
5. Consider all perspectives
6. Examine evidence to come to well-supported conclusions
Reflective Judgment Model

Theoretical Foundation

King and Kitchener’s Reflective Judgment Model (RJM) is grounded in the cognitive developmental theories of Piaget (1964) and Kohlberg (1969) as well as the original work of Dewey (1933) on reflective thought, and Perry’s (1970) research on the link between the epistemologies and cognitive development of college students. The model was also influenced by Fischer’s skill theory, which identified seven stages that describe individual’s ability to deal with abstractions between the ages of 3 and 30.

King and Kitchener (1994) discovered consistent patterns that revealed an internal logic to the way that individuals approached complex problems using an interview protocol with trained interviewers and raters. While Perry’s scheme described nine epistemic positions, King and Kitchener’s model involves a seven-stage developmental progression of epistemic assumptions as individuals become increasingly able to deal with uncertainty, evaluate knowledge claims, and justify their beliefs and conclusions. The stages are sequential and hierarchical, meaning that previous stages provide the foundation for subsequent ones. Stages 2 and 3 are considered the pre-reflective stages, while 4 and 5 are considered quasi-reflective stages, and 6 and 7 describe true reflective judgment.

Influenced by Fischer’s skill theory (1984; 2002), King and Kitchener describe the model as a complex stage model, meaning that the stages are not necessarily static but represent the range of cognitive complexity of which a person is capable. According to Fischer (1984), the environment in which the skill is required influences the level of skill
a person demonstrates. Environments that provide support such as prompts, feedback, and opportunities to practice elicit the person’s optimal level, while those that do not elicit the functional level. The optimal level represents the “upper limit” of the person’s capacity; while the “functional level” represents the individual’s “everyday reasoning” or the stage at which the individual functions without contextual support. Based on a complex stage model, growth in reflective thinking occurs in waves, with the person functioning in a range of thinking, often spanning two adjacent stages, and rarely, three. Growth spurts, characterized by inconsistent use of the stage based on the level of support provided, are common.

Although the model has been extensively tested in the United States, and found to be consistent across cultures and ethnicities, King and Kitchener do not make any claims as to its universality. In the only reported testing of its use abroad among German university students, the findings were consistent with patterns observed in the U.S.
Table 1.

*Summary of the Reflective Judgment Model Stages (King & Kitchener, 1994, pp.14-16)*

<table>
<thead>
<tr>
<th>Stage</th>
<th>View of Knowledge</th>
<th>Source of Knowledge</th>
<th>Justification of Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Absolutely certain but may not be immediately available</td>
<td>Direct observation or claims of authorities</td>
<td>Unexamined or justified based on direct observations or information from authorities; issues are assumed to have a right answer</td>
</tr>
<tr>
<td>3</td>
<td>Absolutely certain or temporarily uncertain</td>
<td>Authorities in some areas; through personal beliefs when knowledge is uncertain</td>
<td>Information from authorities or personal opinion</td>
</tr>
<tr>
<td>4</td>
<td>Uncertain and ambiguous due to situational variables – idiosyncratic to the individual</td>
<td>Own and others’ biases, data, logic</td>
<td>Personal or situational variables, unevaluated beliefs, anecdotal evidence; confirmatory bias</td>
</tr>
<tr>
<td>5</td>
<td>Contextual and subjective, open to interpretation</td>
<td>Interpretations of evidence, events, or issues</td>
<td>Rules of inquiry within a particular context or context-specific interpretations of evidence</td>
</tr>
<tr>
<td>6</td>
<td>Constructed into individual conclusions based on information from a variety of sources</td>
<td>Personal assessment of evidence or evaluations of opinions of experts</td>
<td>Rules of inquiry, comparing evidence and evaluating options from various perspectives, evaluating views of experts</td>
</tr>
<tr>
<td>7</td>
<td>Tentatively certain and based on reasonable inquiry; solutions are constructed and their adequacy can be evaluated and revised</td>
<td>Critical inquiry or synthesis; re-evaluated when new evidence, perspectives or tools of inquiry become available</td>
<td>Evaluating, re-evaluating, and integrating evidence and arguments from multiple perspectives, more or less reasonable conjectures about the reality of the world based on available evidence</td>
</tr>
</tbody>
</table>
Research on the Reflective Judgment Model

Extensive research efforts, including both cross-sectional and longitudinal studies, have addressed the validity of the Reflective judgment Model as a distinctive construct, the sequential nature of the stages, and group differences and similarities in Reflective Judgment scores based on gender, ethnicity, educational level and age (King & Kitchener, 1994). The Reflective Judgment Interview (RJI) was the primary vehicle used to research the validity of the Reflective Judgment Model and to inform theory development. Over 1700 people of all ages and educational levels from high school to graduate students, as well as non-student adults completed the Reflective Judgment Interview in various cross sectional studies over a 20-year period. See Appendix A for the interview protocol.

Distinctive construct. Reflective Judgment has been differentiated from similar constructs, such as critical thinking, intelligence, or scholastic aptitude by its unique relationship to the resolution of ill-structured problems. Critical thinking is necessary but insufficient for the development of reflective judgment (Brabeck, 1980). Braback compared critical thinking skills as measured by the Watson-Glaser Critical Thinking Appraisal (WGCTA) with scores on the RJI. She reported that 1) reflective judgment levels increased with education level when critical thinking scores were held constant; 2) high critical thinking subjects outperformed low critical thinking subjects on the RJI; 3) however, while low critical thinking subjects were homogeneously low in RJI levels, high critical thinking subjects had a greater degree of variability on RJI scores. King, Wood, and Mines (1990) also examined the relationship between scores on two critical
thinking measures, the WGCTA and the Cornell Critical Thinking Test (CCTT) and RJI scores. They found that educational level differences could be accounted for by academic aptitude for both critical thinking measures, but not for the RJI.

Reflective Judgment has also been differentiated from intelligence or scholastic aptitude. Correlations between RJI scores and tests frequently used to assess intelligence based on verbal reasoning (Concept Mastery Test, WISC-R, or WAIS-R) have been low to moderate in various studies, ranging from .37 to .55 (King & Kitchener, 1994). Correlations between scores on the RJI and measures of scholastic aptitude such as the SAT or ACT have been lower, ranging between -.17 for the composite SAT to .26 for the composite ACT (King & Kitchener, 1994). These low to moderate correlations indicate that reflective judgment is related to but distinctive from intelligence, and only minimally related to academic aptitude.

_Developmental sequence._ The findings of numerous longitudinal studies provide evidence that the RJM describes a clear developmental sequence that is organized and hierarchical. Several longitudinal studies were completed by King & Kitchener to validate the developmental sequence, including a 10 year longitudinal study of a cohort of 80 individuals and another of 120 individuals, the majority of whom were involved in formal education (2004). Seven other longitudinal studies reviewed involved an additional 180 individuals who were evaluated over one to four years. The most significant finding is a persistent pattern of growth over longer periods, or stability between testings in shorter periods, indicating the gradual emergence of reflective
thinking between adolescence and early adulthood (King & Kitchener, 1994). Please refer to Appendix B for an overview of the longitudinal studies.

Age/educational level. King and Kitchener (1994) reviewed 25 studies involving over 1500 respondents from geographic areas across the United States to determine whether the Reflective Judgment Model was sensitive to educational differences. The results indicated that students’ ability to reason reflectively increased slowly but steadily from high school (M=3.2) to the first year of college (M=3.6) and showed continued growth in the senior year of college (M=4.0).

Graduate students across studies consistently earned the highest RJI scores of any group tested, indicating that their epistemic assumptions were the most consistent with reflective thinking (King & Kitchener, 2004). The highest scores have been reported for advanced doctoral students (M=5.86). Across studies they scored nearly three quarters of a stage higher (M=5.3) than beginning graduate students (M=4.6), who scored a full stage higher than beginning undergraduates did.

King and Kitchener (1994) also examined the relationship between age and RJI scores for all individuals who had been tested one or more times in the ten-year longitudinal study. The modal scores of each age grouping increased predictably, indicating a strong linear relationship between age and the RJM stages. The modal scores of the majority of participants ages 36 or older were at Stage 6 or 7, which are the highest stages of reflective thinking. In another study involving 156 students, no Stage 6 reasoning appeared before age 22 (Kitchener, Lynch, Fischer, & Wood, 1993). These findings appear to be confounded with education, however, since most of the participants
in both the longitudinal and cross-sectional studies, were involved in educational pursuits. Notably, in a separate analysis including data from six studies and 191 participants, the overall mean for adults without college degrees was 3.6, while those with college degree had an overall mean of 4.29.

Gender. Although, research has suggested that men and women reason differently (Baxter Magolda, 1990), evaluation of RJI scores by gender are inconclusive regarding differential performance based on gender. In reviewing 14 cross-sectional studies, King and Kitchener (1994) found that 7 of the 14 had no significant findings and the others had mixed outcomes. In six studies, men outperformed women, in the last there was a class by gender interaction favoring women. In the 10-year longitudinal study (King & Kitchener, 1994), no significant differences were found based on gender in 1977 and 1979, but the results approached significance in 1983 and 1987, with men scoring slightly higher than women. The results were subsequently analyzed for differences based on educational attainment. They reported that while 47% of the men had attained post-baccalaureate degrees by 1987 only 15% of the women had. Given the fact that educational level has been shown to be related to RJI scores, they speculated that the differences in gender noted may be a function of educational level.

King and Kitchener (2002) found differences based on the collective results of studies using the RCI, with women scoring slightly higher. Thomson (1995) noted a slight gender effect favoring women on the Reflective Thinking Appraisal, a paper and pencil precursor to the RCI. The authors conclude that the results remain inconclusive based on the level of inconsistency and the wide variety of sampling strategies used.
Race/Ethnicity. Because the RJM model has been almost exclusively tested in the United States, King and Kitchener (1994; 2002) do not make any claims regarding the universality of the model. One study that tested the model among 48 German university students, found results consistent with those of American university students, suggesting the possibility that the sequence may not be simply a function of academic socialization in the United States. An evaluation across studies of the impact of race and ethnicity upon reflective judgment has indicated that both RJI and RCI scores remain consistent across ethnicities and cultures in the U.S. (King & Kitchener, 2002). A cross-sectional study comparing Euro-Americans to African American college students found no significant differences (King & Kitchener, 2002), and a study examining RJ scores among Latinos found a consistent developmental pattern on reflective judgment scores (Samson, 2000). King and Kitchener (2002) found consistent scores on the RCI across ethnicities after controlling for ACT composite scores.

Time between testing. Although findings support the correlation between educational experience and the development of RJ, the ability of reflective judgment measures to detect differences resulting from educational interventions remains dubious. King and Kitchener (1994) noted that the amount of change in RJI scores appeared to be strongly related to the amount of time between testing. The largest increases were found in the ten year longitudinal study for high school students and the smallest were found in studies of only three or four months’ duration.

According to Wood and Kadrash (Wood & Kadrash, 2002), research designs investigating shorter education intervals require larger sample sizes in order to detect
differences. They argue that while educational interventions may be effective in developing epistemology, the effect size is likely to be very small, given the fact that changes over a two-year period from the freshman to junior year are modest.

In spite of these cautions, a few studies have found gains in reflective thinking following educational interventions. Thomson (1995) found significant differences between experimental and control groups using the Reflective Thinking Appraisal (RTA) as a pre and post test measure of reflective thinking in a series of natural science core course. The experimental courses used specific pedagogical strategies recommended by Kitchener (1994) to increase the reflective thinking of students. Although statistically significant, the gains were modest (M=4.55 to M=4.87), reflecting an increase of less than a quarter of a stage. Nevertheless, the post-test scores positioned the students at the higher range of Stage 4 thinking which is meaningful from a developmental perspective.

Kronholm (1996) developed an instructional model, called the Reflective Judgment Developmental Instruction Model, to facilitate cognitive growth in undergraduate students. Students exposed to the intervention gained .296 of a Reflective Judgment stage over the course of a semester. This change, though small, was significant when compared to the control group. However, Wood and Kadrash (2002) noted that when they compared pre-test scores between the control and experimental groups, the experimental group had lower baseline scores. On retesting, the scores were comparable. He speculates that the nonequivalence of the two groups at pretest makes it unclear whether the change may have been a result of a growth spurt in the experimental group, or a direct result of the intervention.
Discipline. King, Wood, and Mines (1990) examined disciplinary differences in RJI scores among graduate students. They found that students in the social sciences scored significantly higher than those in other disciplines, including the mathematical sciences and medical students. They speculated that this difference may have been a result of the emphasis on ill-structured problems in the social sciences and encouraged more research into strategies for structuring graduate study to better prepare students to make judgments about complex problems. These differences were not observed for undergraduate students.

After searching several databases including Social Work Abstract Plus, Social Sciences Full Text, SocIndex and Proquest Dissertations, no publications were located in social work professional literature that referred to or utilized the Reflective Judgment Model. The RJM has been used to assess reflective thinking in numerous disciplines including graduate psychology students (Owen, 2005), music education students (Bailey, 2000), educational leadership students (MacDonald, 2003), dental students (Boyd, 2005) and nursing students (Pittman, 2006).

Assessing Reflective Judgment

According to the South Carolina Higher Education Assessment Network (1996), no single assessment instrument measures the construct in its entirety. They conclude that it is essential that groups determine their own definition for critical thinking and then look for instruments that best match that definition and the instructional methods used. In addition, they recommend that at least three different types of critical thinking indicators should be used to assess outcomes before making decisions about learning and teaching.
A critical aspect of reflective thinking assessment is the evaluation of proposed measures to determine whether they feature well-structured problems, ill-structured problems, or both (King & Kitchener, 1994). After reviewing the most widely used instruments, King and Kitchener (1994) concluded that the majority of frequently used and validated measures are unsuited for measuring reflective thinking because they rely on well-structured problems, or alternately, treat ill-structured problems as though they were well-structured by indicating certain solutions are absolutely correct.

*Reflective Judgment Interview.* The Reflective Judgment Interview was originally used primarily as a vehicle for theory development; however, as educators learned of the Reflective Judgment model, numerous institutions used it as a method of assessing reflective judgment. The RJI required trained and certified interviewers who asked participants four open-ended questions regarding controversial problems. The ill-structured problems used were based on current issues such as the accuracy of new reporting, the safety of chemical additives to food, the building of the Egyptian pyramids, the origins of man, the nature of alcoholism, and immigration policy.

Follow up questions ascertained the persons’ views about knowledge by asking how they arrived at their point of view, the certainty with which they held that view, the logic by which they explained disagreements between experts on the topic, and whether those who disagreed were necessarily wrong or right. Trained raters assigned two scores for each dilemma, representing the participant’s dominant and subdominant stage. Occasionally, three stages were exhibited. The scores were then weighted and an overall score calculated. See Appendix A for the interview protocol.
Fischer’s theory (1984) that individuals are capable of demonstrating a range of thinking based on the level of support in their environment was tested using a Prototypic Reflective Judgment Interview. After completing the RJI, participants read prototypical responses by prior respondents to the RJI at each level of the model. Trained interviewers asked participants to respond to a series of questions that served to direct their attention to key elements of the statements, and to explain the statements in their own words. The participants were prompted to consider the various statements prior to the next testing, which occurred within two weeks. The finding that participants scored higher on the PRJI than on the RJI supported the premise that individuals are capable of functioning at higher levels when provided with contextual support. However, an age-related ceiling was observed, which suggested that once the optimal level was reached, participants could not exceed their developmental range even when support was provided.

The validity and reliability of the Reflective Judgment Interview were consistently high across studies. According to a report compiled by the National Postsecondary Education Cooperative (2000), internal consistency for the RJI ranged from .75 to .96 across 33 studies. The inter-rater reliability of the interview was reported to be .97 and the more stringent rater agreement ranged from .76 to .90. However, the RJI was impractical for large-scale use as it involved certified interviewers and raters. The training required for certification to administer the RJI is no longer available. The original interview format was replaced by the Reasoning about Current Issues Test (RCI), following a series of efforts to create an assessment measure for reflective judgment that was amenable to large-scale use. A sample of a previous version of the RCI is included.
in Appendix C. Although it does not include any of the questions used in the current study, it provides an example of the format and the root questions used to elicit information regarding students’ epistemic assumptions. Because the measure is under revision, administrators preferred not to have a sample of the current instrument included in the Appendices of this study.

**Reasoning about Current Issues Test.** The Reasoning about Current Issues Test (RCI) was developed in response to concerns about the feasibility of using the Reflective Judgment Interview (RJI) for institutional assessment. The RJI was expensive to administer as it involved one-hour individual interviews of students by trained interviewers and trained raters to score results. In contrast, the online instrument takes approximately 30 to 45 minutes to administer and can be taken from any computer with access to the internet, making it suitable for institutional use.

The RCI is an objectively scored instrument modeled after the structure of the Defining Issues Test (DIT) developed by Rest (1979) to assess moral judgment. It evolved over a period of years as a product of numerous attempts to develop paper and pencil measures which were amenable to large scale use which were ultimately refined to the current online format (Wood& Kadrash, 2002).

There are two different types of measures used to assess cognitive development. Those that use production tasks, such as the RJI, require the participant to produce a response spontaneously based on his or her own repertoire of skills. The second type of measure uses recognition tasks, which involve presenting the individual with a series of response options (Kitchener & Fischer, 1990). Production tasks are usually required in
interviews and essay formats, while recognition tasks are common in multiple-choice instruments. While assessment measures employing production tasks yield richer, more complex information, recognition tasks are not as demanding of the participant, are less expensive and are easier to administer and score. The content of the RCI, which uses recognition tasks, is modeled after the Reflective Judgment Interview, which employed production tasks.

Correlations between the RJI and the RCI have been in the low .40s (King, Lindsay, & Brown) suggesting it measures an aspect of the construct originally measured by the RJI (Wood et al., 2002). This may be due in part to the differences between production tasks and recognitions tasks, which place different types of demands on learners. Recognition tasks provide a higher level of support for reflective thinking and therefore are assumed to tap respondent’s optimal rather than functional levels of Reflective Judgment. Consistent with this assumption, RCI scores have been found to be approximately one stage higher than those found on the RJI (King & Kitchener, 2004).

A meta-analysis of all the data available on studies that used the RCI yielded findings similar to those of previous studies using the RJI (Kitchener, Wood, & Jensen, 2002 as cited in King et al., n.d.). The sample of 9,477 students enrolled in undergraduate, graduate and professional programs at seven different institutions found significant differences on RCI scores by educational level, even when prior academic achievement and academic aptitude were controlled. Significant differences were noted between college freshman, sophomores, and seniors. Graduate students scored higher than did college students. No significant differences were found based on race or
ethnicity. These findings indicate that the RCI adequately measures changes in Reflective Judgment that have been consistently associated with participation in educational programs.

**Summary**

To summarize, findings from an extensive number and variety of studies collectively validate the Reflective Judgment Model as a distinct construct that represents an organized, sequential, and hierarchical developmental sequence of cognitive complexity. The development of reflective thinking, which is based on epistemic assumptions, appears to be highly correlated with educational experience, but only modestly related to academic aptitude, and verbal ability. It correlates positively with age, but educational level is confounded with this variable. The Reflective Judgment Model is reliable and consistent across gender and ethnicity. The RCI, which has been developed based on the original Reflective Judgment Interview used to validate the model, has been shown to adequately represent changes in reflective thinking that occur as individuals become better able to reason through ill-structured problems.

*Promoting Reflective Thinking*

Although educators appear to agree universally that developing the reasoning skills of students is the single most critical outcome of higher learning, students’ scores over a period of twenty-five years on the Reflective Judgment Model indicate that college seniors and beginning graduate students are functioning at the quasi-reflective thinking stages. At this level, students are unable to use evidence consistently to support their
beliefs and conclusions and are discomfited by the ambiguity of ill-structured problems. Alternate perspectives are often considered equally valid claims to truth as they merely represent the opinions of those who espouse them. In addition, students reasoning at this level are unable to evaluate their own judgments or develop coherent arguments to support their positions.

These findings point to the urgent need for educators to devise intentional strategies for increasing students’ ability to demonstrate reflective thinking. The current focus of the social work profession on evidence-based practice places additional demands on social work students to use reflective judgment to draw conclusions about “best practices” in a multiplicity of contexts. Social work educators must acknowledge the developmental stage in which students currently function, while devising strategies to foster the skills that will be required of them as professionals in a highly demanding and complex field.

King and Kitchener (1994) make a number of recommendations for fostering reflective judgment in college students. They stress the importance of expressing respect for students regardless of the cognitive level at which they are functioning and assessing their current stage as a beginning place for facilitating further development. Recommendations include familiarizing students with ill-structured problems within their own discipline, creating multiple opportunities for students to consider alternate perspectives, and encouraging students to make well-reasoned judgments and explain their own points of view. They suggest grounding educational experiences emotionally as
well as cognitively. Finally, students should be challenged within an atmosphere of ample support in order to reach their optimal levels of reflective thinking.

Case-based instruction seems especially well suited to the implementation of these recommendations. Grounded in constructivist theory, the case method is based on the assumption that students are co-constructors of meaning and that it is important to approach teaching in an egalitarian and respectful way (Webb et al., 2005). By using decision cases, students are familiarized with ill-structured problems within the discipline and multiple opportunities are created for students to examine different points of view, make judgments about what they believe and justify their conclusions. Class discussions involving student-to-student and student-to-professor interactions provide both challenges and supports that are grounded emotionally and cognitively. Finally, decision cases regarding controversial issues involve students emotionally and intellectually as they provoke uncertainty regarding ethical and moral decision-making. Case discussions are often emotionally charged as students defend their perspectives and are confronted by the points of view of others. The following section will examine the use of case-based instruction as a method for fostering reflective thinking.

*Case Method Instruction*

Numerous versions of the original Harvard case method evolved as its practice was adapted to suit the purposes of various disciplines. At its core, the case method involves presenting students with a realistic case situation which students are required to analyze critically, identifying relevant issues, recognizing assumptions made, applying the knowledge, skills, and values of the profession, reflecting on ethical decision-making,
and proposing alternative solutions to problems (Lundeberg et al., 1999). It differs significantly from lecture-based pedagogy in several ways including a) its primary objectives, b) the role of the professor as facilitator rather than information giver, and c) the use of inductive methods rather than the presentation of theoretical frameworks (Webb et al., 2005). A fundamental goal of case-based instruction is to facilitate discussion between students (Barnes, Christensen, & Hansen, 1994). In recent years, the method has also been adapted successfully for use in online environments (Gill, 2005; Webb et al., 2005).

Interest in case-based instruction for the preparation of teachers has greatly increased in the last 20 years, resulting in a significant number of publications regarding its use in pre-service teacher preparation (Barnett, Tyson, & San Francisco, 1999; Harrington, 1995; Harrington, Quinn-Leering, & Hodson, 1996; Harrington, 1999; Lundeberg et al., 1999; Wassermann, 1994). Proponents of the case method in teacher preparation emphasize the role of teachers as decision makers and argue that traditional curricula do not train them for the complex realities of the classroom. Leading advocates promote the use of decision cases as a method of developing critical thinking and problem-solving skills (Garvin, 2003; Grossman, 1994; Lundeberg & Fawver, 1994; Lundeberg et al., 1999; McBride, Xiang, & Wittenburg, 2002; McDade, 1995; Wood & Anderson, 2001). The parallel between the preparation needs of teachers and social workers as complex problem solvers and autonomous decision makers is clear. The use of the case method in teacher education most closely mirrors that which has been
suggested in the social work literature, both in its purposes and methodology (Jones, 2003; Jones, 2005; Wolfer & Miller-Cribbs, 2005; Wolfer et al., 2001).

History of Case Based Instruction in Social Work

Cases have been used in the training of social workers since the inception of the profession (Cossom, 1991); however they have primarily been used primarily to support traditional educational methods. Towle (1954; 1958) advocated the use of the case method in the 1950s as an effective method for the training of professionals, including social workers. Strategies and rationale for applying the method to the training of psychiatric social workers were promoted at the 1957 NASW “Institute on the Use of the Case Method” (1958). In spite of early signs of interest in the case method, the profession did not maintain its early interest in the case method or embrace it as a primary instructional method as readily as other disciplines.

Nevertheless, social work has a long history of using cases as instructional tools to facilitate transfer of learning from the classroom to the field (Towle, 1954, 1958). Cases have been used in social work education to illustrate various stages of the problem-solving process, to expose students to the challenges of working with diverse populations, to describe social work intervention methods, introduce ethical dilemmas, simulate practice situations, and to conceptualize practice in a variety of contexts (Gray et al., 2006; Gray & Gibbons, 2007; Haulotte & Kretzschmar, 2001; Jones, 2005; LeCroy, 1999; Rivas & Hull, 2004; Scales et al., 2002; Scales & Wolfer, 2006; Wells, 1998; Wolfer et al., 2001; Wolfer & Gray, 2007).
Merseth (1996) identified three different types of cases used to integrate practice with learning. These include the exemplar case, the reflection case, and the decision case. The majority of cases utilized in social work education would best be described as exemplar cases as they are used “to reflect the realities encountered” by social workers (Fauri, Wernet, & Netting, 2000). This type of case illustrates a concept or the successful resolution of a practice dilemma (Lundeberg, 1999). These cases are commonly used in social work education to describe a practitioner’s encounter with a social work problem from engagement with the client system to its resolution. Other cases may be used to stimulate reflection upon the actions taken by the professional in the case and engage students experientially in considering the consequences and implications of professional practice decisions in real world situations.

The final type of case used is the decision case, which may also be referred to as a teaching case (Jones, 2003) or a dilemma-based case (Lundeberg, 1999). This type of case presents the learner with a problem to be solved rather than an example of ideal practice (Cossom, 1991; Graham & Cline, 1980; Jones, 2003; Lundeberg et al., 1999). While exemplar cases demonstrate sound practice in a variety of contexts, decision cases induce students to engage in problem-solving, analysis, and ethical decision-making.

Herreid (as cited in Jones 2003) describes a good case as one that includes a controversial issue, generates empathy and authenticity by using direct quotations; has direct relevance to the reader, can be generalized to other situations, and encourages decision making. An effective teaching case does not suggest an obvious solution to the problem it presents (Lynn, 1999) and is presented in a narrative account that is
sufficiently detailed, contextualized and complex to allow for multiple levels of analysis and interpretation (Levin, 1995).

Ill-structured cases encourage students to face the ambiguity of reality and to grapple with the consequences of their choices (Lundeberg, 1999). According to Barnes, Christensen, and Hansen (1994), dealing with specific situations forces the student to “confront the intractability of reality: an absence of needed information, the ever-present conflict of objectives, and the imbalance between needs and resources” (p. 47).

*Fostering Reflective Thinking through Case Method Instruction*

McDade (1995) links the use of decision cases directly to the development of critical thinking by creating opportunities for student to apply skills in analysis and decision making to realistic problems. She lists the following compelling arguments for the use of case method instruction to promote critical thinking.

1) It models critical thinking and provides a laboratory in which students can practice and advance their critical thinking skills.

2) It emphasizes the process of analyzing information.

3) It is contextually based; that is, students must understand contextual nuances and make references and analyses accordingly.

4) It challenges students to identify and challenge assumptions about situations and about their own beliefs.

5) It encourages students to imagine alternatives and explore theses for strengths and weaknesses.
6) It helps students to integrate learning by incorporating theory into practice and practice into theory.

7) It enables students to develop critical listening skills because listening to and understanding the nuances and diversity of the thinking process of others is as important as developing one’s own thinking.

8) It provides opportunities for students to develop and test theories about how people and organizations function.

9) It helps students to develop teamwork and collaborative learning as students work together in small groups and in classroom to solve the problems presented by the case with the best means possible to serve the most goals.

10) It helps students to experience, explore, and test alternative ways of thinking.

11) It facilitates the consideration of different perspectives as other students present ideas, analyses, and solutions that no one student may have thought of (p.10).

Each of these arguments for the development of critical thinking through case-based teaching supports *reflective* thinking as it relates to reasoning through ill-structured problems. All but the first two arguments for critical thinking assume that the problems encountered do not have a clear right or wrong answer, must be understood contextually, and can be interpreted from a variety of perspectives. Rather than searching for absolute
solutions, students are given opportunities to explore alternate perspectives and weigh the consequence and implications of proposed solutions. Luitgaarden (2009) provides a compelling argument for the need to emphasize stimulating the decision-making processes which experts use in real-life situations to prepare future practitioners for the inherent complexities of social work practice. He juxtaposes this against the current emphasis on evidence-based practice and rational decision making which assume a high degree of predictability, certainty, measurability, and redundancy among cues. The following section will review empirical studies that have examined the relationship between the use of the case method and the development of critical and reflective thinking.

Research on the Case Method and Reflective Thinking

Although empirical research exploring the relationship between case method strategies and critical or reflective thinking is limited, a number of educators have evaluated various aspects of reflective thinking in students enrolled in case-based courses. Content analysis procedures using the products of the case-based course emerge as the strongest indicator of changes in reflective reasoning. Only one study utilized the Reflective Judgment Model itself to define and assess reflective thinking.

Case Analysis as a Method of Gauging Reflective Thought

Harrington, Quinn-Leering, and Hodson (1996) examined the degree to which case-based instruction could be used to gauge the development of critical reflection in student teachers. Based on an extensive review of the literature on reflective thought, the
authors operationalized “critical reflection” as 1) recognizing and acknowledging the validity in other perspectives (open-mindedness), 2) considering the moral and ethical consequences of choices (responsibility), and 3) identifying and clarifying limitations in one’s assumptions when making decisions (whole-heartedness). Although the authors did not specifically refer to the Reflective Judgment Model, it is of interest that the students’ perspectives mirrored the three broad categories of reflective thinking. Examination of students’ case analyses reflected increasing cognitive complexity as students moved from a focus on authority and assumptions about the certainty of knowledge, to a greater acceptance of ambiguity, a willingness to consider various perspectives, and responsibility for how knowledge is used to make decisions.

Case Analysis and Increases in Reflective Thinking

Harrington (1995) assessed the first and final cases analyses of 26 college juniors and seniors enrolled in an education course based on the way they framed problems, identified and grounded alternative perspectives on the case, substantiated solutions, identified consequences of action, and demonstrated an awareness of the limitations in their own thinking. Results indicated significant increases in students’ ability to frame problems on a grounded rationale, to provide evidence to warrant solutions, to consider alternative perspectives and to demonstrate reflectiveness.

Lundeberg and Fawver (1994) evaluated the extent to which a case-based course impacted the ability of student teachers to: 1) identify issues and generate alternative approaches (flexibility), 2) to consider various perspectives (perspective-taking), 3) to apply theories to situated problems (connectedness), and 4) to explain how particular
theoretical principles either confirmed or conflicted with their own beliefs (meaningfulness). Three sources of data were collected from students: written analyses of a specific case at the beginning and end of the semester, a reflection on changes between their first and later written case analysis, and self-reported written explanation of changes in their beliefs. Based on this data, the authors reported significant improvement on all measures of cognitive growth.

Self-reported changes in students’ beliefs were also examined qualitatively using content analysis procedures. Students’ statements indicate that they became more “constructivist” in their beliefs through participation in the course. The researchers equated becoming constructivist in their beliefs in this context with becoming better able to reason reflectively.

Using a mixed-methods approach, Allen (1995) compared the reflective thinking of students in an educational psychology class using decision cases to that of students in a traditionally taught educational psychology course. The most significant finding was that students enrolled in the case-study class learned significantly more content than those enrolled in more traditional formats. Although no statistically significant differences were noted between the groups on the Defining Issues Test (Rest, 1979), a measure of moral reasoning and decision-making ability, students in the case-based courses made the greatest gains. The author noted that only 25% of the class had been devoted to case discussion and speculated that a greater focus on case analysis may have resulted in greater gains. However, based on earlier observations regarding the fact that cognitive
development occurs relatively slowly, the length of the intervention may have been insufficient to assess changes in reasoning.

Bailey (2000) used the Reflective Judgment Model to interpret students’ responses to cases and case writings in a senior level music education course. The researcher observed that reflective thinking varied depending on the student, the case itself and the context in which the case was presented. Cases that were based on real classroom situations, required resolution of potential problems, and challenged students’ preconceived ideas about teaching were the most effective in fostering reflective thought.

*Case Discussion as Integral to Fostering Reflective Thought*

According to a number of cognitive development theories (Kohlberg, 1969; Piaget, 1964), discussion of controversial issues serves as an important impetus for changes in student reasoning. Therefore, the case discussion in a case method course is integral to the changes realized in students’ reflective and critical thought. Gill (2005) highlights the fact that “a well-conducted case method discussion has an intensity and level of student involvement that few other teaching techniques can match” (p. 143).

Levin (1995) examined the importance of the case discussion in learning outcomes. Using qualitative and quantitative procedures, she compared the pre- and post-case analyses of students who engaged in case discussion with those who only wrote about the case. Results of a constant comparative analysis of students’ written products indicated important changes in thinking in the discussion group. Comparisons of the second case analysis revealed that beginning and student teachers’ thinking in the discussion-based course became clearer, more explicit, and better elaborated. Student
teachers also improved in their understanding of issues. Beginning teachers displayed an increase in their ability to reflect on their own teaching. In contrast, teachers in the comparison group at all three levels of experience raised no new issues, insights, or topics, and tended to summarize their original thinking.

An important finding in this study is that greater experience was associated with more complex, multi-dimensional analysis of the cases and the ability to be more reflective. However, the less experienced teachers appeared to profit the most from exposure to the case discussions, providing some preliminary indication that perhaps the cases and discussions provided inexperienced learners with necessary opportunities to develop “anticipatory schema” for dealing with real world complexities (Macaulay & Cree, 1999, p. 189). Limitations of this study include the small sample size, the lack of inter-rater reliability data on the holistic scoring rubric, and the fact that the subjects completed only two case analyses and one case discussion.

Impact of Case Discussion on Epistemology. Both Harrington (1995) and Levin (1995) attributed changes in student reasoning indicative of epistemological growth to participation in case discussions. Students thinking increased in cognitive complexity moving from a dichotomous, authority-based view of knowledge, to a more contextualized understanding and to increased responsibility for supporting decisions with evidence. Barnett and Tyson (1999) reported that math teachers engaged in case discussion shifted from viewing the source of knowledge as authority to greater autonomy.
Allen and Razvi (2006) examined students’ behaviors during case-study discussions, their levels of epistemological understanding, and their critical thinking dispositions. Based on Kuhn and Dean’s (2004) Levels of Epistemological Understanding, the authors evaluated the level of thinking demonstrated during case discussions by 19 undergraduate students enrolled in two educational psychology classes. Results indicated a general upward trend in all epistemological levels from the first case discussion to later discussion. Students offered opinions more frequently and supported their ideas with evidence and logical argument more often.

Limitations of this study included the small sample size and the fact that inter-rater reliability for the rubric was not established nor the validity of the model addressed. Ratings were established through consensus by the two authors. A further limitation addressed by the authors is that the level of students’ responses appeared to correspond to the number and level of the instructor’s questions. This study could be strengthened by also evaluating and comparing students’ individual case analyses. Individual case analysis would have been less subject to factors such as the amount of time the teacher engaged in instruction and explanation, the level of instructor questions, and the level of student participation.

*Case Method Research in Social Work Education*

In the last 10 years, there have been a limited number of publications regarding the use of the case method in social work education. The majority of these have focused on graduate school students. While several are theoretical, a number of the studies reviewed provided preliminary evidence of promising learning outcomes as a result of
case method instruction. Although reflective thinking has not been the specific focus of any of the studies, the development of critical thinking skills has been one learning outcome evaluated in most of the studies. These studies have numerous limitations as they are conducted in educational settings, without randomized samples, and by the instructors themselves. In addition, they used self-report measures, which may or may not provide accurate depictions of actual learning.

*The Case Method as a Model for Meeting Educational Objectives*

Wolfer, Freeman and Rhodes (2001) presented the development of a case-based MSW capstone course designed to facilitate application of theory to practice and collaborative work between micro and macro students. The authors noted two instructional challenges they faced: 1) fostering students’ application and critical thinking skills to prepare them to “think like practitioners” and 2) managing the anxiety of both faculty and students regarding the new methodology. They concluded that the case method of instruction was promising as “an effective vehicle for promoting and reinforcing critical thinking and problem-solving skills” (p. 169). Recommendations for its use included providing faculty with tangible support, having a committed cohort of faculty, developing multiple methods of evaluation, and taking proactive steps to manage student anxiety and resistance regarding unfamiliar teaching methods.

Jones (2003) encouraged case method instruction in graduate social work education as a way to assist collaborative work, demonstrate how power and control are shared in relationships, transfer knowledge from the classroom to the field, develop problem-solving and decision-making skills, and enable students to identify their own
biases regarding clients from diverse economic, racial, and ethnic backgrounds. He recommended the case method as a strategy for encouraging critical thinking, problem-solving, professional decision making, and oral and written communication in MSW students.

Wolfer and Gray (2007) recommended the use of decision cases as a strategy for helping students understand the relevance of policy to practice and involving students in policy advocacy. They underscore the challenge of helping “micro-oriented” students make the connections between policy and practice. The authors recommend that educators write decision cases based on local or state issues, which afford greater opportunities for direct student involvement. The analysis of these decision cases is used to enhance students’ analytical skills, political skills, interactional skills, and value-clarifying skills. They report positive student responses to a decision case written by faculty regarding an actual policy dilemma that was occurring in their state.

Gray, Wolfer and Maas (2006) recommended case method instruction as a strategy for energizing interest in community organizing and involving students in grass roots efforts. They suggest that using decision cases enables students to critically analyze community problems, develop appropriate solutions and develop self-awareness through collaborative work. They suggest that decision case teaching fits well with grass roots philosophy as a method for developing the leadership skills required to do grass roots organizing. These include listening, questioning, self-confidence, understanding motivations, problem-solving, and clear articulation of problems.
Assessing Perceived Learning Outcomes

An unpublished study completed by Wolfer and Miller-Cribbs (2005) described numerous measures used to provide multiple evaluative loops to assess learning outcomes for the capstone course described in Wolfer’s earlier publication (2001). A Case Method Learning Outcomes Scale (CMLO) was developed based on case method teaching literature and administered at mid-semester and end of semester. The instrument assessed students’ perception of their learning. Internal reliability analyses of the CMLO revealed Cronbach’s alpha indices of .94 at midsemester and .96 and end of semester.

Results indicated that students believed that they had significantly increased their competence in a number of targeted skills, including skills related to problem solving, decision making, and critical thinking as a result of participation in the course. Students’ ratings indicated statistically higher levels of self-awareness, metacognition, autonomy, and self-efficacy. Although based on student self-report, this research provides preliminary evidence of the efficacy of the case method in providing students with procedural as well as content knowledge.

Jones (2005) evaluated the effectiveness of the case method to help MSW students understand and apply mezzo and macro practice dimensions. Two cohorts of students (n=114) were evaluated using pre and posttest analysis on a 15-item measure used to assess students’ learning based on self-report. Internal consistency estimates for the 15-item measure was .72 (Cronbach’s alpha).

Students reported statistically significant increases in 13 of the 15 areas queried, including increases in their perceived ability to apply critical thinking skills to clinical
situations, integration of first and second-year content, and application of theory. Limitations include the fact that the findings are based upon student perception of their learning versus the actual demonstration of the learning through objective measures. Alternate explanations for the learning outcomes are also possible, as students were also enrolled in other courses and involved in the field as interns.

An unpublished study by Reitmeier and Wolfer (2007) approached the subject of student outcomes from a constructivist perspective. Using “idea writing,” a group exercise designed to inductively generate ideas and facilitate meaning making, 149 students were asked “what have you gained from analyzing and discussing the cases in [the case method course]?” Using content analysis procedures, the authors identified more than 45 learning outcomes, which were clustered into six categories: basic professional skills, personal dispositions, using prior knowledge, gaining new knowledge, professional use of self, and a variety of problem-solving skills. Of importance relative to this study was that students believed they were better able to identify problems and recognize situational complexity, realized that there was not only one solution to problems and that they were more likely to consider various perspectives and approaches to problems. They also indicated that they were better able to reflect and learn from insights gained and that they were increasingly able to think critically and independently, observing, assessing, analyzing, and synthesizing data. An important contribution of this study is that students were allowed to generate their own answers, adding depth to the previous findings. A limitation is that the results were based on self-report, and that objective measures were not used to validate students’ appraisal of the gains made.
Limitations of the Case Method

A number of authors have cautioned that the claims of the case method may be overstated (Lundeberg, Levin, & Harrington, 1999) and that the case method may not be suited to all learners (Allen & Razvi, 2006; Cossom, 1991; Ertmer, Newby, & MacDougall, 1996). The case method may challenge students excessively who are developmentally unable to accept ambiguity and uncertainty beyond their level of comfort. Cossom (1991) noted that it does not appeal to all students and therefore will not draw neutral responses. His survey of student satisfaction with case teaching compared to other methods found that 58% reported the method was “better” or “much better” than other methods, while 27% believed it was “worse” or “much worse.”

Some researchers have postulated that students’ level of cognitive development and self-regulation may affect their ability to benefit from the method. Ertmer et al. (1996) observed that case-based learning requires “a great deal of knowledge, effort, persistence and self-regulation” (p. 721). In a small, mixed-methods study involving nine students, they found that students with high levels of self-regulation (n=5) began with and maintained positive attitudes toward case-based instruction, while students with low self-regulation (n=4) questioned the value of cases and lacked confidence in their analyses. All students made gains, but those with high levels of self-regulation demonstrated greater ability to consider multiple perspectives and adopt process goals (Ertmer et al., 1996).

Results of research on the Reflective Judgment Model indicate a significant amount of diversity in the way that students reason through ill-structured problems. If
instructors are not prepared to accept students’ current level of cognitive development and use appropriate teaching strategies to foster reflective thought, students may become frustrated as demands exceed their current level of functioning. Instructors utilizing case method approaches must be sensitive to the epistemological limitations of students who have not yet developed the level of cognitive flexibility and complexity required to engage in reflective thought and tailor course requirement to require tasks that will foster necessary growth.

Summary

The review of the selected literature supports this research, which will seek to evaluate the extent to which case method teaching influences the reflective thinking of MSW students. In addition, the literature reviewed provides the following evidence for the need and significance of the proposed research: 1) the research reviewed corroborates the critical need for social work educators to develop evidence-based strategies to foster reflective thought in future practitioners; 2) a limited number of studies on the outcomes of the case method have reported positive effects on critical and reflective thinking; however, few have used objective measures of reflective thinking or comparison groups; 3) students’ ability to reason reflectively is related to their epistemic assumptions about the nature, source, and justification of knowledge claims; 4) the Reflective Judgment Model is an empirically validated model of reflective thinking that is sensitive to changes in cognitive complexity and epistemic assumptions; 5) the Reasoning about Current Issues Test is an adequate standardized measure for the assessment of reflective thought; 6) gender, race and ethnicity are not consistently related to scores on the RCI; however,
age and educational level have been consistently shown to be positively correlated with RCI scores; and 7) content analysis of student case analyses is an effective method for gauging changes in reflective thought as a result of an educational intervention.

This study addresses several gaps in social work educational literature. To date, the Reflective Judgment Model has not been used to assess the reflective thinking of social work students. The fact that social work primarily involves students in addressing problems that can be characterized as ill-structured problems makes this especially relevant. Although schools of social work are mandated to prepare students to apply critical thinking skills in the context of social work practice, empirical evidence to support the use of strategies for the achievement and assessment of this aim is lacking. Finally, the claims regarding the case method as an effective strategy for increasing reasoning skills related to social work practice merit investigation.
Chapter III

Methodology

This chapter describes the research design and methodology used to assess the effect of a case method course on the development of reflective judgment and reflective thinking skills in second-year MSW students. The chapter will first describe the hypotheses, define the variables examined, and provide an overview of the study’s design. The following sections describe the participants, the procedures used to recruit participants and collect data, and the instruments used to assess reflective judgment and reflective thinking skills. The final section addresses the data analysis strategies and the study’s limitations.

Hypotheses

The hypotheses for this study were developed based on the preceding review of the literature, which provides preliminary support for the efficacy of the case method in fostering reflective judgment and reflective thinking skills, and the use of the Reflective Judgment Model (King & Kitchener, 1994) to assess developmental changes in the epistemology that supports reflective judgment. The hypotheses are also supported by literature regarding the use of the Reasoning about Current Issues (RCI) Test (Wood et al., 2002) as a standardized measure to assess developmental growth in the levels of reflective judgment as defined by the Reflective Judgment Model. Finally, the literature
supports the efficacy of content analysis as a method for gauging progress in the development of reflective thinking by examining the problem-solving skills and approaches evident in students’ case analysis papers. This study examines the following hypotheses:

Hypothesis 1.1. Gender will not significantly influence RCI scores at pre- or posttest.

Hypothesis 1.2. Race/ethnicity will not significantly influence RCI scores at pre- or posttest.

Hypothesis 1.3. Age will significantly influence RCI scores at pre- and posttest.

Hypothesis 1.4. Students’ years of social work practice experience will significantly influence RCI scores at pre and posttest.

Hypothesis 2.1. MSW students engaged in a case method course will increase their reflective judgment scores on the RCI between pretest and posttest.

Hypothesis 2.2. MSW students engaged in a case method course will demonstrate greater increases on RCI posttest scores than those who are not engaged in a case method course.

Hypothesis 2.3. Gains in the reflective judgment scores of students engaged in a case method course will exceed increases that can be attributed to maturation or other educational experience.

Hypothesis 3.1. MSW students engaged in a case method course will demonstrate increased reflective thinking skills based on their scores on a customized rubric
designed to assess problem-solving skills related to the resolution of ill-structured problems.

Hypothesis 3.2. Students’ scores on the customized rubric will correlate positively with scores on the RCI.

Variables

*Independent Variables.* The primary independent variable for this study was group membership as defined by participation in the case method course. In addition, this study examined the influence of gender, race/ethnicity, age, and years of experience in social work practice on reflective thinking.

For the purposes of the current study, the case method was defined as a student-centered instructional approach involving “in depth class discussions based on detailed, open-ended accounts of actual practice situations… [which] require students to formulate problems and decide on potential courses of action” (Wolfer, 2006, p. 3). A subsequent section describes the specific methods used in the case method course which is the subject of the study.

*Dependent Variables.* This study assessed changes in reflective thinking following participation in a case method course. Two related aspects of reflective thinking are assessed in this study: reflective judgment and the reflective thinking skills required to engage in reflective judgment. Reflective judgment (RJ) (King & Kitchener, 1994) is a term used by the authors of the Reflective Judgment Model (RJM) to describe the epistemic cognition that supports the recognition of enduring uncertainty typified by

The Reflective Judgment Model describes a developmental continuum based upon epistemic assumptions regarding the source of knowledge and the justification of knowledge claims. Optimal levels of RJ are associated with increased cognitive complexity and the effective justification of beliefs and conclusions. Assumptions that knowledge is actively constructed, understood in relationship to context, and that some knowledge claims are more credible than others, undergird the strategies adopted by reflective thinkers (Wood, 2000).

In summary, Reflective Judgment requires:

- the recognition of uncertainty or perplexity regarding the solution of a real problem;
- the assumption that such problems can be resolved by a process of reasonable inquiry for constructing a well-informed understanding of the problem;
- the assumption that beliefs and conclusions are justified by using evidence and arguments which can be defended as representing the most complete, most compelling, or most plausible understanding of an issue based on the current evidence; and
- the perspective that judgments must be grounded in relevant data, and evaluated by suitable criteria.
The RJM postulates that reflective thinking can only be assessed as it relates to the resolution of ill-structured problems. Learners who hold epistemic assumptions consistent with RJ will show evidence of problem-resolution strategies that facilitate the consideration of knowledge claims in light of the evidence that support those claims to determine their validity. This study uses Wolcott’s Steps for Better Thinking (Wolcott & Lynch, 1997) to operationalize the thinking skills associated with reflective judgment strategies. Reflective thinkers will develop strategies to construct knowledge, based on an objective process of critical inquiry. Skills that demonstrate evidence of this approach to problem resolution will include:

1) The ability to identify and use relevant information while acknowledging uncertainties;

2) The ability to integrate multiple perspectives and clarify assumptions;

3) The ability to qualitatively interpret information and create a meaningful organization;

4) The ability to use guidelines or principles to judge objectively across the various options;

5) The ability to implement and communicate conclusions for the setting and audience;

6) The ability to use evidence/information effectively to justify conclusions and assumptions;

7) The ability to acknowledge and monitor solution limitations through next steps.
Overview of the Study’s Design

This study employed mixed methodology to assess the effect of a case method course on the reflective thinking of MSW students. A quasi-experimental pre-post nonequivalent control group design was utilized to explore whether students who participated in a case method course demonstrated greater increases in reflective judgment over the course of a semester than those who did not. Both the intervention and comparison groups participated in a pre and posttest measure using the Reasoning about Current Issues Test (RCI), which is an online, standardized measure that has been widely used to assess reflective judgment (Wood et al., 2002).

Concurrently, students enrolled in the case method course submitted their initial and final decision case papers to the researcher. Content analysis procedures facilitated the assessment of these primary products of the case method course for evidence of the skills associated with reflective judgment. Although content analysis is a qualitative method, it overlaps with quantitative methods in that it produces data that can be analyzed statistically (Schutt, 2004). The results of the content analysis were used for both quantitative and qualitative analysis. Figure 2 below describes the timeline for data collection of the qualitative and quantitative measures.
Description of Setting

This study was conducted at a large metropolitan university in the southeast, which has a well-established school of social work with a national reputation for excellence in social work education. This setting was selected because it is one of the few...
schools of social work in the United States that is currently using a case method approach systematically in its MSW curriculum. In addition, faculty have contributed to the literature on the use of case method teaching in social work (Gray et al., 2006; Scales et al., 2002; Scales & Wolfer, 2006; Wolfer, 2006; Wolfer et al., 2001).

During the final semester of their advanced year, social work students are required to take a capstone course that utilizes a case method approach to facilitate the integration of micro and macro content, theory and practice, and all previous learning in the MSW curriculum. Although traditional social work education commonly utilizes illustrative or exemplar cases to meet curricular goals, this capstone course uses decision cases as the primary vehicle of instruction. In contrast to traditional cases, decision cases present open-ended practice dilemmas to elicit problem formulation and problem-solving. The primary instructional method in the course is the discussion of decision cases featuring real-world problems that social workers face in the course of practice at the micro, mezzo and macro levels. An additional factor in the selection of this setting was the availability of a large cohort of MSW students, providing a favorable opportunity to secure an adequate sample size for the methods proposed. The school of social work at the university has an average enrollment of 300 MSW students, including approximately 125 foundation year students and 200 advanced year students (Council on Social Work Education, 2007b).

Description of Case Method Course

The capstone course was developed in response to a survey of social service executives that indicated that social service employers highly valued critical thinking
skills, open-mindedness, and skills related to research and evaluation (Dalton & Wright, 1999 as cited in Wolfer et al., 2001). Following careful consideration regarding potential teaching practices which would facilitate these types of outcomes, faculty decided to use a case method approach to prepare students to “think like social workers” (Wolfer, 2006, p. 8).

Faculty developed open-ended decision cases describing actual social work practice situations in significant detail. The decision cases used were intentionally “ambiguous,” “sometimes include[d] conflicting statements (by the various participants) and [did] not necessarily have a right or wrong solution” (Wolfer et al., 2001, p. 158). Prior to launching the innovation, faculty were trained to facilitate discussion of the decision cases and challenge students to think more deeply about relevant issues that emerged. Since the course innovation began nine years ago, approximately 200 graduating MSW students have enrolled in 10 to 12 sections of the capstone course each spring. Classes meet weekly for three hours over a 14-week semester during which they analyze twelve different decision cases.

In the spring of 2008, eight instructors taught 11 on-site sections of the case method course. Ten of these sections participated in the study. Instructors teaching the course met once a week to plan collaboratively for weekly case discussions and instructional methods. The experience and familiarity of the individual instructors with case method teaching varied, with some having many years of experience and others having limited to no experience with the method. However, collaboration among
instructors on a weekly basis was intended to promote uniform delivery of instructional methods.

All instructors used a common syllabus. The syllabus included a common schedule of decision cases and supplemental readings and required assignments. Required assignments included written case analyses and an annotated resume. However, instructors were free to modify the way they assessed student work and some of the guidelines for writing case analyses. For example, one instructor required students to propose both long-term and short-term strategies for the resolution of the dilemma, while others did not. Another instructor encouraged students to describe how they would formally evaluate the success of the solution proposed.

Students from micro and macro practice tracks are included in the sections in order to facilitate micro and macro content integration. Students prepare for instructor-facilitated discussions by completing a written executive summary of the decision case. The summary must include problem identification, analysis of key internal and external issues, three or more possible alternative strategies with advantages and disadvantages, a recommendation for a specific strategy with justification, and the source of the rationale for the analysis and recommendation. Therefore, students must have wrestled with issues presented in the case prior to class participation.

The ensuing case discussions broaden students’ perspectives as they encounter the views of others and are challenged to defend or alter their own positions in light of the views presented by classmates. Seating is arranged in a semi-circle to encourage small group dynamics as opposed to the traditional “instructor as expert” format. A typical
class session included a two-hour case discussion followed by a debriefing. During the remaining time, students may provide feedback to each other, and engage in discussion regarding topics such as improving writing assignments, students' own field dilemmas, supplemental readings, professional self-care, or the annotated resume.

Students are required to submit a written case analysis for seven of the twelve cases for assessment by their instructor. All students submit an analysis of the first two cases for review in order to facilitate early feedback to students regarding their performance. After submitting the first two cases, students choose five of the remaining 10 cases to submit for a course grade. On alternate weeks, they provide feedback to peers who are submitting their case analyses for assessment. A Case Analysis Evaluation Matrix, which is included in the course syllabus, provides students with clear assessment criteria. Please refer to the course syllabus in Appendix D for a complete description of the instructional methods, course calendar, assignment descriptions and the Case Analysis Evaluation Matrix.

Participants

Intervention Group. Non-probability purposive sampling was used to accomplish the goals of this study. Participants were recruited from the on-site MSW students enrolled in the case method capstone course described above. Two off-campus sections of the same course were not included because of a concern that there might be some unique differences between on-campus and off-campus students. The Procedures section describes the methods used to recruit students.
During the spring semester of 2008, 174 advanced year students enrolled in the capstone course including 54 advanced standing students. Advanced standing students proceed directly to the advanced year of graduate school based on the completion of a BSW degree from an accredited program and a minimum GPA of 3.0 in the 12 hours required during the summer session.

Twenty-three percent of the students enrolled in the case method course participated in the study. The intervention group included 40 MSW students enrolled in 10 sections who completed at least one of the pre- and posttest measures. Of the 40, 27 students participated in both the quantitative and qualitative aspects of the study, having valid RCI and case analysis scores at pre- and posttest. Five students in the intervention group participated in the RCI pretest, submitted their initial and final case analyses but failed to participate in the RCI posttest. Eight participated in the RCI pre and posttests, but did not submit both of the required decision case analyses.

The intervention group was predominantly female (97%), Caucasian (82%), traditionally aged (22-26 yrs) (67%), and had no professional social work experience (56%). Table 2 depicts the demographic characteristics of the participants. Efforts were not made to stratify the sample with regard to gender or race based on the findings of previous studies that gender and race did not significantly influence Reflective Judgment scores (King & Kitchener, 2002).

Comparison Group. Foundation year students enrolled in a social work research methods course served as the comparison group. This course was selected as a comparison because it is required for all foundation year students, and is taught using
traditional methods as opposed to the case method. In addition, research courses have been associated with the development of critical thinking skills in the literature (Boyer Commission on Educating Undergraduates in the Research University, 1998; Gibbs, 2007; Kersting & Mumm, 2001; Lynch et al., 2001; Rowe, 2007a).

The foundation year cohort is typically smaller than the advanced year cohort because it does not include advanced standing students. Students enrolled in the research methods course (n=84) were expected to be comparable to the intervention group in terms of demographics, although the lack of advanced standing students introduced the possibility of differences between groups in terms of age and social work experience. A further rationale for including these students as a comparison group is the fact that comparing pretest scores of foundation year students to the advanced year intervention group would provide a cross-sectional comparison between first and second year students on RCI scores at pretest. The difference between the RCI mean scores would serve as an estimate of a maturation effect, (i.e., the amount of change that could be attributed to graduate school experience prior to exposure to the case method course).

Eighteen students (21%) enrolled in the research methodology course, comprised the comparison group, and participated in the RCI at both pre and posttest. Students who began the study but were excluded from the sample because they did not have both pre and posttest scores included nine who did not complete the posttest, and two who took the posttest but had not taken the pretest.

Like the intervention group, participants in the comparison group were predominantly female (89%), 22 to 26 years old (67%), Caucasian (79%), and had no
social work experience (68%). The mean age ($M = 29$) was impacted by three outliers over the age of 40 as compared to only one in the intervention group ($M = 27$).

Table 2.

**Demographic Characteristics of Intervention and Control Groups**

<table>
<thead>
<tr>
<th>Demographic</th>
<th>Intervention Group</th>
<th>Comparison Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Female</td>
<td>39</td>
<td>97.4</td>
</tr>
<tr>
<td>Male</td>
<td>1</td>
<td>2.6</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22-26</td>
<td>27</td>
<td>67.5</td>
</tr>
<tr>
<td>27-39</td>
<td>12</td>
<td>30.0</td>
</tr>
<tr>
<td>40 - up</td>
<td>1</td>
<td>2.5</td>
</tr>
<tr>
<td>SW Experience</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 yrs</td>
<td>23</td>
<td>57.5</td>
</tr>
<tr>
<td>&gt; 3 yrs</td>
<td>11</td>
<td>27.5</td>
</tr>
<tr>
<td>3-5 yrs</td>
<td>2</td>
<td>5.0</td>
</tr>
<tr>
<td>6-10 yrs</td>
<td>4</td>
<td>10.0</td>
</tr>
<tr>
<td>10+ yrs</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minority</td>
<td>7</td>
<td>17.5</td>
</tr>
<tr>
<td>White</td>
<td>33</td>
<td>82.5</td>
</tr>
</tbody>
</table>

*Sample Size.* Estimates of effect sizes for short-term educational interventions using the RCI are not available. Although there is considerable interest in developing educational interventions that will foster epistemological growth (Wood & Kadrash,
to date research using the RCI to assess changes resulting from short-term interventions has not been published.

Effect sizes for between group differences on measures of epistemology observed across educational levels have been approximately one standard deviation (King & Kitchener, 1994; Wood, 1997), which is considered a large effect size (Cohen, 1988; Cohen, 1988). Because epistemology develops slowly, studies involving shorter periods have been less successful in detecting differences between groups (King & Kitchener, 1994; Wood & Kadrash, 2002).

Wood and Kadrash (2002) cautioned that although there may be educational interventions that foster epistemological growth, the effect size is likely to be small, given that the changes between the freshman and senior year are modest (.51). Based on norming information for freshmen and senior performance on the RCI, they observed that although a sample size of 21 freshmen and 21 seniors would yield sufficient statistical power to detect differences across educational levels, a similar study attempting to detect the small developmental changes that occur between the freshman and sophomore year would require 3,770 participants!

A significant limitation of using the RCI to assess change in RJ over a semester is that even substantial growth may be undetected due to the lack of statistical power. Given the lack of accessibility to a large sample of MSW students enrolled in a case method course, it was not possible to increase power by substantially increasing the sample size. Nevertheless, a decision was made to continue with plans to use the RCI, based on the lack of research using the RCI with MSW students, and the findings of one study with a
relatively small sample size (n=80) that found modest differences in RJI scores as a result of a semester long educational intervention (Kronholm, 1996). Wood et al., (2002) speculated that these findings (which have not been replicated) may have been influenced by inequalities between the two groups at the start of the study, but concedes that the educational intervention might have been responsible for the observed increases in RJ levels.

The use of qualitative methods in this study allays some concern regarding the lack of statistical power. Content analysis of students’ case analyses has been used effectively to assess changes in the critical or reflective thinking of students enrolled in case method courses, in spite of small sample sizes (Allen, 1995; Ertmer et al., 1996; Harrington, 1999; Levin, 1993; Lundeberg et al., 1999).

*Process and Procedures*

*Recruitment of Participants*

*Intervention Group*. In order to recruit participants, the researcher traveled to the host institution during the first week of the semester. On January 17 and 18, 2008, the researcher gave a 10-minute presentation in nine of the ten sections of the capstone course to describe the study and the proposed methods for data collection. The researcher was unable to meet with the two sections that met on Saturday; however, these sections were provided with a pre-recorded explanation of the research and invitation to participate. One of the professors in these sections collected the names of interested students; the other chose not to participate.
In a 10-minute presentation, students in the capstone course were informed of the importance and rationale for the study, the procedures involved in taking the RCI and the submission of their initial and final case analysis. Students were assured that their individual scores would not be given to the graduate program or their instructors and that their participation was voluntary and had no bearing on their grade. Students were also informed of modest incentives that included receipt of a $5.00 Amazon.com gift card each time they agreed to take the RCI and entry into a drawing for a $50.00 Amazon.com gift card each time they submitted their cases analysis papers. One hundred and ten students from the capstone course agreed to participate in the research project by signing a roster and providing the researcher with their email addresses.

All one hundred and ten students received an email on January 23 or 24, 2008 with an invitation to participate in the research and the following instructions:

If you would like to participate in this study, just hit reply to this message. When I receive your email, I will send you a unique identifier, a link to the website to begin your survey, and an Amazon.com gift card for $5.00, which you can use immediately. In addition, if you attach your initial case analysis with your reply, your number will be entered in a drawing for an additional $50.00 Amazon.com Gift Certificate. (See Appendix E1.)

Six email addresses were returned undeliverable. A reminder email was sent out on January 27, 2008 to all remaining students (See Appendix E2.)

Fifty-nine (54%) of the original one hundred and ten students indicating a willingness to participate responded to the email invitation. Each of these students was
assigned an identifier that they were to use for the RCI pretest and posttest and for identifying their cases analyses (See Appendix E3). Forty-eight students (81%) completed the RCI pretest and 38 of the 59 (64%) submitted their initial case analysis papers. Winners of the drawings were notified by email and an announcement was made to all the participants regarding the winner at pre- and posttest. Thirty (51%) submitted a usable final case analysis as well. One student resubmitted the initial case analysis rather than the final case analysis, and did not respond to email requests to send the final case instead. Papers were routed to a research assistant who made certain that they were completely de-identified with regard to name, section, case number or date.

All students who participated in the pretest automatically received an invitation to participate in the posttest with an Amazon.com gift card, a link to the website and a reminder of their unique identifier and the password for the RCI website on April 11-14, 2008 (See Appendix E4). Reminders were e-mailed to the participants on April 23, 2008 and again on April 29, 2008 (Appendix E5). Additional drawings for gift cards were added as incentives to complete the posttest by the closing date (See Appendix E6). The RCI posttest was available from April 14, 2008 through May 1, 2008.

Comparison Group. Because the majority of the Research Methodology sections met on Monday, and the researcher was only able to be at the university on Wednesday through Friday, students in the comparison group were recruited via a pre-recorded DVD. The DVD presentation, which included all of the key points presented to the intervention group, was to be played in class during the second week of the semester. However, the
Martin Luther King holiday caused the pre-recorded presentation to be delayed until the week of January 28, 2008, which was the third week in the course.

The pre-recorded presentation was clearly not as effective as the personal appeal made in the intervention group as only 30 of the 84 students enrolled in the research course volunteered to participate. Professors of the research classes collected the names and email of the 30 students who agreed to participate. These students received an email invitation to participate in the study on February 5, 2008 (See Appendix E7). A reminder email was sent to comparison group participants on February 10, 2008 with an added incentive (See Appendix E8). Students who completed the RCI by February 14 were also entered into a drawing for a $40 Amazon.com gift card. Twenty-seven students (90%) responded to the email. Twenty of those responding completed the pretest and 18 (72%) completed the study by taking the RCI posttest. Two additional students took the posttest who had not taken the pretest.

**Attrition**

Several factors may have contributed to the significant attrition experienced in this study. Although more than half of all the students enrolled in the capstone course initially indicated their support and interest in the study, continued interest appeared to be mediated by the section the student was in. Students in Sections 001 and 003 were the most likely to participate and to follow through with taking the posttest and submitting the final case analysis. Students in Sections 002, 005, and 010 had only one student each who completed the study. Table 3 demonstrates the breakdown of student participation in the various aspects of the study based on their section of the capstone course. Eight
students who responded to the email did not participate in any of the measures and are not represented in the table below. One was in Section 001; four were in Section 002, and one each in Sections 003, 004, and 010.

Table 3.

**Participation of Intervention Group by Section**

<table>
<thead>
<tr>
<th>Section</th>
<th>RCI 1 &amp; 2</th>
<th>RCI 1 &amp; 2 Case 1</th>
<th>RCI 1 &amp; 2 Case 2</th>
<th>RCII &amp; 1</th>
<th>RCII &amp; 2 Case 1</th>
<th>RCI I Case 1</th>
<th>RCI I</th>
<th>Case 1</th>
<th>Total</th>
</tr>
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<tbody>
<tr>
<td>001</td>
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<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>002</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>003</td>
<td>7</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>9</td>
<td></td>
</tr>
<tr>
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<td>1</td>
<td>1</td>
<td>2</td>
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<td>1</td>
<td>5</td>
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<td>0</td>
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<td>0</td>
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<td>0</td>
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<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
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<tr>
<td>008</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>009</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
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<td>0</td>
<td>1</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>010</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

*area in gray represents students that had at least one valid pre and posttest measure

A second factor contributing to student attrition was an unforeseen turn of events at the time of posttest. Within days of opening the survey for the posttest, the RCI password stopped working. It took the researcher over 24 hours to reach an administrator, and another day to resolve the problem. According to the administrator of the RCI, the organization had been undergoing some restructuring which resulted in the inaccessibility of the administrator as well as the need to reset the website password. Although all participants were sent an email regarding the password failure as soon as the problem was
identified, and again, as soon as the problem was resolved (See Appendix E9), six
students in the intervention group and four in the comparison group completed the
demographic portion on Survey Monkey during this time but did not complete the RCI.
Given the fact that the posttest occurred at the end of the semester, pressures related to
final exams, assignments, and graduation were also a likely factor in student attrition.

Vigorous efforts were made to encourage student participation at posttest.
Between April 13 and April 15, 2008, all students in the intervention group received a
personalized invitation to take the posttest and an Amazon.com gift card with their
identifier and a link to the Survey Monkey website. Based on previous research (Dillman,
2000) indicating that it is more effective to include incentives with the invitation, rather
than wait for participants to respond to an offered incentive, students were mailed the
Amazon.com gift card with the invitation (See Appendix E10). The chair of the capstone
course also posted a reminder on the Blackboard site used to communicate with students
enrolled in the course.

On April 19, students in the comparison group received a similar letter. On April
23, 2008 all students received a reminder to take the posttest if they had not already done
so with a promise to enter all students who participated by April 28 in a drawing for a
$50 Amazon.com gift card. Because of low student participation, fifteen students in the
intervention group and six students in the comparison group also received personal
appeals on April 27 or April 28 to participate in the standardized measure or submit their
case study (See Appendix E11 for sample letter.)
Statistical procedures were used to determine if there were any differences between those who completed the study and those who did not. Independent samples t-tests indicated that there were no statistically significant differences between groups with regard to age, \(t(73) = 0.693, p = 0.491\), or RCI scores, \(t(71) = 1.187, p = 0.239\). Comparisons were made between participants and non-participants on the remaining demographic variables using 2x2 Chi square procedures (on the dichotomous versions of the variables). No differences were found for gender, \(\chi^2(1, N=75) = 0.294, p = 0.588\), race, \(\chi^2(1, N=75) = 3.547, p = 0.060\), or experience, \(\chi^2(1, N=75) = 2.241, p = 0.134\).

Permissions

Permission was obtained on November 29, 2007 from the administrators of the RJM to utilize the RCI online assessment measure provided through the University of Denver. A nominal fee of one dollar per test is charged to graduate students utilizing the RCI, provided the data is added to their database. Sheila Summers Thompson, the test administrator at the University of Denver provided the researcher with the URL for the website, along with a user name and password, which provides participants with access to the online test (See Appendix F).

Permission to conduct the research was received from The Internal Review Board (IRB) of the University of South Florida (USF) on December 21, 2008. IRB approval from the University of South Florida was forwarded to the chair of the capstone course at the host setting. This approval was accepted by the IRB at the host university. Because
the entire procedure was to be carried out over the internet, a request for waiver of
documentation of informed consent was obtained from the IRB at USF. See Appendix G.

Testing Procedure

Students who replied to the invitational email were provided with a link to a
Survey Monkey web page at pretest and posttest. Survey Monkey, a Web-based survey
builder, was used to provide participants with information regarding the testing
procedures, informed consent, and a demographic questionnaire before proceeding on to
take the RCI. The software’s features allowed the researcher to create a survey that
contained a variety of question styles, including multiple choice, and short answer
questions. Upon entering the site, participants were asked to read the consent form and
indicate their consent by checking the appropriate box. A brief questionnaire requested
information regarding their study identifier, age, gender, ethnicity, course section, and
social work experience. All fields were required in order to advance to the next section.
Once completed, students were redirected electronically to the RCI website. Participants
could reenter the website if they were unable to complete the test.

Students had access to the site from their own computers at their convenience.
The survey was available for a two-week period for each testing. Each group was
provided a separate link or “collector” so that although the first year students did not
begin the pretest until 10 days after the intervention group, the survey was still available
for each group for a total of two weeks. At the end of the two-week period, the survey
was closed and no longer accessible to respondents. The Survey Monkey questionnaire is
included in Appendix H.
Collection of Case Analysis Papers

Students in the intervention group who chose to participate by submitting their case analysis papers were requested to send their papers electronically to the researcher’s email address with their unique identifier and all personal information removed. The papers were automatically forwarded to a research assistant who opened them and removed all references to the case number, date of submission, and any remaining identifying information. The assistant placed the electronic records in a folder contained in a flash drive and identified them by the number assigned to the participant. The researcher did not review student submissions until all initial and final case analysis papers were collected.

Instrumentation

There are two methods of assessing developmental changes in reflective thought. One involves production tasks requiring the student to generate solutions to problems based upon their “repertoire of skills and cognitive complexities” (King, 1990, p. 89). The other involves recognition tasks, which require the learner to choose the best response among a series of options. The review of the literature addresses the strengths and limitations of each.

Utilizing each type of measure by using the Reasoning about Current Issues Test (RCI), which utilizes recognition tasks, and students’ decision case analysis papers, which require production tasks, allows for a richer assessment of reflective thought. Additionally, using different assessment measures, allows triangulation, which has been
shown to enhance internal validity when exploring complex and multifaceted constructs (Denzin, 1978).

The RCI assesses the epistemic assumptions that students are currently using as they approach the resolution of ill-structured problems. In contrast, case analysis papers generally do not elicit information regarding a student’s epistemic assumptions, but instead provide opportunities to demonstrate a range of reasoning skills, which are supported by the epistemic assumptions in use. Therefore, to complement the use of the RCI, a skill-based model was chosen to assess students’ ability to demonstrate reflective thinking skills in their written case analyses. The following section will describe the RCI. The skill-based rubric developed to assess reflective thinking skills evident in decision case analysis papers is described under content analysis procedures.

Description of RCI

The Reasoning about Current Issues Test (RCI) is an online instrument developed by King and Kitchener (2002) to assess reflective thinking based on their Reflective Judgment Model (RJM). The RCI assesses respondents’ assumptions about the nature, source, and certainty of knowledge claims.

The RCI uses a Likert format to represent multiple stages of the RJM. Respondents are presented with three ill-structured problems that represent contemporary issues about which there are multiple perspectives (See Appendix B). The three dilemmas on the current version of the RCI address questions regarding the causes of alcoholism, immigration policy, and the best methods for the preparation of the future workforce.
The RCI requires respondents to write a short statement justifying their own position in response to each dilemma in order to encourage them to think about their own views. They are then asked to rate a series of ten statements on a four point scale (from very similar to very dissimilar) to indicate how comparable they are to their own views. Each position represents prototypical statements from respondents who participated in the Reflective Judgment Interview. To address concerns that students might endorse statements that sound impressive but do not realistically reflect their own positions, the test also contains nonsensical but grammatically correct statements. Students are instructed to expect such statements and given the option of rating them as “Meaningless.”

Scores on the RCI range from 2 through 7 representing stages 2 through 7 of the Reflective Judgment Model. Answers to each dilemma are scored individually, and then averaged to determine the Reflective Judgment Score. The RCI is assumed to measure students’ functional level of reflective judgment, although it provides more contextual support than the RJI (King & Kitchener, 2004). The RCI is available through the University of Denver in collaboration with the University of Michigan. Tests are scored at the University of Denver.

Reliability. Internal consistency estimates for the RCI range from the mid .70s to low .80s depending on the sample (Wood et al., 2002). Wood found a coefficient alpha estimate of internal consistency of .83 based on a meta-analysis of 6,101 individuals tested (Wood, 2004 as cited in Pittman, 2006). Owen (2005) reported an internal consistency alpha coefficient of .78. Coefficient alphas for global measures should
ideally be over .80 (Royse, Thyer, Padgett, & Logan, 2006), however, coefficient alphas over .70 are considered adequate (Spicer, 2005). Because internal consistency rates for the RCI have been lower than those found using the RJI, which ranged between .55 and .99, the Reflective Judgment website suggests that it should only be used to make inferences about Reflective Judgment scores on a group level (King et al., n.d.).

Validity. Wood, Kitchener and Jensen (2002) suggest that one criterion for judging the validity of the RCI is to determine whether it consistently reveals differences similar in magnitude to those found for the Reflective Judgment Interview, which was empirically validated over twenty years as a measure of reflective judgment. Data collected from over 8,000 undergraduate and graduate students indicates educational level differences of about one standard deviation, which is consistent with the results of the RJI (Wood & Kadrash, 2002; Wood et al., 2002). The correlation between the two instruments is .40 indicating that it measures a construct related but not identical to Reflective Judgment (King et al., n.d.).

Content Analysis Procedures

This study utilized content analysis procedures to examine students’ case analysis papers for evidence of reflective thinking patterns as defined by the Reflective Judgment Model. Holsti (1968) describes content analysis as “the application of the principles of scientific research (objectivity, systematicity, generalizability) to the analysis of communication content” (p. 598). Silverman (Silverman, 1993) describes the process as involving the establishment of categories, and the counting of the number of instances of those categories in a particular item of text.
There are several critical elements involved in using content analysis to examine items of text. One is deciding whether one will use an inductive or deductive approach in the development of categories; another is ensuring that the categories are clearly defined so that other coders will come to the same conclusions when evaluating the same text (Holsti, 1968). Finally, the unit of analysis and system of enumeration must be determined. These considerations are discussed in the following sections.

**Development of Content Analysis Themes**

A deductive approach, which relies on the use of a categorical scheme suggested by a theoretical perspective (Berg, 1989), guided the development of the content analysis categories for the scaled rubric. However, an inductive approach was used to identify themes observed in the students’ statements regarding their rationale for the strategies used to resolve the ill-structured problem in the decision case.

The Reflective Judgment Model served as the framework for the construction of rubric domains. Originally, an adaptation of Newman, Webb, and Cochrane’s (1995) coding scheme for critical thinking indicators was proposed as a suitable coding scheme. However, in order to maintain theoretical integrity and continuity between the quantitative and qualitative aspects of the study, the researcher decided to construct the content analysis themes more intentionally around the stages of the Reflective Judgment Model.

Skills and problem-solving approaches were identified for each stage of the RJM based on King and Kitchener’s (1994) seminal work on the Reflective Judgment Model. Because the RJM focuses on the epistemic assumptions that support problem-solving, it
was necessary to adopt a skill-based model using the RJM as a theoretical framework, rather than using the RJ stages directly. Following consultation with the current administrator of the RCI online measure, a template developed by Susan Wolcott for creating a customized critical thinking rubric was adopted.

Wolcott’s template for creating a customized developmental critical thinking rubric is available to educators at her website (Wolcott, 2006c). The “Steps for Better Thinking” evolved from the Reflective Judgment Model and Fischer’s dynamic skill theory (Wolcott, 2006c). Wolcott’s model identifies four developmental processes necessary for the effective resolution of ill-structured problems. Each step serves as a building block for the more advanced skills required in later steps. Although the model has not been validated by empirical research, it has been used by many colleges for critical thinking assessment (Wolcott, 2006a) and has face validity, as it is consistent with the body of literature regarding the skills necessary for open-ended problem solving. Please refer to Appendix I.

An additional advantage of using The Steps for Better Thinking is that it parallels the requirements of the case analysis assignment. Refer to the Table 4 for a comparison between the model and the assignment description.
<table>
<thead>
<tr>
<th>Steps for Better Thinking</th>
<th>Required Components of Case Analyses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step One: Identify the Problem, Relevant Information, and Uncertainties</strong></td>
<td><strong>Introduction</strong></td>
</tr>
<tr>
<td>Identify problem and acknowledge reasons for enduring uncertainty and absence</td>
<td><strong>Problem Statement:</strong> Give a specific and concisely written formulation</td>
</tr>
<tr>
<td>of single “correct” solution</td>
<td>of the problem to guide analysis and problem solving</td>
</tr>
<tr>
<td><strong>Step Two: Explore Interpretations and Connections:</strong> Interpret information</td>
<td><strong>Contextual Analysis:</strong> Summarize internal and external issues that</td>
</tr>
<tr>
<td>and organize in meaningful ways that encompass problem complexities</td>
<td>created or sustain the problem.</td>
</tr>
<tr>
<td><strong>Step Three: Prioritize Alternatives and Implement Conclusions:</strong> After</td>
<td><strong>Alternative Strategies:</strong> Identify three or more possible solutions to</td>
</tr>
<tr>
<td>thorough analysis, develop and use reasonable guidelines for prioritizing</td>
<td>the problem</td>
</tr>
<tr>
<td>factors to consider and choose among solution options</td>
<td><strong>Recommendation:</strong> Justify your preferred strategy, explaining why you</td>
</tr>
<tr>
<td>Efficiently implement conclusions, involving others as needed</td>
<td>selected that particular one, how it best resolves the problem and how</td>
</tr>
<tr>
<td></td>
<td>you will determine its effectiveness.</td>
</tr>
<tr>
<td><strong>Step Four: Envision and Direct Strategic Innovation:</strong> Acknowledge, explain,</td>
<td><strong>[Evaluation:]</strong> Determine how you will determine its effectiveness.</td>
</tr>
<tr>
<td>and monitor limitations of endorsed solution.</td>
<td></td>
</tr>
<tr>
<td>Integrate skills into ongoing process for generating and using information</td>
<td></td>
</tr>
<tr>
<td>to guide strategic innovation.</td>
<td></td>
</tr>
</tbody>
</table>

Based on this description of the case analysis assignment, a coding scheme was developed which included twelve of the twenty-two competencies available for educators to choose from in the customized rubric template. The twelve categories comprise eleven essential skills related to reflective thought as well as a rating for the students’ overall approach to problem solving. Skills that are related to reflective judgment but were not
clearly required of students in the assignment description were not included. For example, identifying and controlling for own biases, and identifying and evaluating key assumptions were not included as they were not required and rarely occurred in student papers when pilot testing the rubric.

Reflective Thinking Skills. The following skills comprised the themes for the content analysis of students’ written case analyses:

1) I: Identifies and summarizes the problem/question in the case
2) U: Identifies and addressed uncertainties (i.e. reasons why the problem is ill-structured);
3) R: Identifies information/evidence that is relevant to the problem;
4) MP: Integrates multiple perspectives in the analysis;
5) IN: Qualitatively interprets information and creates a meaningful organization for the analysis;
6) E: Identifies and evaluates the implications and consequences of alternatives;
7) O: Uses guidelines or principles to judge objectively across the various options;
8) S: Clearly presents and supports own conclusions/positions;
9) J: Justifies positions with supportive evidence;
10) L: Identified the limitations of their position;
11) C: Identifies and considers the influence of the context on the issue/problem;
12) OA: The overall approach to problem solving.
Rationale. Nine themes were identified in student’s statements regarding the rationale they used for the strategies they chose to solve the dilemma presented by the decision case. Four of the nine themes were identified, in vivo, based on the students’ own words. These included intuition (often referred to as instincts), personal/professional experience, personal/professional values, and research. Five other themes were identified based on the content of the students’ statement. They included authority, facts that fit an established belief, previous knowledge, unsupported opinion, and the utility of the solution.

These themes were coded dichotomously based on their presence (1) or absence (0) in the students’ rationale statement. Students often gave multiple rationales for their chosen strategy and each was included in the analysis. No attempts were made to prioritize the rationales that were given as there was rarely evidence that students listed their reasoning strategies in any given order.

Unit of Analysis

According to Holsti (1968) the selection of recording and context units should be based upon two criteria: 1) the best fit for the requirements of the research problem, and 2) efficiency, i.e., which units give satisfactory results with the least expenditure of resources. For example, a study comparing the coding of literature using paragraphs as the coding unit with assigning a single summary score to each category revealed little substantive difference in the two procedures (Schneider & Dornbush, 1958 as cited by Holsti, 1969). Based on the forgoing criteria, the unit of analysis for this study was based
on the assignment structure, which included five sections. The process for coding these sections is discussed below.

The Problem Statement was coded using I (Identification) and U (Uncertainty) to rate the skill used to clearly identified the primary issues in the case and acknowledge uncertainties in the situation. The Contextual Analysis section was coded using the following codes: U for identifying uncertainties, R (Relevance) for identifying relevant elements in the case, MP (Multiple Perspectives) for integrating multiple perspectives in the contextual analysis, and IN (Interpretation) for qualitatively interpreting information and creating a meaningful organization. The Alternative Solutions and Recommendation sections were coded using E (Evaluation) for identifying and evaluating the implications and consequences of alternatives, O (Objectivity) for using guidelines or principles to judge objectively across the various options, S (Supports conclusions) for clearly presenting and supporting conclusions, and J (Justification) for justifying positions with supportive evidence. The Recommendation section was also coded with an L (Limitations) for identifying limitations in the proposed solution. Two global codes were used that applied to the overall analysis. C (Context) was used to rate the students ability to integrate contextual elements throughout the analysis. OA (Overall Approach) was used to identify the students overall problem-solving approach.

System of Enumeration

The system of enumeration for each of the categories was based on Wolcott’s Performance Patterns, which range from 0 to 4 and correspond with stages 2 through 7 of the RJ model. Performance Pattern 0 is based on King & Kitchener’s pre-reflective stages
Performance Pattern 1 reflects the internal logic of Stage 4, which is the beginning of quasi-reflective thought. Performance Pattern 2 is based on the reasoning strategies typical of Stage 5 and Performance Pattern 3 is supported by the epistemic assumptions characteristic of Stage 6, which is the beginning of true reflective thinking. Pattern 4 corresponds with Stage 7, which is the final stage of the Reflective Judgment Model. The characteristics of these performance patterns were defined in the rubric for each of the competencies measured. Please refer to the rubric in Appendix J to see how each was defined.

**Scoring.** Student papers were assigned a score of 0 to 4 for each of the 12 competencies listed above. Students’ final scores were calculated by averaging the scores on each of the twelve items. An overall score of 0 indicates the participant approached the problem based on the pre-reflective assumptions of Stages 2 and 3. Students using this level of reasoning rely heavily on experts to provide answers, tend to view situations as “black or white” and make assertions based on authoritative sources. In the absence of a clear answer, they will base decisions on their own opinion. The relationship between assertions and evidence is not clear.

A score of 1.0 indicates the student is able to acknowledge the existence of enduring uncertainties, recognize the viability of multiple perspectives, and is beginning to use evidence logically to support conclusions. However, at this level, students tend to use evidence inconsistently, ignore disconfirming information in support of that which supports their own opinions, and have difficulty breaking problems down or understanding multiple perspectives.
A score of 2.0 indicates the participant can logically and qualitatively evaluate evidence from different viewpoints, organize information well, identify issues, assumptions, and biases associated with multiple perspectives, and acknowledge and attempt to control personal biases. The primary weakness of thinkers at this level is that in their efforts to present a balanced description of the problem, they are unable to establish priorities, or select and defend a single overall solution.

A score of 3.0 indicates the student evidenced the strengths of the previous performance patterns, but is also able to prioritize issues and information. After considering all the options, the student is able to articulate well-founded support for choosing one solution over other viable options. The conclusion is based on a qualitative evaluation of authoritative positions or situational pragmatics.

A score of 4.0 indicates that the student has competencies in all of the previous areas, but “proceeds as if the goal is to construct knowledge,” enabling the development of long-term solutions that move towards “better conclusions or greater confidence in conclusions as the problem is addressed over time” (Wolcott, 2006a, p. 2-13).

*Internal Consistency*

Reliability analysis was used to determine if the 12 items on the rubric were measuring the same construct. Cronbach’s alpha on the 12 items was .918 for pretest scores indicating a high degree of internal consistency. The item means ranged from .37 to 1.30 with a scale mean of 12.30 (SD=6.529). Each of the items contributed favorably to the scale mean. Cronbach’s alpha for the items at posttest was .919. The items ranged
from a low of .167 to a high of 1.233 with a scale mean of 11.47. Once again, each item contributed to the overall scale mean.

*Inter-Rater Reliability*

An important aspect of content analysis is establishing intercoder reliability in order to validate the coding scheme (Lombard, Snyder-Duch, & Bracken, 2005). Suggestions regarding sampling of content analysis units for reliability tests vary widely ranging from 5% to 25% (Lacy & Riffe, 1996). Based on the small sample, a decision was made to have 25% of the case analyses papers coded by an independent coder.

An independent coder was hired with previous experience as a paid rater for the Cognitive Level and Quality of Writing Assessment (CLAQWA), which is an instrument developed to assess college level cognitive and writing skills across the curriculum. A small sample of de-identified papers from a previous semester of the capstone course was obtained from the course chair for the purpose of training and pilot testing the instrument. Training included reviewing the Reflective Judgment Model, Wolcott’s Steps for Better Thinking, and several case analysis papers that had been previously rated by the researcher.

Many texts on content analysis suggest that the minimal level of intercoder reliability should reflect the nature and difficulty of the categories and content (Lacy & Riffe, 1996). Based on their relative complexity and difficulty, schemes involving developmental cognitive stages often count ratings that are contiguous as agreement. For example, raters trained in the Cognitive Level and Quality of Writing Assessment (CLAQWA) developed by University of Florida to assess cognitive level and writing
across the college curriculum (Flateby & Metzfer, 2005) follow this practice. Trained raters for the RJI counted ratings that were no more than two points apart across the three dilemmas as agreement (Kitchener et al., 1993). Rather than using this practice, which would compromise the ability to analyze the data statistically, the acceptable inter-coder reliability rate was set at 70%.

An initial pilot test of four cases that were not a part of the population to be studied yielded an inter-rater reliability of 78%. Based on this result, the researcher proceeded with coding the entire sample. A subsample of 25% of the population was randomly selected (by choosing every fourth case) for the coder to rate. Student case analysis papers were grouped into “families” based on the six different decision case studies. The researcher and the coder each coded student papers independently and then met to discuss them. In order to avoid researcher bias, the researcher and the rater was blind to gender, ethnicity, race, age, experience or time of submission. Disagreements were discussed and codes were revised based on consensus between the two coders. Inter-rater agreement was calculated based on the initial independent ratings.

Cohen’s Kappa coefficient and the percentage of agreement was calculated for each group of case analysis papers. Values exceeding .75 indicate strong agreement above chance, and values between .40 and .74 indicate moderate level of agreement above chance (Fleiss, 1981). Initial coding of 8 papers for the initial case yielded a Kappa coefficient of .73 and an 83% agreement. A Pearson’s correlation was .78.

Coders met again to discuss the second case, which yielded considerably different results. Four papers were coded independently on the second set of 12 papers. This time
Cohen’s Kappa was .21 and the percentage of agreement was only 54%. A clear pattern emerged however. Although the rater chosen had previous experience rating analytical content, she was not a social worker by profession and this particular case required that students make decisions that required clinical judgment. Coder agreement on items that involved the problem identification, including uncertainties, context, and multiple perspectives ranged from .75 to 1.0, but those items that involved evaluation of the potential solutions ranged from .25 to .75. The coder had no social work background and therefore was unprepared to evaluate the plausibility of student solutions.

A third set of 5 papers were coded on the third case. Cohen’s Kappa was recalculated on these 5 papers and yielded a kappa of .76 and 91% agreement. Although there were two other decision cases, these represented only 11% of the sample, so it was decided to select all the cases from the three most populated decision cases to maximize the coder’s time investment. The overall percent agreement on all cases coded before any revisions were made was 76% and Cohen’s Kappa was .62. A Pearson’s correlation between the two raters’ codes was .71. When the four cases involving clinical judgment were eliminated from the calculation, Cohen’s Kappa on the remaining 13 cases (20% of total) was .90, with a 92% agreement rate. Although the overall Cohen’s Kappa was below the generally accepted standard of .70, because the rate of coder disagreement was significantly different on the one case that required clinical judgment, the overall level of agreement was closer to the agreement rate when those four cases were removed.
Approach to Data Analysis

Data were analyzed using a variety of statistical techniques. Descriptive statistics for RCI pretest scores and age, gender, race, and social work experience were utilized. Data were analyzed to determine whether or not the assumptions of normality, linearity and homeoscedacity were met using the EXPLORE procedure in SPSS. T-tests were used to determine whether the intervention and comparison groups were equivalent at pretest on ratio level variables such as pretest scores and age. Nominal variables such as gender, race, and years of experience (treated as categorical variable) were compared using Chi square procedures or Fischer’s Exact Test when the categorical group numbers were too small. The relationship between age and RCI scores was tested using a Pearson Product-Moment Correlation. In addition, ANOVA procedures were utilized to assess the influence of categorical values for age, as well as years of experience.

RCI pretest scores of foundation year and advanced year students were compared using independent samples t-tests. In addition to determining equivalency between the groups, this comparison was used to determine whether there was measureable change in reflective judgment between first and second year students that could be accounted for by graduate school experience and/or maturation.

In order to assess whether students in the current sample were comparable to other graduate student populations, an independent sample t-test was used to compare the sample RCI pretest mean to a previously normed mean for graduate students. Paired samples t-tests were used to determine differences between pre- and posttest scores on the RCI test for each of the groups. A change score was generated by subtracting pretest
scores from posttest scores. Independent samples \( t \)-test were used to assess whether there were significant differences between the groups in the amount of change over the course of the semester. Because of the small sample size, a Cohen’s \( d \) statistic, which is calculated by subtracting mean scores and dividing the value by the pooled standard deviation (Cohen, 1988), was used to determine effect sizes.

A Pearson correlation was used to determine the correlation between RCI pretest scores and RCI change scores. Based on the results of previous tests, a stepwise multiple regression was also conducted to determine the best predictor of RCI change.

Students’ case analyses papers were coded using ATLAS.ti, which allows for individual units of text to be coded using various themes and categories. Students’ papers were organized into document “families” based on each of the six decision cases analyzed. One of the criticisms of content analysis is that conclusions drawn from the “counting” of instances of particular themes can be “trite” and miss uncategorized activities (Silverman, 2001, p. 123). Therefore, in the current study, extensive use of memos to record observations that supported categorizations or did not clearly fit into one of the categories available was utilized. These memos were used for qualitative analysis. Although all the student papers were coded in ATLAS, because the content of memos is not viewable when printed, an example of a coded paper in WORD format is included in Appendix K. Reliability analysis was used to assess the internal consistency of the coding rubric. Inter-rater agreement between the researcher and an independent coder was assessed using Cohen’s kappa and percentage of agreement.
Paired samples t-tests were used to compare each of the subcategories as well as the initial and final scores generated by the content analysis procedures. The relationship between rubric scores and the case analyzed as well as the section in which the student was enrolled was also examined using ANOVA procedures. Differences on overall rubric scores based on the rationale used for the strategies chosen were assessed using independent samples $t$-tests. The Pearson correlation coefficient ($r$) was used to measure the degree of association between the coding rubric scores and RCI test results.
Chapter IV

Results

The purpose of this study was to evaluate the influence of case method instruction on the reflective judgment of advanced year MSW students enrolled in a capstone course. Reflective judgment was assessed using quantitative and qualitative methods. A standardized online measure, The Reasoning about Current Issues Test was used to assess reflective judgment quantitatively. In addition, a customized rubric based on the Reflective Judgment Model was used to assess the reflective thinking skills utilized by students completing an initial and final decision case analysis. This chapter reports the results of the data analysis.

Prescreening of Data

Prior to data analysis, all data were screened for accuracy of data entry, missing values, and outliers by examining frequency distributions and descriptive statistics using SPSS. Box plots were examined to identify outliers for each variable. Given that parametric analytic techniques were to be used, data were also analyzed for adherence to the assumptions of normality as well as multivariate normality using the EXPLORE procedure in SPSS. Kurtosis and skewness values were within normal ranges for all variables with the exception of gender, which had a negative skew of -3.545, and age, which had a positive skew of 3.027. Kurtosis was significant for gender and age due to
the homogeneity of the group on these variables. A few outliers were identified for age and RCI score. Violations of normality are addressed relative to the group and the specific statistical analysis procedures conducted.

Students were not randomly assigned to the intervention or comparison groups, therefore the demographic characteristics of students in each group were compared to determine whether any significant group differences existed at the start of the study related to students’ gender, race, social work experience, and age (See Table 2 in Chapter 3 for frequencies on demographic variables). The next section describes the results of this analysis. The hypotheses relating to demographic variables are addressed first, followed by the hypotheses that relate to the RCI, and finally the hypothesis that concerns the content analysis of decision case papers.

Equality of Groups on Demographic Factors

Gender

Females accounted for 95% of the overall sample. Although the majority of MSW students are female (87%) (2006; Council on Social Work Education, 2007a), this sample still contained fewer male participants than would have been expected. The comparison group had a slightly higher percentage of male participants (n = 3; 5.3%) than the intervention group, which only had one male (2.6%) who completed the study. Both groups reflected a negative skew on gender with a value of -6.24 for the intervention group and -2.7 for the comparison group. Kurtosis for the intervention group (39.0) was considerably higher than the comparison group (5.97), reflecting the overwhelming
percentage of female students in this group (97%). However, because assessment of skewness and kurtosis values has been reported to be less meaningful when applied to dichotomous variables (Morgan, Leech, Gloecknew, & Barrett, 2004), a 2x2 chi square procedure was performed to compare the two groups based on gender, $\chi^2 (1, N=58) = 1.804, p = .179$. Fisher’s exact test was a more appropriate measure of significance because 50% of cells had expected counts less than five. It confirmed that the difference was not significant and the effect size was small ($p = .232, V = .178$).

Race

The race/ethnicity variable originally consisted of nine groups based on the categories used by Council on Social Work Education (Council on Social Work Education, 2007b). This included, in alphabetical order: a) African American/Other Black (non-Hispanic); b) American Indian/Native American/Alaskan Native; c) Asian American; d) Mexican American; e) Multiple Race/Ethnicity; f) Other Latino/Hispanic; g) Pacific Islander; h) Puerto Rican; and i) Caucasian. Although an Other category was added when a participant indicated that she did not fit into any of the categories created, it was not selected by any of the participants. Because 79% of the cells had expected counts of less than five, these categories were recoded into dichotomous groups, i.e., Minority and Caucasian. A 2x2 chi square indicated no significant differences between groups on race/ethnicity, $\chi^2 (1, N = 58) = .351, p = 1.568, V = .068$. Fisher’s exact test confirmed these results, $p = .554$.  

Social Work Experience

Social work experience initially included the following five groups: *No experience, less than three years of experience, three to five years of experience, six to ten years of experience, and eleven years and above*. Frequencies for these categories are contained in Table 2. Because 63% of cells had expected counts of less than five, experience was recoded into the following three categories: *no experience, less than three years of experience, and three or more years of experience*. Fifty-eight percent of participants \((n = 23)\) in the intervention group had no experience, compared to 78\% \((n = 14)\) in the comparison group. Twenty-eight percent \((n = 11)\) of participants in the intervention group had less than three years of social work experience compared to 11\% \((n = 2)\) in the comparison group. Finally, 15\% \((n = 6)\) of participants in the intervention group had three or more years experience as compared to 11\% \((n = 2)\) in the comparison group. Contrary to expectations that the intervention group would be less experienced based on the presence of advanced standing students in the population, 44\% had some social work experience compared to only 22\% in the comparison group. A 2x3 chi square indicated that the differences between the groups with respect to students’ social work experience were not statistically significant, although the effect size was moderate, \(\chi^2 (2, N = 58) = 2.628, p = .269, V = .215\).

Age

The range in age of the intervention group was 23 to 58 with a mean age of 26.8 \((SD = 5.88)\). The comparison group ranged from 22 to 61 with a mean age of 29.2 and a
standard deviation of 11.52. Although the majority of students in the sample were under 26 years old (68%, $n = 26$), there was greater variability in the comparison group, resulting in moderate kurtosis in the comparison group (2.88) but substantial kurtosis (21.26) in the intervention group. A box test indicated that there were three outliers in the comparison group between 1.5 and 2.5 standard deviations above the mean age. The intervention group also had one outlier that was two standard deviations above the mean. Because both groups had similar leptokurtic curves and $t$-tests are very robust to violations of normality (Montacalm & Royse, 2002; Thode, 2002), an independent samples $t$-test was used to determine whether there were significant age differences between the two groups. Levene’s test indicated that equal variances could not be assumed, $p = .007$; therefore, the $p$ value for unequal groups was used. The $t$-test results indicated that the age differences between the two groups were not statistically significant, $t (21.24) = -1.07$, $p = .402$. The effect size was moderate ($d = -0.27$, $r = .13$).

In summary, there were no significant differences between the intervention group and the comparison group on any of the demographic variables. This finding serves to diminish concerns regarding sampling error based on the lack of random assignment to the intervention and comparison groups, and supports the premise of Campbell and Stanley (Campbell & Stanley, 1963) that naturally occurring groups in educational settings will be equivalent. The hypotheses and the procedures used to test them are addressed below. The alpha level for all parametric tests was set at .05. The hypotheses related to demographics will be considered first, followed by the hypotheses related to the quantitative and qualitative measures of reflective judgment.
Hypotheses Related to Demographic Factors

Based on the findings of previous studies that used the RCI to assess reflective judgment, it was predicted that there would be no relationship between gender or race and RCI scores, but that age and social work experience would have a positive impact. Each hypothesis and the statistical analysis used to test them are addressed in this section.

Gender

Hypothesis 1.1. Gender will not affect RCI scores.

The results of statistical testing for gender differences in RCI scores reflected a change when pretest scores were compared to the posttest scores. Gender differences observed at pretest were not observed at posttest. Of the 58 participants taking the RCI who completed at least one posttest measure in the study, 95% were female (n = 55) and 5% were male (n = 3). The mean score for male participants at pretest (M = 6.26, SD = .61) was significantly higher than the mean score for female participants with a large effect size (M = 5.22, SD = .66), t (55) = 2.66, p = .01, d = 1.627). Based on the imbalance in the number of participants in each group, Mann-Whitney U was also used to examine gender differences between the means. The differences were significant, U = 16, Z = -2.32, p = .02, confirming the results of the t-test.

Because previous studies have not found consistent differences on RCI scores based on gender (King & Kitchener, 2004), but have noted a relationship between age and reflective judgment level (King & Kitchener, 2004), mean age by gender was
examined to determine if this was a contributing factor to the differences in RCI scores between male and female participants. The mean age for male participants was 38 ($SD = 20.07$), while the mean age for female participants was 27 ($SD = 6.87$). The differences were not significant based on the unequal variances in the two groups $t(2.065) = 2.389, p = .444$, but the effect size approached the .8 range which Cohen (1988) defined as large ($d = .73, r = .34$). Based on $r^2$, age explained 12% of the variance in RCI scores between genders.

At posttest, the mean RCI score for male participants regressed by nearly a stage (-.82). Although the mean for male participants was still higher ($M = 5.44, SD = .54$) than the mean score females ($M = 5.07, SD = .74$), an independent samples $t$-test indicated that the difference was not statistically significant, $t(51) = .844, p = .402$. The effect size was moderate ($d = .57, r = .27$). A Mann-Whitney $U$ confirmed that the age differences were not significant, $U = 57.8, Z = - .778, p = .467$.

**Race/Ethnicity**

*Hypothesis 1.2.* Race/ethnicity will not significantly influence reflective thinking levels at pre or posttest.

RCI scores were significantly higher for minority students at pretest, but not at posttest. The dichotomous variable for race was used based on the small numbers of participants within each racial/ethnic category. Forty-six Caucasian students and seven minority students had valid pre and posttest RCI scores. Among the minority students, one self-identified as African American, one as Asian American, one as multiple race, and four as Hispanics from various nationalities. At pretest the mean for minority
students ($M = 5.73, SD = .620$) was significantly higher than the mean for Caucasian students ($M = 5.2, SD = .684$), $t (56) = 2.05, p = .036$. Cohen’s $d$ indicated a large effect size of .81.

At posttest, the mean RCI score for minority students decreased substantially ($M = 4.87, SD = .888$) and was now lower than that of Caucasian students ($M = 5.12, SD = .710$) which also decreased slightly. An independent samples $t$-test indicated that differences between groups based on race/ethnicity were not statistically significant, $t (51) = -.844, p = .403$, although minority scores were now one quarter of a stage lower than Caucasian student scores. There was a medium effect size ($d = -.31$).

Because the racial/ethnic differences observed at pretest were inconsistent with posttest results as well as with the findings of previous studies, the data were further examined using post hoc tests to determine if there were any confounding factors contributing to the variance. The EXPLORE feature in SPSS was used to determine if there were any violations of normality for race and RCI scores. Skewness and kurtosis values were within normal limits for both groups at pre and posttest. An examination of box plots for pretest scores revealed that two outliers in the Caucasian group were between 1.5 and 2.5 standard deviations below the mean at pretest, possibly depressing scores. At posttest, there were no outliers in the Caucasian group, but one outlier in the minority group was two standard deviations below the mean, contributing to this group’s regression.

Crosstabs was used to determine whether there was a relationship between race and age categories. The results of a 2x3 Chi square indicated that the relationship
between race and the categorical age variable was not significant and the effect size was small, \( \chi^2 (2, N = 58) = .756, p = .685, V = .115 \). Race and social work experience was also examined. One hundred percent of the minority students had three or less years of social work experience compared to 69% of the Caucasian students. The results of a 2x3 Chi square indicated that there was not a significant relationship between race and social work experience, although there was a medium effect size, \( \chi^2 (2, N = 58) = 4.578, p = .101, V = .283 \). In summary, no confounding demographic factors were identified that accounted for the unusual differences between groups based on race at pretest, or the regression that occurred at posttest.

**Age**

_Hypothesis 1.3. Age will significantly influence RCI scores at pre and posttest._

A Pearson’s correlation between age and RCI scores indicated that there was not a significant correlation between age and RCI scores at pretest, \( r (58) = .103, p = .44 \). Based on the coefficient of determination (\( r^2 = .01 \)), age accounted for 1% of the variance in RCI scores. However, at posttest there was a moderate correlation between age and RCI scores that approached significance at the .05 level, \( r (53) = .269, p = .052 \). Age accounted for 7% of the variance in posttest scores (\( r^2 = .07 \)).

Because the sample was comprised predominantly of traditionally aged students (22-26), comparisons were also made between age categories using ANOVA procedures. Three age categories were formed: “22-26” representing traditional students, “27-40” representing returning students, and “41 and older.” The results of the ANOVA indicated
that the differences between groups were non-significant at pretest $F (2, 55) = .394, p = .677, \eta^2 = .04$, and posttest, $F (2, 50) = 1.097, p = .342, \eta^2 = .02$. Table 3 displays the means of participants at pre and posttest by age category and by social work experience.

An interesting observation was that students in the youngest age group regressed by one quarter of a stage, while the 27 to 40 and 41 and older groups each had differences of only .02 from their original score.

**Years of Social Work Experience**

_Hypothesis 1.4._ Students’ years of experience in social work practice will significantly influence their reflective thinking levels at pre and posttest.

This hypothesis was not supported. Students’ years of experience in social work practice had less influence than was anticipated on reflective judgment. Because students in the sample were primarily inexperienced, resulting in small numbers in the other categories, the variable was recoded into three categories, _no experience_, _less than 3 years experience_, and _3 or more years of experience_. A one-way ANOVA indicated that there were not significant differences on the pretest scores based on years of experience and the effect size was very small, $F (2, 55) = .59, p = .558, \eta^2 = .015$.

The results of an ANOVA for posttest scores indicated that the differences between experience level categories were also not significant, $F (2, 50) = .670, p = .516, \eta^2 = .026$. Scores at posttest were lower for all three groups; however, those in the _less than three years_ group regressed by more than a half a stage (-.585). Table 5 below
Table 5.

**RCI Scores by Age and Experience**

<table>
<thead>
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<th>Age Category</th>
<th>RCI Pretest</th>
<th>RCI Posttest</th>
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<tr>
<td></td>
<td>N</td>
<td>Mean</td>
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<tr>
<td>22-26</td>
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<tr>
<td>27-40</td>
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<tr>
<td>41+</td>
<td>4</td>
<td>5.55</td>
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<table>
<thead>
<tr>
<th>Experience Level</th>
<th>RCI Pretest</th>
<th>RCI Posttest</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>34</td>
<td>5.25</td>
</tr>
<tr>
<td>&gt;3 years</td>
<td>12</td>
<td>5.43</td>
</tr>
<tr>
<td>&lt;3 years</td>
<td>7</td>
<td>5.17</td>
</tr>
</tbody>
</table>

*Hypothesis Related to RCI Pre and Posttest Scores*

Previous research on the Reflective Judgment Model using the Reflective Judgment Interview, which is a qualitative precursor to the standardized RCI, found that early-level graduate students had a RJ mean score of 4.6 (SD = .81) (King & Kitchener, 1994) indicating that they used epistemic assumptions consistent with Stages 4 and 5 of the RJ model. Scores on the RCI have been found to be consistently and systematically one stage above the RJ scores (Owen, 2005; Wood & Kadrash, 2002).

To date, a mean RCI score for graduate students has not been published. However, an unpublished study by Kitchener and associates (Kitchener, Wood, & Jensen,
2002 as cited in Owen, 2005) found that graduate students’ scores on the RCI ranged from 5.5 at the 10th percentile to 6.2 at the 90th percentile with a mean of 5.86 across samples. The current sample of MSW students ranged from 4.1 at the 10th percentile to 6.1 at the 90th percentile with a mean of 5.28.

A one-sample t-test was conducted to compare the current sample to the reported graduate student mean. The results indicated that the mean pretest score (5.28, SD = .697) of students in the current study was significantly lower than the mean score reported above for graduate students, t (52) = -6.147, p = .000. Similar results were obtained when running a one sample t-test using the RCI pretest scores for the intervention group alone (M = 5.26, SD = .742), t (34) = -4.879, p = .000.

Although the disparity between the two means may be of some concern, a study that assessed the reflective judgment of graduate student counselors using the paper and pencil version of the RCI reported a mean score of 5.4, which is much closer to the mean for the current study (Owen, 2005). The sample for that study included 68 doctoral interns with a mean of 5.4 years of graduate education and 42 masters’ level students with 2.3 years of graduate education. Differences between scores on the paper and pencil version and the current online version have not been reported. Nevertheless, the fact that the current study sample is comprised of younger, traditionally-aged students including 43% who are advanced standing students may have contributed to the fact that the group mean was closer to the reported mean for college seniors (5.34) than to the graduate student mean (Kitchener, Wood, & Jensen, 2002 as cited in Owen, 2005).
Hypothesis 2.1. MSW students engaged in a case method course will show a significant increase at posttest on the Reasoning about Current Issues Test (RCI) as compared to their RCI pretest scores.

The results of a paired samples t-test failed to support this prediction, \( t (34) = -.302, p = .764 \). Cohen’s \( d \) was -.055 indicating an insignificant effect size. Thirty-five students in the intervention group took both the pre and posttest. Kurtosis and skewness values indicated that RCI scores at pre and posttest were normally distributed in the sample. The RCI mean score for the pretest (\( M = 5.26, SD = .742 \)) was slightly higher (.04) than the posttest (\( M = 5.22, SD = .75 \)), however the overall scores remained essentially unchanged.

A change score was calculated by subtracting the posttest scores from the pretest scores. Although the mean change score was -.04 (\( SD = .813 \)), there was considerable variability in the sample with a range of 3.16. The majority of participants (\( n = 20 \)) had positive change scores. Fifty-eight percent of participants’ scores increased between pre and posttest with a range of .06 to 1.24. In comparison, 40% of participants had negative change scores ranging from -1.92 to -.03. Twenty-three percent had posttest scores that decreased more than half of a stage, which is considerable, as it parallels the reported differences between freshmen and senior scores (Wood & Kadrash, 2002).

Because of the considerable variability, demographic variables were examined to determine if there were any factors that were related to the inconsistency in the change scores. Race and experience were significantly related to change scores. Minority students were significantly more likely to regress between pre and posttest, \( t (33) = - \)
3.385, \( p = .002, \ d = 1.44 \). Additionally, a one-way ANOVA indicated that there were significant differences on change scores based on participants’ years of experience, \( F(2,32) = 5.323, \ p = .010, \ \eta^2 = .25 \). Scheffe post hoc tests indicated that participants with less than three years experience (\( M = -.67, SD = 835 \)) regressed while those that had no experience (\( M = .184, SD = 83 \)) had positive change scores. Participants with three years or more experience also had positive change scores (\( M = .34, SD = 742 \)) but the difference between this group and the others was not significant. Age was not significantly related to change scores and gender was essentially constant as there was only one male in the intervention group.

**Hypothesis 2.2.** MSW students engaged in a case method course will demonstrate greater increases in their reflective thinking level than those who are not engaged in a case method course based on the change between pre and post RCI test scores.

This hypothesis was not supported. Both groups experienced mean decreases rather than increases in scores; however, participants in the comparison group decreased by nearly one half a stage, (\( M = -.475, SD = .94 \)) while participants in the intervention group decreased four hundredths of a stage (\( M = -.042, SD = .81 \)). The results of an independent samples \( t \)-test based on change scores indicated that the difference between the groups was not statistically significant, \( t(51) = 1.74, p = .08; \) however, Cohen’s \( d \) indicated there was a medium effect size (\( d = .49 \)).

A paired samples \( t \)-test between the comparison groups’ pre and posttest scores indicated that post test scores (\( M = 4.85, SD = .65 \)) were significantly lower than pretest scores (\( M = 5.32, SD = .62 \)), \( t(17) = 2.14, p = .047 \). Cohen’s \( d \) (\.75) indicated the effect
size was approaching the criteria for a large effect (.8) (1988). A Pearson correlation was run to determine the relationship between pretest scores and change. The results indicated that pretest scores and change scores were significantly negatively correlated for all participants, \( r (52) = -.587, p = .000 \). Students who began with higher pretest scores tended to regress at posttest, while those with lower pretest scores increased their scores at posttest. This pattern was also evident when isolating the intervention group \( r (34) = -.539, p = .001 \). Figure 3 below graphs the mean pre and posttest scores of each group.

Figure 3. Change in RCI Scores

![Figure 3](image)

After examining the variables for assumptions of normality, a stepwise multiple regression was conducted to determine which of the following independent variables were predictors of change in RCI scores: RCI pretest scores, age, group membership,
and race (both recoded into dummy variables). Gender was excluded because it failed to meet the assumptions of normality. The regression results indicated that only pretest scores predicted RCI change; all other variables were removed from the model, $F(1, 51) = 26.83, p = .000, R = .587, R^2 = .345, \beta = -.587$. Based on the adjusted $R^2$ RCI pretest scores accounted for 33% of the variance in RCI change.

*Hypothesis 2.3.* Gains in the reflective judgment scores of students engaged in a case method course will exceed increases that can be attributed to maturation or educational experience.

This hypothesis could not be tested because there were no significant differences between the RCI scores of foundation year and second year students. Comparison of the intervention group ($n = 39$) and the comparison group ($n = 18$) pretest scores did not support the assumption that there would be a measurable maturation effect evidenced by higher RCI scores in the intervention group. In fact, the intervention group scores ($M = 5.25, SD = .74$) were slightly lower than the comparison group ($M = 5.32, SD = .61$). The results of an independent sample $t$-test indicated that the difference was not significant and the effect size was negligible, $t(55) = -.381, p = .705, d = -0.01$.

*Hypotheses Related to Content Analysis Procedures*

Content analysis procedures were utilized to explore whether reflective thinking changes were evident in students’ decision case papers between the initial and final case analysis submitted. Analysis of the papers generated data that was analyzed using quantitative as well as qualitative methods. The quantitative analysis of the papers will be discussed first, followed by the qualitative analysis.
Students’ papers were coded based on a customized rubric adapted from Wolcott’s Steps for Better Thinking (Wolcott, 2007). The rubric contained twelve items, which describe a range of competencies related to solving ill-structured problems. In order to facilitate the statistical analysis of the data, each of the 12 competencies on the rubric was scored on a scale of 0 to 4. Although not identical to the RJ stages, the scale corresponds with the reflective judgment stages in the sense that skills demonstrated on each level are characteristic of the related RJ Stage. Performance in the 0 column is related to stages 2 and 3 of the Reflective Judgment Model. A score of 1.0 shows evidence of Stage 4 reasoning. A score of 2.0 indicates the student is using skills characteristic of Stage 5 and a score of 3.0 corresponds to Stage 6. Although a score of 4 was possible, all students scores in the sample ranged from 0 to 3.0. Mean scores were derived by averaging the scores on the twelve items. For further explanation of the meaning of the five performance levels, please refer to the descriptions in Chapter 3. The rubric is included in Appendix J.

Internal Consistency

Reliability analysis was used to determine whether the 12 items on the rubric were measuring the same construct. Cronbach’s Alpha on the 12 items was .885 for pretest scores indicating a high degree of internal consistency. The item means ranged from .47 on Limitations to 1.34 on Evaluation with a scale mean of 13.22 (SD = 5.62). Each of the items contributed favorably to the scale mean. Although deleting Uncertainty and Limitations from the scale would have increased Cronbach’s Alpha to .888 and .897 respectively, the difference was not large enough to consider deleting them from the
scale. Cronbach’s Alpha for the items at posttest was .929. The items ranged from a low of .19 on Limitations to a high of 1.34 on Justification with a scale mean of 13.03. Once again, each item contributed to the overall scale mean. With the exception of Limitations each item contributed to the Alpha score and deleting Limitations would have only increased the Alpha to .930.

Comparison of Initial and Final Rubric Scores

Hypothesis 3.1. MSW students engaged in a case method course will demonstrate increased reflective thinking skills based on their scores on a customized rubric designed to assess problem-solving skills related to the resolution of ill-structured problems.

This hypothesis was not supported by the data. The results of a paired samples t-test indicated that there was not a significant difference between students’ mean scores on the initial ($M = 1.10, SD = .467$) and final case analysis ($M = 1.08, SD = .486$), $t (31) = 1.16, p = .873, d = .04$. A change score was computed by subtracting the initial case scores from the final case scores. The mean change score ($-.016, SD = .547$) indicated that students scores remained essentially unchanged from pre to posttest. A categorical change variable was computed to determine the percentage of students whose scores increased versus those whose scores decreased between the initial and final case analysis. Fourteen students (43.8%) had negative change scores, which ranged from a low of -1.17 to -.08. Five students (15.6%) had a score of 0.0 indicating their initial and final scores were identical. Thirteen of the 32 students (40.1%) had positive change scores ranging from .08 to 1.0. These results indicate that although there were not significant differences
between group means, there was considerable variability in student performance between pre and posttest.

A second categorical change variable was computed to differentiate between scores reflecting meaningful changes versus those that might be trivial. In keeping with patterns observed in empirical research of the Reflective Judgment Model, a change was considered meaningful if it was one quarter of a stage higher or lower than the initial case score. This measure corresponds to approximately one-half of the standard deviation for the change score (SD = .54) and one-half of the reported change between seniors and graduate students (.52) (Kitchener, Wood, & Jensen, 2002 as cited in Owen, 2005). In addition, the only study to report growth in reflective judgment scores following a one-semester educational intervention, found a mean improvement of .296 (Kronholm, 1996). All scores were categorized by the following criteria: those that increased by at least .25 were counted as improved, those with change scores between -.24 to .24 were counted as staying the same, and those whose scores declined by more than .25 were considered to have decreased. Based on the new criteria, 10 students’ (31.2%) scores increased, 10 (31.2%) remained constant, and 12 (37.5%) decreased.

A Pearson correlation was computed between mean rubric scores on the initial case and change scores to determine if a pattern similar to the one observed for the RCI scores emerged. In fact, initial scores and change scores were significantly negatively correlated, \( r (31) = -.551, p = .001 \). The results of a one-way ANOVA between the categorical change variable for meaningful changes confirmed that students who started with higher scores regressed toward the mean, \( F (2, 29) = 6.026, p = .006 \). A Scheffe
procedure performed to assess pair wise differences between the change groups indicated that the initial scores of participants whose scores decreased by .25 or more were significantly higher ($M = 1.42$) than those whose scores increased ($M = .90$) or those whose scores stayed the same ($M = .92$).

Scores on the rubric ranged from .42 to 2.16 on the initial case analysis and .42 to 2.66 on the final case analysis. Forty-seven percent of students had ratings that were below 1.0 on the initial case analysis compared to 50% on the final case analysis, indicating that the majority of students' papers reflected problem-solving approaches related to epistemic assumptions consistent with Stage 3 and 4 of the Reflective Judgment Model. Fifty percent of students had scores between 1.0 and 2.0 at pretest compared with 47% at posttest. These scores reflect skills that are supported by the epistemic assumptions of the quasi-reflective stages, 4 and 5. One student (3.2%) at pretest and one student (3.2%) at posttest had scores above 2.0, indicating the beginning use of skills in the reflective thinking range.

The 15 students (47%) who scored in the Pre-Reflective Performance Pattern 0 range on the initial case showed significant increases in their final rubric score. The mean initial case score for these students was .705 ($SD = .183$) and the final was .938 ($SD = .354$). The increase of .233 was statistically significant with a large effect size, $t(14) = 2.333, p = .035, d = .82$.

In comparison, students ($n = 16$) who scored in the Quasi-Reflective Performance Pattern 1 range regressed from an initial mean score of 1.4 ($SD = .572$) to a final mean score of 1.2 ($SD = .299$). Only one student scored in Quasi-Reflective Performance
Pattern 2 range. That student’s score of 2.16 regressed ¾ of a stage to 1.41. Figure 4 below graphically displays the differences in the pattern of change between the three groups. Frequencies for performance pattern ratings on each of the rubric items are included in Appendix L.

Figure 4. Mean Rubric Change by Initial Case Performance Pattern Level

Comparison by individual item scores. Two-tailed paired samples t-tests were used to determine whether there were significant differences on each rubric item between initial case ratings and final case ratings. The results indicated that there were no significant differences on any of the items, with the exception of “Limitations,” which was significantly lower on the final score. The final scores were slightly lower on 8 of the
12 items for the final case analysis paper. Table 6 displays the results of each of the t-tests. Effect sizes (Cohen’s d) indicated that the associations ranged from insignificant to interesting (medium).

Table 6.
Paired Samples T-Tests on Rubric Items.

<table>
<thead>
<tr>
<th>Item</th>
<th>Pre</th>
<th>Post</th>
<th>M</th>
<th>SD</th>
<th>t (31)</th>
<th>p</th>
<th>d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identification</td>
<td>1.22</td>
<td>1.31</td>
<td>.094</td>
<td>.818</td>
<td>.649</td>
<td>.521</td>
<td>.15</td>
</tr>
<tr>
<td>Uncertainty</td>
<td>1.06</td>
<td>1.03</td>
<td>-.031</td>
<td>.695</td>
<td>-.254</td>
<td>.801</td>
<td>-.05</td>
</tr>
<tr>
<td>Relevance</td>
<td>.91</td>
<td>1.22</td>
<td>.312</td>
<td>.965</td>
<td>1.83</td>
<td>.077</td>
<td>.46</td>
</tr>
<tr>
<td>Multiple Perspectives</td>
<td>.94</td>
<td>.88</td>
<td>-.062</td>
<td>1.014</td>
<td>-.349</td>
<td>.156</td>
<td>-.09</td>
</tr>
<tr>
<td>Interpretation</td>
<td>1.12</td>
<td>1.19</td>
<td>.062</td>
<td>.759</td>
<td>.466</td>
<td>.645</td>
<td>.11</td>
</tr>
<tr>
<td>Evaluation</td>
<td>1.34</td>
<td>1.19</td>
<td>-.156</td>
<td>.920</td>
<td>-.961</td>
<td>.344</td>
<td>-.20</td>
</tr>
<tr>
<td>Objectivity</td>
<td>1.1</td>
<td>1.12</td>
<td>-.031</td>
<td>.999</td>
<td>-.177</td>
<td>.868</td>
<td>-.04</td>
</tr>
<tr>
<td>Supports Conclusions</td>
<td>1.28</td>
<td>1.22</td>
<td>-.062</td>
<td>.716</td>
<td>-.494</td>
<td>.625</td>
<td>-.09</td>
</tr>
<tr>
<td>Justification</td>
<td>1.22</td>
<td>1.34</td>
<td>.125</td>
<td>.976</td>
<td>.725</td>
<td>.167</td>
<td>.15</td>
</tr>
<tr>
<td>Limitations</td>
<td>.47</td>
<td>.19</td>
<td>-.281</td>
<td>.683</td>
<td>-2.329</td>
<td>.027</td>
<td>-.40</td>
</tr>
<tr>
<td>Context</td>
<td>1.19</td>
<td>1.12</td>
<td>-.062</td>
<td>.801</td>
<td>-.442</td>
<td>.662</td>
<td>-.11</td>
</tr>
<tr>
<td>Overall Approach</td>
<td>1.31</td>
<td>1.22</td>
<td>-.094</td>
<td>.856</td>
<td>-.619</td>
<td>.540</td>
<td>.12</td>
</tr>
<tr>
<td>Rubric Mean</td>
<td>1.10</td>
<td>1.09</td>
<td>-.02</td>
<td>.548</td>
<td>-.161</td>
<td>.873</td>
<td>-.02</td>
</tr>
</tbody>
</table>

Although the differences were not statistically significant, between pre and posttest, students’ scores increased in their ability to identify and summarize the problem (I), identify relevant issues (R), offer inferences and interpret information (IN), and provide justification for their conclusions (J). The largest effect size was for the ability to identify relevant issues. The highest mean score obtained on the initial case was for
Evaluation ($M = 1.34, SD = .701$) which involved considering the implications and consequences of proposed solutions. The highest mean score on the final case was for Justification ($M =1.34, SD = .653$) which involved justifying positions with supportive evidence. The lowest mean scores on an individual item on both the initial and final case was for acknowledging limitations ($M = .47, SD = .5; M = .19, SD = .47$). The participants rarely used this skill, which demonstrates the ability to deal with and address ambiguity in an ill-structured problem. This skill reflects the increased cognitive complexity that is characteristic of those engaging in Performance Pattern 2 through 4. Students’ scores decreased significantly in this category between pre and posttest.

*Comparison by Case.* All of the students analyzed the same initial case; however, because students could choose five of the last ten cases that they would submit for a grade, the last case submitted varied from Case #7 to Case #12. Case #7 and Case #9 were combined for analysis, because only one student submitted #7 and only two submitted Case #9. Students’ performance on the final case ranged from a mean of 1.02 on Case #7 and #9 to 1.13 on Case #10. A one-way ANOVA used to determine whether the differences between the scores on the final cases were significant, indicated that they were not and that the effect size was very small, $F(3, 28) = .036, p = .991, \eta^2 = .004$.

Each of the final cases was also compared to the initial case using two-tailed independent samples $t$-tests. Although there were no significant differences, effect sizes varied from very small to moderate. Students who completed case #7 and #9 ($n = 3$) had the lowest mean score and the effect size for the decrease between pre and posttest was moderate. Students who submitted Case #11 as their final case ($n = 11$), had only slight
decreases in their scores and a very small effect size. In comparison, students submitting
Case #10 and Case #12 (n = 18) increased their scores from pre to posttest and the effect
sizes were moderate. Table 7 below displays the results of each t-test, mean scores, and
effect sizes for each of the final cases submitted.

Table 7.

Comparison of Initial and Final Scores by Final Case

<table>
<thead>
<tr>
<th>Case</th>
<th>n</th>
<th>PreM</th>
<th>SD</th>
<th>PostM</th>
<th>SD</th>
<th>t</th>
<th>df</th>
<th>p</th>
<th>d</th>
</tr>
</thead>
<tbody>
<tr>
<td>#7 The Overcrowded Clinic &amp; #9 ResponsAbilities (comb)</td>
<td>3</td>
<td>1.11</td>
<td>.254</td>
<td>1.03</td>
<td>.046</td>
<td>-.577</td>
<td>2</td>
<td>.622</td>
<td>-.44</td>
</tr>
<tr>
<td>#10 Homeboy Industries</td>
<td>6</td>
<td>1.14</td>
<td>.515</td>
<td>1.45</td>
<td>.552</td>
<td>-1.26</td>
<td>5</td>
<td>.261</td>
<td>.60</td>
</tr>
<tr>
<td>#11 I will not be God’s Entertainment</td>
<td>11</td>
<td>1.13</td>
<td>.606</td>
<td>1.08</td>
<td>.446</td>
<td>-.290</td>
<td>10</td>
<td>.778</td>
<td>-.04</td>
</tr>
<tr>
<td>#12 Seattle Community Association</td>
<td>12</td>
<td>0.895</td>
<td>.431</td>
<td>1.08</td>
<td>.556</td>
<td>1.105</td>
<td>11</td>
<td>.293</td>
<td>.37</td>
</tr>
</tbody>
</table>

Comparison by Rationale. Each of the nine rationale categories were coded as
dummy variables, with 0 representing the absence of the rationale in the rationale
statement and 1 indicating its use. While codes for the rubric were based on the
Reflective Judgment Model and Wolcott’s Steps for Better Thinking, the codes assigned
to rationale statements emerged from the data. The nine themes that were evident in
students’ rationale statements included 1) authority, 2) facts that fit an established belief,
3) intuition, 4) personal and/or professional experience, 5) personal values/beliefs, 6)
previous knowledge, 7) research, 8) an unsupported opinion, and 9) the utility of the
solution. Students often cited more than one rationale for their proposed solutions making

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it impossible to isolate any of the rationale for analysis. Table 8 displays the frequencies of each of the rationale used on the initial and final case analysis.

Table 8.

*Use of Rationale and Rubric Means*

<table>
<thead>
<tr>
<th>Rationale</th>
<th>Initial Case</th>
<th></th>
<th>Final Case</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f</td>
<td>M1</td>
<td>SD</td>
<td>f</td>
</tr>
<tr>
<td>Authority</td>
<td>7 (22%)</td>
<td>.642</td>
<td>.218</td>
<td>0</td>
</tr>
<tr>
<td>Facts that Fit Belief</td>
<td>3 (9%)</td>
<td>.861</td>
<td>.427</td>
<td>4 (12%)</td>
</tr>
<tr>
<td>Intuition</td>
<td>3 (9%)</td>
<td>1.22</td>
<td>.673</td>
<td>3 (9%)</td>
</tr>
<tr>
<td>Personal/Prof Exper</td>
<td>13 (41%)</td>
<td>1.3</td>
<td>.463</td>
<td>12 (37%)</td>
</tr>
<tr>
<td>Personal Values</td>
<td>12 (37%)</td>
<td>1.13</td>
<td>.509</td>
<td>7 (22%)</td>
</tr>
<tr>
<td>Previous Knowledge</td>
<td>2 (6%)</td>
<td>.708</td>
<td>.361</td>
<td>8 (25%)</td>
</tr>
<tr>
<td>Research</td>
<td>8 (25%)</td>
<td>1.16</td>
<td>.342</td>
<td>5 (16%)</td>
</tr>
<tr>
<td>Unsupported Opinion</td>
<td>1 (3%)</td>
<td>.666</td>
<td>n/a</td>
<td>1 (3%)</td>
</tr>
<tr>
<td>Utility</td>
<td>3 (9%)</td>
<td>1.5</td>
<td>.3</td>
<td>8 (25%)</td>
</tr>
</tbody>
</table>

The most frequently used rationale for the recommendation made was personal experience. Forty-one percent of students used it as a rationale on the initial case, compared to 37% on the final case. This was followed by personal beliefs/values, which was cited by 37% on the initial case and 22% on the final case. Twenty-five percent of students on the initial case indicated that they based their conclusions on research, as compared to only 16% on the final case. Students were more likely to base their conclusions on the utility of the solution on the final case (25%) than on the initial case (9%).
Independent samples $t$-tests were used to determine if there were significant differences in students’ overall problem-solving approach (OA) and their final mean scores based on the rationale they used for arriving at their proposed solution. Students’ scores on both variables were compared for the initial case and the final case. Although there were differences observed in mean scores for several of the rationale that met the criteria established earlier for a “meaningful” change, the results of the $t$-tests indicated significant differences only for those who used authority or personal experience on the initial case.

Students who used “authority” as a rationale for their proposed solution on the initial case had significantly lower mean rubric scores than those who did not, $t(31) = 3.40, p = .002$. An effect size based on Cohen’s $d$ (1.7) indicated that students who used authority as a rationale scored in the 5th percentile. Authority was assigned as a rationale code when students cited an authoritative source, be it a person, organization, or reference as the primary rationale for their proposed solution and did not clearly differentiate between the authority and their own position or indicated that the authoritative position settled the matter conclusively. While the mean score for those who used “authority” was .642 ($SD = .218$), the mean for those who did not was 1.23 ($SD = .438$). Significant differences were also noted on Overall Approach to Problem Solving, $t(30) = 3.042, p = .005, d = 1.43$. The mean OA score for those who used authority as a rational ($n = 7, SD = .535$) was .57, while the mean OA score for those who did not ($n = 25, SD = .77$) was 1.52.
No students used “authority” as a primary rationale for their solutions on the final case, suggesting that students who were inclined to use authority on the initial case used rationales that were more complex on the final case. Although an independent samples $t$-test between initial and final case means for those who used authority on the initial case was not significant $t(7) = 1.082, p = .321$ this group’s scores increased on the final case analysis by .18. Cohen’s $d$ indicated the effect size was approaching large, $(d = .68)$.

Significant differences were observed between those who used personal or professional experience as a rationale on the initial case and those who did not. On the initial case, the mean score for those who used personal experience was 1.30 $(SD = .463)$ compared to .96 $(SD = .427)$ for those who did not. The difference was significant and the effect size was large, $t(30) = 2.183, p = .032, d = .76$. Significant differences were also observed for students’ overall problem-solving approach, $t(30) = 2.313, p = .028, d = .84$. In contrast, students who used personal experience on the second case had lower scores (.91, $SD = .317$) than those who did not (1.18, $SD = .456$). The difference was not statistically significant, but a moderate effect was observed, $t(30) = -1.561, p = .129, d = -.60$.

Students were significantly more likely to use previous knowledge as a rationale for their proposed solution on the final case $t(31) = 2.252, p = .032, d = .53$. While only two students indicated that previous knowledge had been the basis for their proposed solution on the initial case, eight used it on the final case. This code was applied when students indicated that theories, previous course work or other specific sources of information were used as rationale for the methods proposed. This was differentiated
from research based on students own statement that they used research as opposed to
information they had previously learned, or by the use of specific citations in reference to
their rationale. Although the difference between the mean scores of those who used
previous knowledge and the mean score for those who did not was one third of a stage
higher (.32) the difference was not significant, \( t(30) = 1.634, p = .113 \). The effect size
approached Cohen’s criteria for a large effect size \( d = .69 \). Students were also more
likely to cite the utility of the solution on the final case analysis, although not
significantly so. While 9% of students cited the utility of the solution in their rationale for
the initial case, 26% used it on the final case. The mean score of those who used utility as
a rationale on the final case was 1.35 \( (SD = .757) \) as compared to 1.03 \( (SD = .421) \) for
those who did not.

*Comparison by Section.* Differences in students’ rubric scores by section were
also examined to determine if there was any variability in the ratings related to the
section that the student was enrolled in. Several sections had only one student
completing the study, so these sections were combined into one. The results of two one-
way ANOVAs indicated that there were significant differences on student scores based
on section on the final case analysis, \( F(7,24) = 2.424, p = .05, \eta^2 = .414 \), but not on the
initial case, \( F(7,24) = .146, p = .993, \eta^2 = .041 \). The effect size indicated that the
relationship between section and final scores was strong. A Scheffe post-hoc procedure
was performed to assess pairwise differences among sections \( (p = .05) \). The results
indicated that differences between the individual sections were not significant at the .05
level. The inconsistency between the omnibus test and the pairwise comparisons is
likely a result of sampling error (Nichols, 1998). A visual inspection of the section means reveals that posttest scores for students in Section 10 were 1.06 above the second ranking section. Although the difference is substantial, there were only two students in that section.

Crosstabs was also used to explore the relationship between section and meaningful (=>.25) increases in rubric scores. While 67% of students in section 1 and 100% of students in section 10 experienced a positive change of at least .25, 67% or more of the students in the remaining sections did not increase their scores appreciably. A value of .40 for Lambda indicated evidence of a strong association between section and increased scores, \( p = .021 \), indicating that knowing the section in which the student was enrolled improved the chances of predicting improvement by 40%. Table 9 displays mean scores by section and the percentage of improvement.

Table 9.

Initial and Final Rubric Scores by Section

<table>
<thead>
<tr>
<th>Section</th>
<th>n</th>
<th>M1</th>
<th>SD</th>
<th>M2</th>
<th>SD</th>
<th>% Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6</td>
<td>1.05</td>
<td>.518</td>
<td>1.15</td>
<td>.370</td>
<td>67%</td>
</tr>
<tr>
<td>3</td>
<td>8</td>
<td>1.17</td>
<td>.63</td>
<td>.92</td>
<td>.499</td>
<td>0%</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>.972</td>
<td>.673</td>
<td>1.03</td>
<td>.459</td>
<td>33%</td>
</tr>
<tr>
<td>5</td>
<td>2</td>
<td>1.0</td>
<td>.118</td>
<td>.92</td>
<td>.000</td>
<td>0%</td>
</tr>
<tr>
<td>7</td>
<td>5</td>
<td>1.07</td>
<td>.18</td>
<td>1.08</td>
<td>.25</td>
<td>20%</td>
</tr>
<tr>
<td>8</td>
<td>3</td>
<td>1.25</td>
<td>.440</td>
<td>.83</td>
<td>.417</td>
<td>33%</td>
</tr>
<tr>
<td>10</td>
<td>2</td>
<td>1.0</td>
<td>.707</td>
<td>2.21</td>
<td>.648</td>
<td>100%</td>
</tr>
<tr>
<td>2, 6 &amp; 9</td>
<td>3</td>
<td>1.0</td>
<td>.440</td>
<td>1.08</td>
<td>.463</td>
<td>33%</td>
</tr>
<tr>
<td>Total</td>
<td>32</td>
<td>1.10</td>
<td>.467</td>
<td>1.09</td>
<td>.486</td>
<td>38%</td>
</tr>
</tbody>
</table>
Correlation between Rubric and RCI Scores

Hypothesis 3.2. The content analysis ratings will correlate positively with the RCI scores.

This hypothesis was not supported. The results of a Pearson correlation between RCI scores at pretest and the initial case analysis was not significant, \( r (31) = .103, p = .580 \). Similarly, RCI posttest scores and final case analysis ratings were not significant, \( r (26) = -.006, p = .975 \).

Although the scores were not correlated, the mean scores for both measures supported the premise that students were using epistemic assumptions and skills related to Stage 4 of the Reflective Judgment Model. Based on the observation noted earlier that RCI scores tend to be one stage above RJI scores, a mean score of 5.2 on the RCI is equivalent to a 4.2 on the RJI. The adjusted score indicates that the average student in the intervention group was functioning at Stage 4 of the RJ Model. Similarly, a mean score of 1.0 on the rubric indicates that student were primarily using problem-solving skills related to the epistemic assumptions characteristic of Stage 4. Additionally, student scores between pre and posttest stayed essentially constant on both measures.

A comparison of individual student scores adjusted for the purpose of comparison revealed that 44% of student scores on each measure were within half a stage of each other; 25% had RCI scores that were at least one half stage higher than the rubric; and 17% had rubric scores that were .5 or higher than the RCI scores. Figure 5 depicts the relationship between the adjusted pre and posttest mean scores for each measure.
Figure 5. Relationship between Adjusted RCI and Rubric Scores.

Qualitative Analysis

This section will begin with a brief description of each of the decision cases in order to provide a context for the subsequent description of coding and student performance patterns. Following this section, Performance Patterns 0 through 3 are described and examples of students’ statements that correspond to each pattern are provided. The statements were chosen based on their representativeness. Because all but one of the participants were female, all references to students’ statements are made using female pronouns.

Case Descriptions and Observations

Students who participated in the study submitted six different decision case analyses, which were analyzed using content analysis procedures. While all of the
participants completed the initial case, the number of students completing each of the subsequent cases ranged from one to twelve students. The decision cases are consistent with the descriptions of a “good case” suggested by case method proponents as discussed in the review of the literature (Jones, 2003). Each narrative is rich with details, providing opportunities for students to determine what is most relevant, to acknowledge uncertainties, test assumptions, examine their own biases, and support conclusions with evidence within the case. The cases do not suggest an obvious solution to the problem and allow for multiple levels of analysis and interpretation (Levin, 1995).

Three of the decision cases raised issues regarding quality of life, the right to self-determination, and the responsibility to protect vulnerable populations whose rights are limited. Three others explored organizational leadership issues related to the organization’s mission, management, and limited resources.

*Decision Case #1.* The initial case, *Unusual Appeal* by Rachel Parker and Terry A. Wolfer,\(^1\) involves a social worker who is a mitigation investigator for a nonprofit law firm that represents inmates on death row. The case concerns a Hispanic male diagnosed with paranoid schizophrenia, who does not wish to appeal his death sentence because of the quality of his life as a prisoner on death row. The law firm does not believe he is competent to make the decision to refuse the appeal, but given his apparent lucidity and quality of life, the social worker deliberates between her responsibility to uphold the

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client’s right to self-determination and the mission of the agency to oppose the death penalty.

This case appears to be qualitatively different from subsequent cases in that it presents an obvious ethical dilemma, while the ethical dilemmas presented in each of the final cases is more subtle. It is a very compelling case, requiring students to develop strategies to decide between the competing values of life and self-determination in the context of pressing concerns. In addition, the case raises questions regarding adherence to social work values while working in secondary host settings.

Although the mean score on the initial case was slightly higher than on the final cases, ($M = 1.0$) the range of student scores suggests significant variability (.42 to 2.17) in performance. Students demonstrated evidence of a mixture of pre-reflective and quasi-reflective epistemic assumptions. Forty-seven percent of students ($n = 15$) scored in the Performance Pattern 0 range (.42 to .91); 50% ($n = 16$) scored in the Performance Pattern 1 range (1.0 to 1.91) and 3% ($n = 1$) scored in Performance Pattern 2 range (2.0 to 2.16).

Students were more likely to use pre-reflective thinking strategies to frame the problem when analyzing this case, such as framing the problem dichotomously, or missing the ethical dilemma presented by focusing primarily on the inhumane treatment of the client ($n=10$) rather than the ethical dilemma posed. Fifty-eight percent of students framed the problem in terms of an interpersonal conflict between the characters in the case. This approach is characteristic of Quasi-Reflective Judgment Stage 4, in which individuals are likely to perceive that differences of opinion results from the idiosyncrasies of the parties involved. Students were more likely to express perplexity.
acknowledge uncertainties, and admit to limitations in their proposed solution on this case than on subsequent cases.

Decision Case #7. The Overcrowded Clinic\textsuperscript{2} involves a non-profit family planning organization in a third world country with very limited resources, organizational planning problems leading to diminished service provision, and value issues related to cultural competency. This case, which was the earliest final case submitted, was only completed by one student, so no observations can be made regarding patterns in student performance.

Decision Case #9. ResponsAbilities\textsuperscript{3}, focuses on end of life issues in the context of services to a terminally ill patient. An initiative designed to extend hospice services to clients with no primary caregivers provokes anxiety among staff members when a client’s right to self-determination conflicts with staff concerns regarding her health and safety. The problem is posed from the perspective of a supervisor, who is struggling with how to deal with staff anxiety related to innovation, possible counter transference issues, disagreement regarding priorities on a multidisciplinary team, and conflict between client and worker values.

Only two of the thirty-two students submitting a final case analysis chose to submit this case. Scores obtained on this case were the lowest of all the cases ($M=.1.0$, 


scoring in the pre-reflective range of Performance Pattern 0. Although it is difficult to draw any conclusions based on the performance of two students, several factors may have had an impact on low scores. First, this case was one of the earliest submitted. Secondly, the ethical dilemma reflects the perspective of the supervisor. Because students were primarily young and had no social work experience, they may have had difficulty relating to the supervisory dilemma, as opposed to the issues faced by the young worker.

*Decision Case #10. Homeboy Industries: An Incubator of Hope and Business* 

concerns the conflicting values related to organizational and financial solvency vs. commitment to the organization’s mission. Homeboy Industries is an umbrella organization that has established a number of businesses in order to employ former gang members in East Los Angeles. In the face of its visionary leader’s ailing health, the organization’s lack of strategic planning and limited resources, the operations director must make decisions regarding expansion opportunities that have potential to increase desperately needed revenue, but may undermine the organization’s mission to discourage gang activity.

The range of performance for students who completed this case \((n = 6)\) was broad, from .42 at the bottom to 1.91 at the top. The mean score \((M = 1.14, SD = .515)\) reflected an increase between pre and posttest. Thirty-three percent \((n = 2)\) of students scored in Performance Pattern 0 range (.42 to .83); 67\% \((n = 4)\) scored in Performance Pattern 1 (1.0 to 1.91).

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The ethical dilemma in this case was more subtle, and students completing this case most often framed it in terms of a simple management problem. Only two of the six students mentioned the potential conflict between expansion opportunities and the original mission of reducing gang activity. A typical problem statement was, “Michael must decide what should be the next step for expansion of Homeboy Industries.”

Decision Case #11. I will not be God’s Entertainment focuses on the challenge of making sound practice decisions in the face of incomplete information, with self-awareness regarding personal biases that might influence the worker’s perception of client issues. Students completing this case were required to make a decision regarding best practice with a depressed teenaged victim of Traumatic Brain Injury who is struggling to cope with the aftermath of a tragic accident, and its impact on his independence, family relationships, support systems, self-concept and spirituality. The social worker in this case is not knowledgeable about the client’s medical condition, TBI, which creates temporary uncertainty. Enduring uncertainties depicted in this case call for students to examine their own assumptions and biases regarding spirituality, existential concerns, the limits of self-determination when working with individuals whose freedom is constrained, and the necessity of making practice decisions in the face of uncertainty.

Eleven students submitted this case as their final case analysis. The range on rubric scores was broad, ranging from a low of .66 to a high of 2.66, with a mean of 1.08. Seventy-three percent of students (n = 8) scored below 1.0 on the final rubric score.

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compared to 18% \((n=2)\) who scored between 1.0 and 2.0, and 9% \((n=1)\) who scored above 2.0. Fifty percent \((n=5)\) of the students analyzing this case focused on the temporary uncertainty related to Noah’s lack of knowledge regarding TBI, ignoring enduring uncertainties presented in the case.

*Decision Case #12. Seattle Community Association*\(^6\) was the final case assigned. Twelve participants completed this decision case, which involved the management of a large non-profit organization experiencing low morale and conflict following the establishment of an anti-racism initiative designed to address institutional racism. The executive director, who is committed to the initiative, is considering how to respond to widespread frustration expressed by staff toward agency leadership.

Student performance on this case ranged from a low of .5 to 1.83, with a mean of 1.07 \((SD = .485)\). Fifty percent \((n = 6)\) of students’ scores were in Performance Pattern 0, and 50% were in Performance Pattern 1. Students who had final rubric scores between 0 and 1 tended to over-identify with staff concerns, framing the problem in terms of black and white, with the supervisor as the antagonist. Students who attempted to consider the perspectives of each of the parties tended to use more complex reasoning strategies resulting in higher scores.

*Reflective Thinking Performance Patterns*

The majority of students demonstrated skills consistent with Quasi-Reflective Performance Pattern 1, with evidence of a variety of weaknesses and strengths leading to

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a mixture of scores on individual items ranging from 0 to 3. Fifty-seven percent of ratings assigned on individual items were in the Quasi-Reflective Performance Pattern 1 range, compared to 18% in Pre-Reflective Performance Pattern 0, 22% in Quasi-Reflective Performance Pattern 2, and only 3% in Reflective Performance Pattern 3. Performance Pattern 4 was not observed in the sample. This skill level, which is associated with Reflective Judgment Stage 7 has been rare in previous uses of the Step for Better Thinking rubric (Wolcott, 2006a) as well as the Reflective Judgment Interview and the RCI (King & Kitchener, 1994; King & Kitchener, 2004). It should be noted that Reflective Performance Pattern 4 involves preparing strategies for the ongoing construction of knowledge. Although students were required to include a method for evaluating their solutions, the assignment did not call for students to address how they would use evaluative measures to contribute to further knowledge about the issue (Refer to Table 4).

The following section describes the characteristics of problem-solving skills exemplified by Performance Pattern 0 through Performance Pattern 3. Each is organized by the sections of the assignment, which was the unit of analysis used in the content analysis procedures. Student statements were selected based on their representativeness of the performance level and of other student responses at that level. Students’ statements have not been edited for grammatical errors or inconsistencies. Some responses have been shortened in the interest of brevity (signified by the use of ellipsis points), but every effort has been made to maintain the integrity of the original statements.
Pre-Reflective Performance Pattern 0

The primary problem-solving approach of individuals using Performance Pattern 0 skills to solve an ill-structured problem is to “proceed as if the goal is to find the single ‘correct’ answer” (OA0) (Wolcott, 2006a). Based on Fischer’s skill levels and the stages of reflective judgment, this approach is based on a lack of sophistication in the ability to understand abstractions and deal with ambiguity (Kitchener & Fischer, 1990). The underlying epistemic assumptions are that knowledge is certain, and is based upon the assertions of authorities. When faced with a problem which doesn’t have a clear answer these individuals believe that although the answer may be temporarily uncertain, it will eventually be known by the experts. Until that time, individual conclusions must be reached based on personal beliefs. This failure to recognize the inherent uncertainty in the ill-structured problem or the need to evaluate evidence to resolve the uncertainty, results in inappropriate and overly simplistic problem-solving strategies. Although this overall approach was relatively rare (9%, n = 6) and primarily occurred on the initial case (n = 5), many students used a variety of Pattern 0 and Pattern 1 skills, indicating that they were functioning between the two stages. As a result, there is considerable overlap between these adjacent levels evident in student statements. For example, students may have identified the primary problem in the case (I1), but only acknowledged temporary uncertainty (U0).

Each of the competencies assessed by the individual rubric items contributes to the overall problem-solving approach. The codes that were used at each performance pattern level for each aspect of the case analysis are listed. The percentage of cases which
were assigned the identified code on the initial \((O_1)\) and final \((O_2)\) case follow each code description.

**Problem Statement.** Two codes were assigned to this section of the assignment.

- **I0:** Does not identify the main problem; seems to “miss the point” \((O_1 = 53\%; O_2 = 62\%)\)
- **U0:** Ignores uncertainty, or attributes uncertainty to temporary lack of information or to own lack of knowledge \((O_1 = 13\%; O_2 = 3\%)\)

The majority of students were at Quasi-Reflective Performance Pattern 1 or above on Problem Identification, which is associated with the first level in the Steps for Better Thinking Model. The code I0 was most often assigned to case analyses in which the student seemed to miss the primary dilemma presented by the decision case. For example, in *Unusual Appeal*, four students identified the primary problem as the inhumane treatment experienced by the prisoner, while ignoring the ethical dilemma regarding the death sentence appeal faced by the social worker and the question of his mental competence to exercise the right to refuse the appeal. One student identified the problem thus, “An innocent man has been sentenced to the death penalty, but his current conditions have caused him to believe that it would be better to die rather than appeal the sentence \((I0; U0)\)”

This problem statement not only fails to identify the ethical dilemma faced by the professional social worker in the case, but also assumes that claims regarding the client’s innocence are factual, although absolutely no evidence is presented to warrant the claim
in the decision case. (A surprising, and disconcerting finding was that only one of thirty-two students raised this as an issue in her analysis).

Performance Pattern 0 skills used in problem identification were also characterized by presenting the problem as if it were well-structured and could be resolved with certainty (U0). For example, one student framed the problem in the initial case in this way: “Jose Aranda’s quality of life needs to improve so that he can make a competent decision regarding his appeal” (I0; U0). This student frames the problem from the perspective of the prisoner with an underlying assumption that once his quality of life improves the ethical dilemma will be resolved.

Contextual Analysis. The failure to identify relevant contextual factors (R0), and to acknowledge the viability of multiple perspectives (MP0) as well as the tendency to simply describe the elements of the case without offering any inferences regarding the meaning of the facts (IN0), resulted in the assignment of codes in the pre-reflective pattern range. The following three codes were applied to the contextual analysis when students’ analysis primarily used pre-reflective strategies to address the context:

- **R0:** Identifies at least some information that is relevant to the problem ($O_1 = 25\%$; $O_2 = 16\%$)
- **MP0:** Describes information without acknowledging multiple perspectives or portrays perspectives and information dichotomously, e.g. good/bad, right/wrong ($O_1 = 22\%$; $O_2 = 28\%$)
- **IN0:** Describes rather than interprets information; or may use contradictory or illogical arguments; lacks organization ($O_1 = 9\%$; $O_2 = 13\%$)
The following statement from an analysis of *Homeboy Industries* reveals this level of analysis.

Father Boyle has helped so many youth who were either at risk or ex gang members. In 2003, he was diagnosed with leukemia. Many of the people he had helped came to visit, offering anything they could do to help. However, Father Boyle did not seem affected by the news. He was still energetic and in shape and instead of worrying about his health, was worried about Homeboy Industries.

Homeboy Silkscreen was made by Ruben Rodriguez who felt that he owed his changed life to the kindness of Father Boyle. His wife had experience in silk-screening. However, finding a place for the silkscreen business would be tough because several of the sites were within gang territories. Therefore, the former gang members would risk their lives just getting to work. Also, one of the major customers of the silk screening was a radio station aimed at teenagers. They ordered t-shirts and advertised for free. Therefore, the teenage population in LA was already targeted for wearing Homeboy Industries gear.

Homeboy Industries has the support of many people including famous stars such as Martin Sheen, Angelica Huston, and Kirk Douglass… (R0; IN0:MP0).

In this contextual analysis, the student reports extraneous details related to the case without offering interpretations regarding the meaningfulness of the information as
it relates to resolution of the problem. She fails to address relevant issues, acknowledge multiple perspectives or link the facts presented to the proposed solutions.

Alternative Solutions and Recommendation. An expectation for this section of the assignment was that based on the contextual analysis, students would propose at least three distinct, viable strategies for resolving the dilemma and discuss the pros and cons of each before reaching a decision regarding the best alternative. The following codes in the Pre-Reflective Performance Pattern 0 were used for this unit of analysis:

- **E0:** Cites pros or cons that don’t make sense based on the information provided or does not address implications or consequences beyond dichotomous characterizations ($O_1 = 13\%; O_2 = 16\%$ )
- **O0:** Fails to reason logically from pros/cons to recommendation or conclusion; relies primarily on unexamined prior beliefs ($O_1 = 28\%; O_2 = 22\%$ )
- **S0:** Provides fact, definitions, or other “authoritative” information that mask as conclusions instead of own conclusion ($O_1 = 3\%; O_2 = 0\%$ )
- **J0:** Based on authoritative source OR where absolute answers are not available on an unsupported opinion. ($O_1 = 25\%; O_2 = 6\%$ )
- **L0:** Does not acknowledge significant limitations beyond temporary uncertainty ($O_1 = 53\%; O_2 = 84\%$ )

The first two codes, E0 and O0, address the students’ inability to use logic effectively in their presentation of the proposed solutions. S0 and J0 relate to the students’ strategy for justifying their solution. L0 relates their ability to recognize that the solution has limitations. Student papers coded with an E0 most commonly used faulty or
inconsistent logic as they presented the disadvantages of the various alternatives.

Students who were unable to realistically assess the disadvantages of the solutions they proposed, appeared to suggest disadvantages whimsically that were not clearly related to the proposal. In her analysis of the case *I will not be God’s Entertainment*, the following student suggests cons that do not logically follow from the implementation of her proposed solution.

One strategy is for Noah to continue the session by completing a full suicide assessment to determine the risk of the Gregory harming his self or others. Throughout the rest of the session, Noah should establish rapport with Gregory so that he will be able to educate Noah on traumatic brain injury and the impact it has on his life. A pro of this alternative is that by assessing Gregory’s risk for suicide and building rapport with him, Noah will be better able to proceed with treatment. A con of this strategy is that if Noah does not examine his own spiritual beliefs, they may interfere with the most appropriate treatment of the client and the client’s right to self-determination (E0).

Note that the student does not explain why completing a suicide assessment or developing rapport with the client necessarily precludes examining one’s own spiritual beliefs. Neither does she indicate how either of these strategies, which under normal circumstances would not involve imposing one’s own spirituality on the client, will negate the therapists’ ability to give appropriate treatment or limit the client’s right to self-determination.
In the following narrative, the student uses faulty logic to conclude that treating the client who suffers from TBI and depression in the same way others are treated will have therapeutic effects on the client and convince the social worker that he has the knowledge necessary to proceed:

…Continuing the session as Noah would with any other first time client benefits Noah since he wouldn’t have formed any preconceived notions based on the referral paperwork. By completing the assessment as usual, Noah will recognize Gregory’s concerns are within his realm of practice and can then decide if a depression screening is necessary. Gregory is accustomed to society treating him differently, if Noah can demonstrate acceptance of Gregory’s physical form, he will build rapport and a healthy working relationship (L0).

A drawback to this option is the time it takes Gregory to respond to Noah’s questions because of the voice machine. This is problematic since Noah’s time is already stretched thin. Another possible disadvantage is Noah being unable to recognize the familiarity of Gregory’s problems, because he is too consumed by his physical form (E0).

The students’ argument appears to follow a number of flawed assumptions. The student assumes that Gregory knows how Noah proceeds with other clients and will recognize the similarity, which will facilitate trust. She also assumes that following this strategy will assure Noah of his skills for dealing with the situation, in spite of the fact that Noah has no previous knowledge or experience working with this population. In
addition, the disadvantages she lists, such as the challenge of working with a client who uses a voice machine or the worker’s preoccupation with the client’s “physical form,” are common to all the other strategies she proposes, and do not logically relate to this strategy in particular.

The student’s inability to reason logically from the pros and cons to her conclusion is evident as she adopts this strategy without warranting her claims, or addressing uncertainties or the limitations that she has suggested exist.

Gregory needs Noah to treat him like any other client he would see. The rest of the world has always treated Gregory differently, and all he wants is to be a ‘normal’ teenage boy…Gregory will feel understood and in control of the session (O0; L0: J0).

The statement above is assigned a code of J0 because the student used an unsupported opinion to warrant her solution and L0 because she does not acknowledge any limitations. A code of J0 also applied when students justified their proposals based on unevaluated authoritative sources. Students who justified their conclusions on the basis of authoritative sources, if possible, and on their own unsupported opinions, if not, used problem-solving strategies consistent with Stage 3 of the Reflective Judgment Model (King & Kitchener, 1994). A related code, S0, relates to the use of facts, definitions, or other “authoritative” information without differentiating the source from the students’ own conclusion. This code was only assigned once (on the initial case), as the majority of students who used authoritative sources were able to differentiate between their own opinion and the source.
While many students cited the NASW Code of Ethics as an authoritative source on the initial case, a code of J0 was assigned when students applied the Code of Ethics as justification simplistically, assuming that citing the code settled the matter conclusively. Students were most likely to use this strategy to support their conclusions in the analysis of Unusual Appeal. Twenty-five percent of students analyzing this case supported their rationale with a simplistic interpretation of the NASW code of ethics, unequivocally equating advocating for the client’s self-determination with ethical practice. These students ignored the limitations to self-determination suggested by the code, as well as evidence within the case that suggested a need to determine whether the best interests of the client were served by promoting his self-determination, given the questions regarding his decision-making competency.

Only two analyses that used the code of ethics to support their proposals balanced the mandate to support self-determination with the directive to limit those rights when a client poses a threat to themselves or others. Surprisingly, one student who cited this limitation in her contextual analysis reverted (without providing justification) to the more simplistic perspective when proposing the following solution:

The first solution for Cynthia would be to follow the social work Code of Ethics. By following the Code of Ethics, she is staying within professional guidelines and removing herself from criticism as to whether the decision she made was in the best interest of the client. If she does not follow the Code of Ethics, she could potentially harm the client, lose her licensure, and face professional and personal humiliation (J0; L0).
In this example, the student uses the Code of Ethics as an authoritative source that eliminates all uncertainty regarding the right thing to do. Her interpretation of following the Code of Ethics demonstrates her belief that there is a single correct solution. Consequently, she fails to consider the competing values articulated in the code and the need to determine which aspect of the code supports the best interest of the client.

A pervasive rating in Performance Pattern 0 was L0, which indicated a failure to acknowledge significant limitations beyond temporary uncertainty. Although the assignment required students to address the pros and cons of their potential solutions, forcing them to think through the limitations of their proposals, they rarely addressed those limitations once they adopted the proposal as the “recommended solution.” Instead, they tended to focus on the advantages of the solution and ignore all evidence regarding its limitations. In the selection below from a case analysis of *I will not be God’s Entertainment*, the student suggests that a drawback to a referral to a TBI support group is that Gregory might feel stigmatized:

Another solution would be for Noah to recommend Gregory to a TBI support group. This treatment approach will connect Gregory with people that are like him where he can build relationships. This group could also provide the counseling and care that Gregory needs, as well as the chance to do something without his mother, creating independence. A disadvantage of this is that Gregory might not like this group because it might make him feel like he is disabled and stigmatized like people with mental retardation. (E1)
In adopting this proposal as her recommended solution, the student does not address this limitation. She appears to ignore any negative considerations, including the possibility that given Gregory’s suicidal ideation, a TBI support group may not address the most pressing issues presented.

…..My preferred strategy is for Noah to refer Gregory to a support group for people diagnosed with TBI. A major theme throughout Gregory’s issues is that he does not have support beyond his mother. Not have support is difficult for everyone, especially a teenager boy who is trying to break away from his mother. Gregory seems to be giving up on life as indicated through his refusal to eat, his suicidal thoughts, and his withdrawal from church and his mother. Gregory could benefit from finding support through a group of people that understand his feelings of anger and of all that he has been through.

The fact that a significant majority of participants failed to acknowledge limitations, even among higher functioning students, may indicate that this is related in part to the academic culture, which discourages the acknowledgement of weaknesses or limitations in problem solving. Nevertheless, the tendency to ignore disconfirming evidence was a common pattern observed in student proposals. It appeared that many students related to the listing of cons superficially, but did not consider their relevance when adopting solutions.
**Global Ratings.** Two global ratings were assigned to each paper, one for incorporating important contextual considerations into the analysis, and another for the overall approach to problem resolution.

- **C0:** Does not address context beyond dichotomous characterizations such as right/wrong, good/bad, or smart/stupid ($O_1 = 9\%; O_2 = 9\%$)
- **OA0:** Attempts to find single “correct” answer to open-ended questions/problems ($O_1 = 5\%; O_2 = 0\%$)

Because these codes were applied to the entire case analysis, examples are not provided. Students with ratings of 0 for Context tended to describe contextual factors dichotomously or, alternately, ignored the contextual factors listed when considering alternative solutions. A rating of OA0 indicated that the student approached the problem as if it were well structured and had one correct solution. For example, one student who used the Code of Ethics as her rationale in her analysis of *Unusual Appeal*, stated, “Advocating for Jose’s right to self-determination is the only solution in which the best interest of the client is the primary consideration” ($I_0; L_0; OA_0$). The fact that this rating did not occur on the final papers supports the premise that students in the Pre-Reflective Pattern 0 demonstrated improved problem-solving strategies by the end of the semester.

**Quasi-Reflective Performance Pattern 1**

Based on the results of the content analysis, the majority of students were functioning in the Performance Pattern 1 range, which is associated with Stage 4 of the Reflective Judgment Model. Stage 4 represents a significant progression from Stage 3 in the resolution of ill-structured problems. At this stage, students understand uncertainty as
a category of knowledge for which absolute answers do not exist, and begin to use
evidence to justify conclusions (B. K. Hofer & Pintrich, 2002; B. K. Hofer & Pintrich,
1997; King & Kitchener, 2004). However, because the relationship between evidence and
justification remains ambiguous, evidence is used inconsistently. Anecdotal evidence
may be offered or the evidence may appear incomplete rather than linked to a coherent
argument. Students using Quasi-Reflective Performance Pattern 1 skills tended to choose
evidence that confirmed prior beliefs. This performance pattern was characterized by a
problem-solving approach that appeared to begin with conclusions and then “stack up
evidence” to support those conclusions (1997).

Problem Statement. Students who used Quasi-Reflective Performance Pattern 1 in
the problem statement were able to identify the primary issues in the case, and recognized
that there was not an absolutely correct solution to the problem. The following codes
were applied to the problem statement when students used identification strategies at
Quasi-Reflective Performance Pattern 1:

- I1: Identifies the main problem (or what might reasonably be considered
to be the main problem); but does not identify subsidiary, embedded, or
implicit aspects of the problem ($O_1 = 53\%; O_2 = 62\%$ )

- U1 Identifies at least one reason for significant and permanent uncertainty,
but does not integrate uncertainties into analysis ($O_1 = 68\%; O_2 = 68\%$ )

The student statement below identifies the basic problem and also frames the
problem as an ill-structured rather than well-structured problem (U1). For example:
Due to Cynthia’s social work values and ethics, she does not agree with the decisions and opinions of her co-workers, and superiors, Diane and Joe regarding Jose’s case. Cynthia must make a decision as to how to handle a disagreement about the case, considering the best interest of the client and the fact that Diane has used the force of threat to make her comply (I1; U1).

Although at Pre-Reflective Performance Pattern 0 students assumed that one perspective was correct and the other incorrect, students who used Performance Pattern 1 skills acknowledged that there were multiple perspectives and that contextual factors must be considered in analyzing the dilemma. However, because diversity of perspectives was viewed as resulting from differences in the personal or professional characteristics of the various parties (such as social work values vs. attorney’s values), the issue of which perspective was most plausible was not objectively explored (Wolcott, 2006a). While students acknowledged that multiple perspectives existed regarding the case dilemma, they focused on the perspective most similar to their own, rather than comparing and contrasting the evidence in support of each one.

Contextual Analysis. The following codes were assigned to student papers that demonstrated Quasi-Reflective Performance Pattern 1 skills in their contextual analysis:

- R1: Identifies most of the information that is relevant to the problem (O₁ = 59%; O₂ = 47%)
- MP1: Acknowledges more than one potential viewpoint, approach or perspective (O₁ = 63%; O₂ = 5%);
• IN1: Interprets information superficially as either supporting or not supporting a point of view; ignores relevant information that disagrees with own position; fails to sufficiently break down the problem ($O_1 = 69\% ; O_2 = 57\%$)

Students at Quasi-Reflective Performance Pattern 1 identified “most of the information that was relevant to the problem” in their contextual analysis (R1). For example, in analyzing *Unusual Appeal* they were able to identify most of the following factors: Jose’s schizophrenia, violence while in prison, lack of appropriate medication, inhumane treatment, and unusual beliefs regarding the aftermath of his death; as well as the agency’s commitment to oppose the death penalty, and the power differential between Cynthia and her superior.

While students at pre-reflective level relayed facts rather than offering inferences or interpretations, students at the first quasi-reflective level began to offer some interpretations regarding the facts in the case. However, the tendency was to interpret information superficially as either supporting or not supporting a point of view (MP1). They often ignored relevant information that disagreed with their own position, or failed to break the problem down sufficiently (IN1).

The contextual analysis below reflects many of these patterns. The student addresses a number of relevant factors and offers a few interpretations of the issues. However, overall, the analysis is superficial and does not clearly link the relevant factors to the dilemma regarding whether the social worker’s responsibility is to protect a vulnerable mentally ill person whose competence to make life and death decisions is
uncertain, or to support his right to self-determination. Although the student acknowledges that there are multiple perspectives, she primarily focuses on the perspective that Jose’s self-determination is paramount and chooses facts from the case that support that point of view. Information that would support the premise that Jose may not be competent to make a decision regarding his appeal is ignored. The researcher’s memos are included in brackets in the student statement below.

One internal issue is between Diane Epps and Cynthia Sanders. Cynthia disagrees with Diane about not letting Jose Aranda waive his appeal. (MP1) She feels that even though he is diagnosed with paranoid schizophrenia he understands, during medicated and unmedicated states, that he is being treated inhumanely and wants to remain on death row [Alludes to schizophrenia, medication issues, inhumane treatment, and mental competence; claim regarding prisoner’s competence is based on Cynthia’s “feeling” rather than on objective evidence] . Diane let Cynthia know that she signs her pay checks and Cynthia needed to agree with her [power differential; no interpretation]. Another problem is that Jose struggles with himself knowing that his quality of life is poor. [quality of life]

….One [external] problem is between the prison system and Jose because they will not pay for Jose to be medicated on a regular basis. They say that it is too expensive; because of this Jose suffers with hallucinations and delusions. Furthermore, right before the competency trial the prison guards did not adhere to the court mandate that Jose is not to be medicated against his will [doesn’t explain
inconsistency with previous statement]… Another significant issue is that the agency believes in advocating for prisoners to get off death row. However, Jose does not want to appeal and the agency is saying that he is not competent to make that decision. They want to offer their services against his will. (R1; IN1; MP1)

Because students who use the epistemic assumptions of stage 4 have come to understand that there are areas in which knowledge is uncertain, they often argue that others have a right to their opinions, without regard to the plausibility or credibility of those beliefs (King et al., 1990; Perry, 1970). The internal logic is that because knowledge cannot be ascertained with certainty, any judgment regarding the evidence is peculiar to the individual. For example, in spite of the fact that Jose believed his execution to be an act of heroism that would usher in world peace and prosperity, and immortalize him as a Mayan rain god, a number of students defended his opinions as legitimate and rational.

We will often differ on religious and spiritual beliefs, but it is important to respect the validity of someone else’s belief, no matter how farfetched it may seem to us. It seems reasonable to equate Jose’s belief in the afterlife to his mental illness, but that does not mean that the belief itself is any less valid. No person, no matter how educated, knows definitely what happens to us when we die, so each and every perspective is equally valid (MP1:IN1).

Because one’s beliefs about the afterlife are inscrutable, some students argued that they could not be used as evidence regarding one’s mental stability. Rather than
addressing the unusual nature of the client’s beliefs, students who took this approach tended to reframe his beliefs in more acceptable terms. For example:

Diane and Joe believe that Jose’s belief in Mayan gods is “delusional” or a sign of mental illness and incompetence when, in fact, it is what he believes as the after-life and is, therefore, very rational and not substantial evidence against his right to waive his appeal. (MP1; IN1)

*Alternative Solutions and Recommendation.* The primary characteristic of case analysis at Performance Pattern 1 for this section was the tendency to limit the discussion primarily to supporting one’s own perspective. The following codes applied to this performance pattern level:

- **E1:** Considers implications and consequences only superficially; ignores negative consequences of own position ($O_1 = 41\%$; $O_2 = 53\%$)
- **O1:** Provides arguments in favor of recommended option, and provides little or no opposing argument; uses superficially understood evidence and information in support of conclusions ($O_1 = 48\%$; $O_2 = 45\%$)
- **S1:** Clearly states conclusions and reasons, but limited to supporting primarily one perspective ($O_1 = 71\%$; $O_2 = 80\%$)
- **J1:** Based on facts, evidence that fits an established belief or own perspective ($O_1 = 53\%$; $O_2 = 62\%$)
- **L1:** Acknowledges at least one limitation or reason for significant and enduring uncertainty ($O_1 = 53\%$; $O_2 = 62\%$)

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While the majority of students supported the client’s right to self-determination in analyzing *Unusual Appeal*, the following student provides an articulate, but one-sided, argument in favor of supporting the death sentence appeal in spite of the client’s wishes to the contrary. While she provides alternatives and cites disadvantages, in each instance she provides the strongest support for her own perspective. The student appears to begin with the conclusion based on previous beliefs regarding capital punishment and stack up evidence to support it (OAI). Note that the language used to address disadvantages of the preferred strategy appear to be offered “with tongue in cheek.”

To resolve this impasse, [Cynthia] Sanders could concede her stand and align herself to [Diana] Epps to provide a united front in an appeal for [Jose] Aranda’s life. In a society where many people support pro-life issues and euthanasia is still very illegal, there should be no double standards when it comes to capital punishment … Besides the obvious disadvantage of giving [the] individual virtually no freedom to volunteer for execution, this choice would sacrifice individual self-determination for a higher ideal.

Finally, a third solution would involve a compromise from both Sanders and Epps. This solution would involve getting a mental health professional or psychiatrist in to consult and potentially declare Aranda as mentally incompetent and unable to make decisions….The professional in this case would violate their Hippocratic Oath of doing no harm, if they decide that Aranda is indeed mentally competent. This middle of the road way would take the responsibility away from the main parties, but would create other ethical questions (E1, O1, and S1).
In the first solution, the student supports the appeal by questioning the morality of capital punishment. The disadvantages of the solution, are worded in such a way that they continue to provide support for her preferred perspective. In the third solution, the student interprets “doing no harm” based on her own point of view, while ignoring the possibility that to declare a mentally competent person incompetent also presents “ethical questions”. The Stage 4 assumption evident in this statement is that experts’ assessments are merely subjective, (therefore biased) opinions viewed as a means to the desired end, rather than an objective evaluation based on relevant criteria.

In her rationale for choosing the first solution, the student bases her opinion on her personal values. Throughout the analysis, she focuses on the facts that support an established belief regarding the value of life regardless of the context:

The preferred way to solve this problem would be the first strategy in aligning Epps and Sanders together in their fight towards better justice for inmates as well as another chance at life for Aranda, even though it might be one in degrading conditions. Out of humanitarian reasons as well as religious reasons for some, life is worth fighting because no one really knows what the future will bring. Even though the individual wish would be squashed in the short run, it would serve a higher purpose in the long term (J1; L1).

As compared to Pre-Reflective Pattern 0, where significant limitations are ignored, this student acknowledges that “degrading conditions,” and the negation of personal wishes, are inherent limitations of this solution.
Global Ratings. The following codes were assigned to papers that demonstrated overall problem analysis and problem-solving approaches consistent with Quasi-Reflective Performance Pattern 1 and Reflective Judgment Stage 4:

- C1: Acknowledges the existence of different contexts, but focuses on context in support of own opinion (O₁ = 66%; O₂ = 72%)
- OA1: Appears to begin with conclusions and then stack up evidence/arguments to support it (O₁ = 53%; O₂ = 72%)

Students in the Quasi-Reflective Performance Pattern 1 range acknowledged the significance of contextual factors in their analysis, but were selective in the issues that they addressed. While students in Pre-Reflective Performance Pattern 0 tended to present the issues dichotomously, students at this level, acknowledged the existence and viability of other perspective, but only provided support for their own view. Their overall problem-solving approach tended to reflect a lack of objectivity or acknowledgement of personal bias. The example provided above demonstrates this approach to problem resolution.

Quasi-Reflective Performance Pattern 2

Quasi-Reflective Performance Pattern 2 is consistent with the epistemic assumptions characteristic of Reflective Judgment Stage 5. Students were most likely to score in Quasi-Reflective Performance Pattern 2 on individual rubric items for Problem Identification, Evaluation, and Justification. However, students’ analyses rarely scored at Performance Pattern 2 across the board. Because students exhibited a range of performance on the individual items, the majority of Performance Pattern 2 ratings were
assigned to students whose final rubric score on the initial and final case was under 2.0 or within the Performance Pattern 1 range. Only one student scored above 2.0 on the initial or final case.

According to King & Kitchener (1994), individuals’ use of epistemic assumptions related to the reflective judgment model is not static, but may fluctuate between two stages, and occasionally three. Students who demonstrated Quasi-Reflective Performance skills typically fluctuated between Performance Pattern 1 and 2 on the individual items, with an occasional rating in Performance Pattern 3. This quasi-reflective level is characterized by an overall approach to ill-structured problems that “proceeds as if the goal is to establish a detached, balanced view of evidence and information from different points of view” (Wolcott, 2006a). Students who demonstrated Performance Pattern 2 skills were able to present a balanced description of the problem, identifying issues, assumptions and biases associated with various perspectives. They were able to organize material in a meaningful manner that allowed them to address complexities. However, they had difficulty prioritizing the issues in order to come to a well-reasoned conclusion.

**Problem Statement.** Case analyses that were coded with an I2 were able to clearly identify the main problem as well as subsidiary, embedded, or implicit aspects of the problem. An important advance over Performance Pattern 1 was the ability to not only acknowledge uncertainty, but to also address the uncertainties in the problem analysis. Relatively few students demonstrated this level of competency in dealing with ambiguities. This code was not assigned based on the problem statement alone, but in
consideration of the student’s ability to integrate the uncertainties into the subsequent analysis. The following codes were assigned to problem statements at Quasi-Reflective Performance Pattern 2:

- I2: Clearly identifies the main problem and subsidiary, embedded, or implicit aspects of the problem (O₁ = 34%; O₂ = 34%)
- U2: Addresses significant and permanent uncertainties when interpreting and analyzing information a multifaceted problem definition, acknowledging uncertainty and including issues that are less obvious: (O₁ = 19%; O₂ = 12%)

The following student analyzing *I will not be God’s Entertainment* concisely offers a multifaceted problem definition, acknowledges uncertainty, and includes issues that are less obvious:

Psychiatric social worker, Noah Andrews is uncertain about how to proceed during his initial session with new patient, Gregory Lange, a 15-year old boy with TBI; the nature of Gregory’s injuries exacerbate the frustration he naturally feels as a teenager attempting to gain freedom and independence from his parents. As a result, Gregory is experiencing various personal, family, social, and spiritual issues. Due to the complexity of his issues and need for support, Noah must decide the best intervention to use while alone with Gregory and throughout the rest of the initial session (I2; U2).

*Contextual Analysis*. Quasi-Reflective Stage 5 of the Reflective Model, which undergirds the skills of Quasi-Reflective Performance Pattern 2, is characterized by
relativism, a belief that although knowledge is uncertain, individuals can make judgments about knowledge claims based on subjective interpretations of evidence which are bound by the context in which they occur (King & Kitchener, 1994; King & Kitchener, 1994; King & Kitchener, 1994). The following codes were assigned to contextual analyses that demonstrated Quasi-Reflective Performance Pattern 2 skills:

- R2: Explores (considers from different perspectives) a wide range of relevant information \( (O_1 = 17\%; \ O_2 = 38\%) \)

- MP2: Interprets information from multiple viewpoints; \( (O_1 = 16\%; \ O_2 = 16\%) \)

- IN2: Objectively analyzes quality of information; Organizes information and concepts into viable framework for exploring realistic complexities of the problem \( (O_1 = 22\%; \ O_2 = 25\%) \)

Students in this range demonstrated the ability to objectively analyze the quality of information and organize it into a viable framework for exploring the realistic complexities of the problems (IN2). Rather than simply acknowledging the existence of multiple perspectives (MP1), students interpreted information from multiple perspectives (MP2). In addition, they were able to identify less obvious issues that impacted the problem definition and analysis.

The primary weakness of students using Performance Pattern 2 skills was the tendency to become overwhelmed by the amount of contextual considerations due to an inability to prioritize the issues based on relevance or overarching criteria. This often results in a thorough but excessively lengthy analysis, followed by weak conclusions.
Consider the following contextual analysis of Seattle Community Association. In the interest of brevity, the selection is abbreviated.

There are several issues in this case that Cheryl Cobbs must consider as she makes decisions about whether to continue to endorse cultural competency trainings or to nix them. As Executive Director of Seattle Community Association (SCA), Cheryl has several roles to fulfill in her job. She must act as a visionary for the agency and as a manager to her staff’s needs… If she solely acts as a visionary… she will ignore staff’s frustrations and possibly cause increased amounts of dissension and tension. If she solely acts as manager to her staff’s desires, she may miss out on the opportunity to … keep SCA at the forefront/cutting edge of cultural competency. Plus, what impact has her position had on how staff feels about the trainings? Even though the Cultural Competency trainings through the Minority Executive Directors Coalition were not mandatory, did staff feel pressure to attend workshops to please the boss?…

Communication between top staff and lower staff seems to be one of the biggest complaints…. Plus, with recent budget cuts and layoffs that came from top-down staff, the other staff were probably already feeling undervalued, and mandates may only make them feel even more undervalued.

Another big issue to consider is the racial demographics of the agency. With the majority of the staff being Caucasian… how did they feel being
told that they needed to attend cultural sensitivity trainings from a boss that was not white? …..Sometimes, cultural sensitivity trainings can feel accusatory …towards the white culture, which could possibly have also upset the staff…. What if staff members had previous jobs or experiences that raised their cultural awareness in ways that top-management had not expected? ….The new hiring policies seem to be geared to have more diversity on staff; with a more diverse staff, cultural competency trainings may not be needed if the staff hired is naturally competent. However, SCA may want to consider whether the new policies offend the current staff or possibly cause reverse discrimination, as in the case of Allan Bakke in 1978 (infoplease.com).

Cheryl definitely needs to consider the funding sources as she decides whether or not to continue the diversity trainings…If Cheryl eliminates the trainings, would any of the funding be in jeopardy? ….What would it communicate to the community/neighborhood if Cheryl eliminated the cultural competency trainings for her staff?.... If the mission of the organization is to promote services that rid the community of poverty, prejudice, and neglect, would eliminating the program be a backwards step in the mission…?

Cheryl also needs to take into consideration the NASW Code 1.05 (a-c) about cultural competence and social diversity (her legal dilemma).

…How could her staff provide adequate services to clients if the staff did
not have opportunities to be trained about different client cultures?

However, Code 1.05c emphasizes that more than just client race should be considered when doing trainings...

Also, since the main idea of some of the anti-racism classes was to focus on power sharing... The classes themselves may have raised awareness about a problem that was not previously perceived by the staff. The classes may have been effective, but also could have backfired against Cheryl if staff viewed her and top management as not being power-sharers (IN2, MP2, R2).

While seven out of twelve students analyzing this case identified with the staff perspective, and painted Cheryl in a decidedly negative light, this student attempted to describe the perspectives of each party in a balanced way. She addresses a wide range of relevant data and addressees enduring uncertainties, such as the impact of the power differential on staff response, racial tensions, and the conflict between the roles of the visionary leader and the responsive manager. Furthermore, she considers the influence of contextual factors when analyzing the various perspectives. For example, she raises questions regarding the impact of staff discontent, the mission of the agency, need for leadership, the power differential between Cheryl and staff, budget cuts and layoffs, racial demographics of the organization, previous experience of employees, new hiring policies, funding sources, power-sharing, the NASW code of ethics, and the impact of the decision on the community. However, because she is unable to prioritize the most
relevant information, her contextual analysis is excessively lengthy and she has difficulty incorporating her analysis into the alternative solutions proposed.

*Alternative Solutions and Recommendation.* The problem-solving approaches utilized by individuals at this stage might best be characterized by the words, “It depends.” Because multiple perspectives are viable, and evidence is interpreted in light of the context, Stage 5 learners find it difficult to reach conclusions. Perhaps because the parameters of the problem were clearly defined in the decision case, this tendency to waffle between alternative solutions based on contextual factors was not clearly observed. Nevertheless, students using Quasi-Reflective Pattern 2 skills appeared to be intentional about providing a more balanced approach to the problem analysis but tended to offer weak recommendations in comparison with the complexity of the analysis.

The following codes applied to Quasi-Reflective Pattern 2 for this unit of analysis:

- **E2:** Analyzes implications and consequences for multiple alternatives \((O_1 = 47\%; \ O_2 = 28\%)\)

- **O2:** Provides logical arguments for each option and either a) fails to provide an overall recommendation or b) offers a recommendation with little/no support \((O_1 = 31\%; \ O_2 = 28\%)\)

- **S2:** Reluctant to select and defend a single overall conclusion in light of viable alternative; may provide conclusions with inadequate support \((O_1 = 0\%; \ O_2 = 9\%)\)
• J2: Based on interpretations of facts/evidence that are used to justify solutions within particular context. (Right solution depends on a variety of contextual factors) ($O_1 = 34\%$; $O_2 = 34\%$).

• L2: Articulates connections among underlying contributors to limitations ($O_1 = 0\%$; $O_2 = 3\%$).

Although the students who used Quasi-Reflective Performance Pattern 2 skills in the analysis were able to analyze the problem from multiple perspectives, they appeared to have difficulty establishing criteria that enabled them to choose between viable perspectives and options. While the student above provides a thorough problem analysis, and presents logical arguments for each alternative solution, she fails to adequately support her final recommendation in light of the issues she has identified in her analysis. She proposes three options: a) a mass email explaining the purpose of the trainings, b) holding small department meetings to reinforce the organizational mission, elicit feedback, and empower staff, or c) continuing with the status quo. Once again, in the interest of brevity, only the alternative that she chooses is represented.

A second option is for Cheryl to hold small meetings in each department of the agency to serve several purposes: 1) ask staff to provide verbal and written feedback about specific things that top-management can do to improve communication, 2) use this meeting time as an opportunity to empower and recognize the staff members through verbal praise to let them know how valued they are, 3) reiterate the mission of the organization and explain why top management originally made a decision.
to offer the culture trainings. This approach addresses the problem by giving the staff a chance to express their concerns and giving top management a chance to explain why the trainings are needed. It does not address the problem of still having top-down implemented trainings. There are many positives to this approach since staff will be receiving attention on an intimate level that would allow for more discussion and would increase the likelihood of effective communication. Negatives to this approach is that scheduling meetings to involve all 400 staff will be nearly impossible and very time-consuming; scheduled meetings may still feel like top-down implementation; staff may not feel comfortable expressing their honest opinions verbally; and there is still a large possibility that frustrations and resentments are not resolved in one meeting (E2,02,).

In this solution, the student makes an attempt to address the concerns of both staff and leadership, by providing a forum to address staff discontent, but continuing with the initiative. She is able to analyze the implications and consequences of this approach including its limitations, which are significant. However, in adopting the strategy she fails to address the limitations or compare it to the other alternatives to reach a conclusion regarding its superiority in spite of its shortcomings.

The recommended strategy is for Cheryl to conduct meetings with all of the staff and invite staff to safely provide feedback, criticisms, and possibly even provide some ideas to Cheryl. Since there is an issue of the staff feeling undervalued, Cheryl could personally apologize and take the
chance to affirm and empower her staff. She could model that she values their opinion by seeking their opinions. She does not necessarily need to abdicate her opinion of needing to have the culture trainings, but she can take the opportunity to address the staff’s concerns while also clearly communicating the vision behind offering the trainings and explain the legal and financial mandates for the trainings. The most important thing would be to address the original intentions of the trainings in the context of the mission while also addressing the misinterpretations/misconceptions about the purpose of the trainings (S2, J2, L0).

This student’s failure to adequately support her solution, in spite of her facility in analyzing the problem, and evaluating the implications and consequences of alternatives, may reflect the ambivalence of students at Stage 5 of the Reflective Judgment Model. From this perspective, endorsing one viewpoint invalidates the legitimacy of the other. Having understood the complexity of the issues from each side, the student chooses an option that appears to meet the need to continue the initiative, but also addresses staff concerns. Although she indicates that carrying out the solution will be “nearly impossible and very time-consuming” she ignores this, in the interest of an alternative that validates the concerns of each stakeholder. As a result, she is unable to defend her position with the same rigor that characterizes the rest of the paper.

*Global Ratings.* The following two codes were assigned to papers that used Performance Pattern 2 strategies in their overall analysis and problem resolution approach:
- C2: Identifies and considers the influence of context when analyzing perspectives and evidence \( O_1 = 22\%; O_2 = 16\% \)

- OA2: Appears to perform comprehensive and objective analyses from different viewpoints, but unable to reach or strongly defend conclusions \( O_1 = 25\%; O_2 = 16\% \)

Surprisingly, these ratings were assigned more often to the initial than the final case analysis, indicating that students who demonstrated the ability to perform a more complex analysis at the beginning of the semester, regressed on the final case. Nevertheless, these approaches occurred relatively infrequently throughout the sample as students were more likely to present a one-sided analysis of the ill-structured problem.

*Reflective Performance Pattern 3*

Because Reflective Performance Pattern 4 skills are rarely observed, and the epistemic assumptions related to them have only been observed in advanced doctoral students (King & Kitchener, 1994), Performance Pattern 3 skills are arguably the goal of graduate education for MSW students. These skills are related to the epistemic assumptions of RJM Stage 6, which marks the beginning of reflective thought and the related reflective thinking skills. The primary element of Reflective Performance Pattern 3 that differentiates it from the quasi-reflective skills of Pattern 1 and 2 is the ability to prioritize information and make comparisons across contexts by using general principles. Students using Reflective Performance Pattern 3 skills to resolve unstructured problems use a process for arriving at the best conclusion, which involves considering multiple perspectives, evaluating information and evidence, comparing between options, and using...
evidence to justify conclusions. Students approach problem solving “as if the goal is to come to a well-founded conclusion based on objective comparisons of viable alternatives.” Performance Pattern 3 skills occurred on only 3% of the ratings assigned. Therefore, it is not possible to provide examples of Pattern 3 skills in each of the areas. However, for the sake of comparison, one student’s analysis, with a high percentage of pattern 3 ratings is examined.

Problem Statement. The following codes were used to identify Reflective Performance Pattern 3 skills for the problem identification:

- I3: In addition to previous level, emphasizes and states criteria for identifying the most important aspects of the problem (O₁ = 0%; O₂ = 0%)
- U3: Identifies and discusses the significance of the most important uncertainties (O₁ = 0%; O₂ = 3%)

In order to receive a rating of I3 on the problem statement, students had to emphasize and state the criteria for identifying the most important aspects of the problem. This skill was not observed in any of the papers. A rating of U3, indicating that the student identified and discussed the significance of the most important uncertainties was assigned to the following case analysis of *I will not be God’s Entertainment*:

This case raises the important question of what self-determination means for a fifteen-year-old. Under the law, he is still considered a minor, but what “say” can and should he have in matters pertaining to his care and independence? How much of the presenting difficulties are attributable to Gregory’s needs, and how much are attributable to his mother’s? … The
social worker must determine how to proceed with Gregory's treatment, recognizing his client's unique limitations and need for supportive services while at the same time developing rapport and promoting his self-determination to live as high a quality of life as possible (I2, U3).

The student addresses the client’s age, which presents uncertainty regarding the application of the right to self-determination. She acknowledges the limitation as being of singular importance in the development of a treatment plan. (Of interest is the fact that this factor is not considered in any of the other analyses.) In addition, she also acknowledges uncertainty regarding the problem definition based on the family dynamics, and clients’ unique needs.

*Contextual Analysis*. The contextual analyses of students using Reflective Performance Pattern 3 skills are characterized by a balanced analysis organized on the basis of principles or criteria that apply across perspectives and contexts. The following codes applied to this performance level:

- **R3**: Focuses on the most important relevant information-able to prioritize ($O_1 = 0%$; $O_2 = 3%$)
- **MP3**: Evaluates information using general principles that allow comparisons across viewpoints ($O_1 = 0%$; $O_2 = 0%$)
- **IN3**: Focuses analysis on the most important information based on reasonable assumptions about relative importance; organizes information using criteria that apply across different viewpoints ($O_1 = 0%$; $O_2 = 3%$)
The following contextual analysis is a mixture of Quasi-Reflective Performance Pattern 2 and Reflective Performance Pattern 3 skills.

Gregory is fifteen-years-old, an age at which most youth begin to experience hormonal changes and a desire for greater independence. Because of Gregory's physical limitations, however, he is dependent upon others for care (chiefly his mother), including assistance with eating and mobility. Gregory makes a powerful statement when he tells Noah that he thinks of ways to die because "I will not be God's entertainment" (Sherr & Wolfer, 2002, p. 108). This statement suggests that Gregory blames God for his misfortune, that he resents his condition, and that he is potentially even suicidal. [The student interprets the meaning of Gregory’s statement as it relates to the problem assessment, she also assesses the impact of his developmental stage on his ability to cope with his disability.]

Noah appears to struggle with his feelings towards Gregory, first dismissing him as someone with MR or a disability and then feeling sympathetic towards his situation, and even charmed by his humor and intelligence. He also admits that he understands why Gregory would want to die. Noah juggles three roles simultaneously--he is a social worker who must promote the self-determination of clients, he is a spiritual individual whose beliefs impact his practice, and he is a grandson who was taught that "the Lord loves all of his creation" (Sherr & Wolfer, 2002, p. 106). With all of these roles and feelings minus an understanding of traumatic
brain injury (TBI), Noah must think quickly on his feet and with
Gregory’s best interests in mind. [Once again, the student does not merely
relate the facts of the case, but links them together in a way that provides
meaningful organization for problem resolution].
Despite the incredible tragedy that Gregory and his family have endured,
strengths are evident. Noah observes that Mrs. Lange dearly loves her
child and wants the best for him. She tolerates his abrasive words with the
utmost of calm and patience. She may be somewhat overprotective
(perhaps due to the guilt she carries concerning his accident occurring in
the first place), yet she does not allow him the opportunity to harm
himself, and she brings him to the clinic because she acknowledges that
she cannot help him entirely on her own. Gregory possesses a number of
strengths, including intelligence, a good sense of humor, a desire to be
independent, and the ability to adapt, as is shown through his learning to
communicate with his voice machine. [Further interpretation of the family
dynamics is offered from a strengths perspective that demonstrates an
ability to empathize with each stakeholder].
Emotional and behavioral problems are a common “side-effect” of
traumatic brain injury (TBI) in children, and that these “generalized”
problems are likely to persist long after the injury occurs (Yeates &
Taylor, 2006). The effects of TBI are unique to every individual due to the
highly individualized nature of the lesions sustained during trauma. As a
result, "successful treatment" can mean something different for every individual (Laatsch et al., 2007). Noah will clearly need to educate himself regarding TBI and its various effective treatments . . . Considering that Gregory’s accident occurred four years ago and that his family is currently in crisis, Noah will need to obtain information concerning past treatment attempts before planning a treatment plan for the future (MP2; R3; IN2/3; U3). [The student uses research to support her assessment of the problem].

This student grounds her interpretations on information presented in the case and the elements are linked to create a coherent and meaningful analysis. Although she does not clearly articulate it (IN2), she appears to use the strengths perspective as an organizing principle (IN3). Rather than focusing on the elements in the case that support one perspective, the student is able to articulate the strengths of each individual involved in the case. Finally, the student appears to be able to prioritize the information based on its relative importance to the problem resolution (R3). Although she demonstrates an ability to interpret information from multiple perspectives (MP2), she stops short of making comparisons across viewpoints (MP3). For example, an analysis at Performance Pattern 3 might have included a realistic comparison based on the facts in the case between Gregory’s demand for independence and his mother’s need to protect him.

**Alternative Solutions and Recommendation.** At Reflective Performance Pattern 3, students comparing alternative solutions consider the implications and consequences of each perspective and are able to articulate well-founded support for one solution over other viable options. The following codes were used to identify this performance pattern:
• E3: In addition establishes criteria to prioritize implications and consequences across alternatives ($O_1 = 0\%; O_2 = 3\%$)

• O3: Provides well-founded, overarching principles to objectively compare and choose among alternative solutions ($O_1 = 3\%; O_2 = 6\%$)

• S3: Articulates criteria that apply across viable alternatives to reach well-founded conclusions ($O_1 = 10\%; O_2 = 18\%$)

• J3: Based on comparing evidence and opinion from different perspectives and constructing solutions that are evaluated by personally endorsed criteria, such as one’s personal values, utility, or need for action ($O_1 = 6\%; O_2 = 3\%$)

• L3: Adequately describes relative importance of solution limitations when compared to other viable options ($O_1 = 0\%; O_2 = 0\%$)

In the selection below, the student uses two organizing principles that facilitate the comparison of the solutions to each other. Each alternative solution addresses two primary concerns: the client’s safety and his right to self-determination.

Noah could proceed with a depression/suicide screening due to his statements regarding staying awake at night thinking of ways to die.

Because Gregory does appear to enjoy "getting a rise" out of his mother, this opportunity could allow Noah to develop a better understanding of his client and his true risk of suicide without Gregory's mother being present.[Grounds solutions on information in the case] Gregory could open up, or he could feel that Noah is seeking to further control him through all of his questions and resist therapy all together. By conducting
a depression/suicide screening, Noah would address the immediate risk of self-harm and potentially develop rapport. By eliciting a commitment to not self-harm and explaining that he cannot allow Gregory to harm himself, Noah could risk his new client feeling that his self-determination is being threatened and perhaps even that Noah is conspiring with his mother against him. By encouraging the assessment, perhaps by first framing his questions around religion, however, Noah could provide a foundation upon which to develop a longer-term treatment plan for his client.

Noah could discuss with Gregory what he would like to accomplish in therapy. This approach could provide an opportunity for Noah to better understand his client's needs, and it could contribute to the rapport-building process. It could also have the effect of facilitating Gregory's continued negativity and ridicule of God, his mother, and life in general. This approach would not guarantee that Gregory would buy into the idea of improving his quality of life, but it would begin the discussion and perhaps raise some possibilities (vocational training, supportive youth groups, etc.). This would address the problem by allowing Gregory to have some control over the topics discussed, thus encouraging his self-determination. On the other hand, if his suicidal behavior is not confronted directly, it may not get discussed at all, and Gregory could carry out a plan to harm himself before Noah gets a chance to help him.
Noah could approach Gregory within the framework of his family's love and dedication. In other words, he could approach his discussion with Gregory through the lens of the strengths perspective, highlighting those various "positives" listed in the contextual analysis above. Because Noah has minimal knowledge of TBI, this approach could allow him to approach the situation with observations he has made thus far. On the other hand, if Noah does most of the talking, Noah may not feel empowered to share his true thoughts and feelings. This solution could address the problem by suggesting to Gregory that his life is worthwhile, not just for himself, but also for others, such as his mother and friends. Gregory could feel antagonized, however, particularly due to his age and desire for independence now. This approach could have the effect of not promoting Gregory's self-determination at all, but rather his mother's self-determination and even Noah's, as a social worker seeking to "do best" for his client (E3, O3; S3).

The student objectively considers the implications and consequences of each alternative and uses the dual criteria of safety and self-determination to consider their plausibility. In the next section, although she fails to articulate her reasons based on a comparison of the two principles used to organize the evaluation of the alternative solutions, she apparently makes a decision that safety concerns trump the client’s need for self-determination. Therefore, although not clearly articulated, the first part of the solution appears to be based on a prioritization of the issues and the utility of the solution.
This is followed up with a long-term strategy that addresses quality of life, the nature of the diagnosis (temporary uncertainty), and the family issues. However, the spirituality issues which seem to dominate the decision case narrative are not addressed.

First and foremost, precautions must be taken to ensure that Gregory does not harm himself. Addressing his lack of eating and sleeplessness are immediate concerns that will directly impact his upcoming surgery, which may directly improve his quality of life. After Noah completes some research, perhaps he will continue to provide family and individual therapy to address relationship issues and negative thinking processes. CBT is an approach that has proven effective for some TBI patients (Malec, et al., 2007). Web-based family problem-solving interventions also “hold promise for improving child outcomes following pediatric TBI,” according to researchers (Wade et al., 2005).

The first alternative will be determined successful if Gregory does not harm himself and if he begins to engage in self-care practices that allow him to undergo the scheduled surgery next month. The family will participate in ongoing individual and family therapy to address communication and boundary issues directed towards improving Gregory's (and his family’s) quality of life. "Quality of life" is a very subjective concept for the TBI population (Souza, et al., 2007), and this will need to be clearly operationalized in future therapy sessions (J2/J3; L1).
There are some weaknesses in the students’ recommendation that places her somewhere between Quasi-Reflective Performance Pattern 2 and Reflective Performance Pattern 3. The students’ recommendation is not clearly one of the three alternatives she proposes, although it is most closely related to the first alternative regarding a suicide screening. Rather than justifying her decision based on a comparison of the three alternatives, she launches on a different track. The long-term solutions regarding TBI and family therapy almost appear to be added as an afterthought, and therefore are not included in the discussion of pros and cons. In that sense, her paper seems to be more characteristic of Performance Pattern 2, which is typified by a balanced approach to examining all the important considerations, but a failure to adequately justify conclusions.

Finally, the student is unable to appropriately address limitations raised in the analysis regarding the suicide assessment. The question of “how” to take precautions, given the client’s resistance (a significant limitation) is not addressed. She does acknowledge at least one limitation regarding the client’s quality of life concerns and therefore the statement is coded L1.

An example of Performance Pattern 3 Justification skills is provided in the following recommendation from the initial case, *Unusual Appeal*. Rather than simply choosing one alternative and explaining its merits, the student compares it to the others, articulating criteria that apply across the alternatives to reach a conclusion (S3, O3). While the comparison is somewhat superficial, it represents one of the few attempts to
compare the solutions to each other based on “personally endorsed criteria such as one’s personal values, utility, or the need for action” (J3).

The third alternative is the preferred strategy because it most objectively seeks to assure that the client’s basic mental health needs are met. As a “compromise,” this decision takes into account the client’s desire to be treated more humanely, it satisfies the social worker’s obligation to advocate for her client’s physical and mental health needs, and it takes into account the agency’s desire to provide Mr. Aranda with a chance to survive and to possibly even be found innocent. Cynthia is not “deciding this case,” but she is pushing it forward to the next stage of judicial assessment. If, after treatment, the client still wants to die, this should be presented to the court. If he renews his desire to live, this could fuel his appeal process.

This third alternative provides a more “balanced” approach to the situation, leaving room for more reliable support to be gathered. “No single expert can address all … factors, which is why the multidisciplinary team is so important” (Guin et al., 2003, quoted in Holdman, 2000).

Making some compromises among highly skilled colleagues for the potential benefit of a client can be favorable in capital cases, “where developing a holistic individual picture of the client is vital to accurately assess the convicted person” (Guin et al., 2003)….

According to Section 1.01 of the NASW Code of Ethics, “[s]ocial workers’ primary
responsibility is to promote the well-being of clients” (p. 7). Because.

Cynthia is not discrediting her client’s right to self-determination. By stating his current desire to die and then recommending follow up services from the court, she is responsibly seeking additional information that will allow all involved parties to better assess the client’s soundness of mind.

Note that the student is looking for a “balanced approach,” and acknowledges that no single expert provides a conclusive solution because there are multiple factors that must be addressed. Additionally, there is a focus on seeking additional information, acknowledging that the construction of knowledge is ongoing and subject to evaluation. Another feature of this analysis is a thoughtful application of the NASW code of ethics. Although the student is aware of the code’s mandate to support the self-determination this is balanced against the need to assess his soundness to make such an important decision.

*Global Ratings.* Although a predominant use of Reflective Performance Pattern 3 skills was not observed, a few students who demonstrated an overall problem-solving strategy consistent with Reflective Pattern 3 were assigned the following codes:

- C3: Analyzes the issue with a clear sense of scope and context- sees the bigger picture (O₁ = 3%; O₂ = 3%)
- OA3: Appears to develop well-founded conclusions based on comprehensive and objective comparison of viable alternatives (O₁ = 9%; O₂ = 6%).
Code Omissions

Two significant skills that are expected to emerge in Performance Pattern 2 and continue in subsequent levels were omitted from the rubric because they were not observed in the papers. The ability to articulate assumptions and reasoning associated with various perspectives, and the ability to acknowledge and control for the effects of one’s own biases were absent from the analyses.

Wolcott’s original rubric called for these skills to be included with Performance Pattern 2 for Multiple Perspectives (MP2: Interprets information from multiple viewpoints; identifies and evaluates assumptions; attempts to control own biases). As a result, nearly all student papers were coded as MP1. However, because it became apparent that there was a qualitative difference between some students’ ability to consider multiple perspectives and that demonstrated by students using primarily Quasi-Reflective Performance Pattern 1 skills, this qualifier was removed. The assumption was made that the skills were absent because they were not required in the assignment description.

Nevertheless, the lack of critical appraisal of the quality of information presented is of concern. Although a few students challenged the assumption in Unusual Appeal that Jose’s beliefs about his execution were evidence of his mental incompetence, the acknowledgement or questioning of assumptions was very rare. As mentioned previously, only one student mentioned that Jose’s presumed innocence had not been warranted by any evidence in the case.

Although a number of students referred to personal values as a rationale or justification for their positions, no one acknowledged having a personal bias that they
intentionally controlled for in working through a solution. It can be argued, however, that although students did not articulate their biases, those who used at least Performance Pattern 2 skills showed evidence of an attempt to deal with personal biases by presenting a balanced analysis of the problem from multiple perspectives.

**Rationale**

Because the original case analysis assignment did not elicit information regarding students’ epistemic assumptions, a section was added to the assignment requesting that students include a statement explaining the rationale for their problem resolution. Nine different themes were evident in these statements, however, most of the students used a variety of rationale, some of which were not evident in their analysis. For example, students may have indicated that they used research to come to their conclusions, but did not cite any sources. Nevertheless, rationale codes were assigned based on students’ statements or an evaluation of the meaning of those statements. Students’ rationale statements rarely fit in one category alone; therefore, they did not consistently facilitate a clear assessment regarding the epistemic assumptions in use.

With the exception of authority, which appeared to be clearly related to the epistemic assumptions consistent with Stage 3 of the Reflective Judgment Model, the connections between the other rationale and the underlying assumptions regarding how knowledge is ascertained were far more obscure. However, the fact that personal experience was the most frequently cited rationale, followed by personal beliefs and values, is consistent with the finding that the majority of students were functioning in the Quasi-Reflective Performance Pattern 1 range. This performance level, associated with
RJM Stage 4, is consistent with the underlying assumption that knowledge is “idiosyncratic to the individual” (King & Kitchener, 1994, p. 58). According to King and Kitchener, people using Stage 4 assumptions “do not reason that evidence entails a conclusion but use personal beliefs to choose the evidence used to support preconceived beliefs” (p. 58). The rationale statement below typified many of the statements, in which personal beliefs, intuition, or both were used to guide the problem-solving process:

I based my decision on my intuition and my own beliefs. My job is to see the possibilities or look to find them. Also, I think this approach is best for someone in Gregory’s development stage; it affirms his abilities and growth potential [Intuition, Personal Beliefs, Previous Knowledge].

The following student bases her rationale on a combination of previous knowledge and personal beliefs:

I based my decision on knowledge that I obtained through my cross over class regarding leadership styles and theories. I practice the Power Principle, by Blaine Lee, and believe that people should lead by example and not be coercion. I also based my decision on my own ethics and values in that it is important for people to be informed as a part of the decision making process [Previous Knowledge, Personal Beliefs/Values].

Although 10 students used previous knowledge as a rationale, only two students alluded to a specific social work theory, while the student above referred to the Power Principle. Most often students made vague references to previous coursework without
referring to specific theories or concepts. One mentioned the strengths perspective and the other the ecological system model.

Basing the proposed solution on an unsupported opinion, a Stage 3 strategy, was only observed in a few instances, however, the following statement provides an example of this rationale:

Personally, I would fire Cheryl because she is not doing her job. But apparently she is the board so that is not possible. Therefore, it is important to limit her control over the agency and give some back to the employees. In addition, I believe in full disclosure, that when people know all the information, only then can they make informed decisions. I like giving handing over the decision making to the clients/employees [Unsupported opinion, Personal beliefs/values].

As previously discussed, the use of an authoritative source, such as the NASW Code of Ethics, a text, or a professor, was a rationale that supported Reflective Judgment Stage 3 problem-solving approaches if it was used to validate the premise that the problem could be resolved with certainty. The following student uses both the Code of Ethics and a statement made by a professor to support her belief that there was only one correct approach to the problem.

My decision for this case is based on Social Work Ethics and a statement a professor once made in class. She said, “I would rather lose my job based on ethics, than to lose my license for not upholding those ethics. You can
always find another job.” This statement stuck with me, and when reading the case I remembered these words [Authority].

While some students cited research as part of their rationale, none indicated that they had compared competing views regarding the issues, an approach consistent with reflective judgment. Most often research was used to confirm previous beliefs. In many cases, specific citations were not offered. In most instances where research was used as a rationale for the solution only one source was cited. The student below provided numerous APA references to support her analysis.

The basis for the recommendation is based on empirical research of symptoms of schizophrenia, treatment of schizophrenia, mental health in the prison system, and research of the NASW code of ethics. It is also based on a personal frustration with the “system” to imprison criminals rather than find treatments for them to reduce recidivism [Research, Personal Beliefs/Values].

Using the utility of the solution has been associated with Stage 6 of the RJM in the literature. In the following statement, the student presents a coherent argument supported by research for the utility of requesting an official forensic psychological evaluation in *Unusual Appeal*.

I chose this strategy because if Jose is found incompetent he would be moved to a psychiatric hospital. According to Goodnough (2006), there is a Florida state law that requires inmates to be moved from prisons to a psychiatric hospital within fifteen days of being found incompetent. At a hospital his quality of life would
rise and his needs would be met. He himself stated being able to “muddle through” this process with the right medication. …Additionally, I chose this strategy because Jose’s violent behavior in the jail may not be a reflection of his true self. Geiman (2007) states that inmates suffering from a mental illness often cannot behave, feel and think normally, therefore displaying improper behaviors within the system and ultimately violating the rules and norms of the jail. This belief takes me to believe that placement in a psychiatric facility would not be inappropriate for Jose because his recent violent streak might be a symptom of his environment and lack of care. I further based my strategy this way by reminding myself of the scope, mission and purpose of the agency and by asking the court to order a forensic interview which would protect Cynthia’s rapport with Jose by being able to place blame on the judge [Utility, Research].

The utility of the solution was utilized as a rationale more often on the final case than on the initial case. Although associated with higher levels of reflective judgment, this approach may have also been facilitated by the fact that the initial case represented an obvious ethical dilemma, which may have led students to rely more heavily on personal values rather than utilitarian concerns.

In summary, while the rationale statements provided clues to the participants’ concept of justification, they were too ambiguous to reveal clearly explicable patterns in the data. Although inferences may be made regarding students’ epistemic assumptions by coupling their rationale and problem-solving approaches, the statements did not address
the question of uncertainty about their positions, an important key to understanding their epistemic assumptions.
Chapter V

Discussion and Implications

This chapter will review the current study, including a summary of the findings, discussion, and implications for social work education. A summary of the study design and theoretical framework is followed by the sample characteristics, and the quantitative and qualitative results of hypothesis testing. Finally, the chapter addresses the limitations of the study, implications for social work education and suggestions for further research.

Summary of the Current Study

The purpose of this study was to evaluate whether case method instruction had a positive effect on MSW students’ reflective judgment, an aspect of critical thinking associated with the ability to reason through ill-structured problems. The development of this aspect of critical thinking is especially relevant in social work education because graduates will routinely confront complex, multifaceted problems in the course of their social work practice. Although the case method has been endorsed within social work education as an instructional strategy with high utility for preparing students for the complex realities of the practice world, there has been little research that assesses outcomes (Cossom, 1991; Jones, 2003; LeCroy, 1999; Scales & Wolfer, 2006).

This study utilized the Reflective Judgment Model as a theoretical framework to assess reflective thinking at the beginning and end of a case method course. King and
Kitchener’s (1994) Reflective Judgment Model (RJM), describes the developmental progression that occurs as individuals become better able to deal with ill-structured problems by acknowledging uncertainty, considering multiple perspectives, evaluating relevant evidence and defending their own points of view on controversial issues.

A quasi-experimental pre-post nonequivalent control group design was used to explore whether students who participated in a case method course demonstrated greater increases in reflective judgment over the course of a semester than those who did not. At the beginning and end of the semester, the intervention and comparison groups completed the Reasoning about Current Issues Test (RCI), which is an online, standardized measure based on the Reflective Judgment Model that has been widely used to assess reflective judgment (Wood et al., 2002). Because of questions regarding the ability of the RCI to detect epistemological changes over short periods of time, qualitative methods were used to triangulate findings. Content analysis procedures were utilized to identify reflective thinking skills evident in the initial and final case analysis papers of participants enrolled in the case method course. The results of the content analysis were analyzed using quantitative as well as qualitative methods. The study also examined the influence of age, race, gender, and social work experience on RCI scores.

**Sample Characteristics**

Twenty-three percent of the students enrolled in the advanced year case method course \( n = 40 \) completed the study, as compared to 21% \( n = 18 \) of students enrolled in the foundation year research methodology course. The study was heavily impacted by
attrition as only 53% of those who initially expressed interest in the study completed the pretest, and the sample was further reduced at posttest by 17% in the intervention group and 40% in the comparison group. No significant differences existed between those who dropped out and those who completed the study on pretest scores or any of the demographic variables.

The level of participation differed by course section. Students enrolled in Sections 1 and 3 were the most likely to participate in both the quantitative and qualitative aspects of the study, while sections 2, 6 & 9 each had only one student which completed the study. It is not known what may have contributed to greater participation in some sections than others; however, the level of support and encouragement of the professor is likely to have had an impact on student interest.

The majority of participants in both groups were under 30 (85%), Caucasian (87%), female (95%), and had no previous social work experience (64%). There were no significant differences between the groups on any of the demographic variables, which served to allay concerns regarding the lack of a randomized sample and the small sample size.

The mean RCI pretest score for the overall sample was 5.28, with students in the intervention group having a mean score of 5.26 and those in the comparison group a mean of 5.32. The sample mean was significantly below a graduate student mean for the RCI reported in an unpublished report by Kitchener and colleagues (2002). However, it should be noted that the RCI was only normed on 46 graduate students and that the paper and pencil precursor to the current online version was used. The current sample is
comparable to samples from the only studies that have reported a mean for RCI scores of graduate students. One study involved 126 graduate students enrolled in an educational leadership program, 84% of which had earned master’s degrees, and reported a mean RCI score of 5.3 (MacDonald, 2003). Another study of 110 graduate counselors in a psychology program reported that 68% were doctoral interns and the mean RCI score was 5.4 (Owen, 2005). Because these more recent studies involved a much larger sample ($n = 236$) than the previous normed mean of 46 students, the pooled mean RCI score of 5.35 was compared to the intervention group mean using a one sample $t$-test. The results indicated that the differences were not significant, suggesting that the mean reflective judgment level of the current sample is comparable to other graduate student populations.

$$t(47) = -1.252, p = .217.$$ 

**Hypothesis Testing for Demographic Factors**

The results of hypothesis testing regarding the effects of demographic factors on reflective judgment were inconclusive, as significant differences indicated at pretest, were not evident at posttest. Based on the findings of previous studies, it was hypothesized that there would be differences in reflective judgment based on age and social work experience, but not based on gender or ethnicity.

Although the most recent findings across studies using the RCI, slightly favored women rather than men, in the current study, the RCI mean for male participants was significantly higher than the female mean at pretest ($p = .01$). However, because there were only three male participants, and two scored in the 95th percentile for pretest scores,
these results cannot be generalized to other social work student populations. In addition, differences based on gender were not evident at posttest as the male mean regressed by nearly one stage (-.82) in comparison to pretest scores.

In a similar pattern, while RCI scores were significantly higher for minority students at pretest, they regressed by nearly a stage (-.92), at posttest. No confounding factors were identified which would account for the differences at pretest; however, once again, the number of participants in the two groups were markedly different, with Caucasians outnumbering minority students nearly 7 to 1. The lack of consistency in the pre and posttest results for gender and race was apparently a function of the general regression at posttest. Because those with the highest scores regressed toward the mean, outliers in the minority and male groups regressed by nearly a stage, eliminating differences observed at pretest based on gender and race. Therefore, because of the small numbers in these groups and the regression at posttest, the pretest findings for gender and race are inconclusive.

A hypothesis that age would positively impact RCI scores was not supported. The finding that RCI was not positively correlated with age, was likely impacted by the lack of variability in educational level in the sample. Although previous studies have reported a positive correlation between age and RJ stage, age differences appear to be confounded with educational experience (King & Kitchener, 1994). The positive correlation between age and RCI scores is not evident in adult populations that have not completed college. A comparison of nonstudent adults across six studies concluded that adults who had not completed college had a mean RJ score of 3.6 compared to a mean of 4.29 for those with
college degrees (King & Kitchener, 1994). Therefore, because all participants were at the same educational level, and the majority were under 30 there was not sufficient variability in the sample for differences based on age to be observed at pretest. A moderate correlation (.27) which approached significance was observed at posttest ($p=.052$). This may have been influenced by the finding that students in the youngest age group (under 26) regressed by an average of .25 while, the older two groups remained essentially constant (-.02).

Previous social work experience did not influence RCI scores significantly. However, the majority of students in the sample were inexperienced. Because there are no previous studies that have assessed the reflective judgment level of social workers or social work students, these findings cannot be compared to others.

In summary, the most likely explanation for the lack of consistency between the current study and previous studies on RCI scores and demographic variables is the small sample size and the homogeneity of the group. Because nearly 70% of the sample was under the age of 26, at the same educational level, and lacked previous social work practice experience, the sample lacked sufficient variability for differential patterns to emerge. Likewise, because 87% of the sample was Caucasian and 95% was female, a realistic picture of the influence of gender or race on RCI scores could not be assessed. In a similar study of dental students, Boyd (2005) attributed the lack of differences on the RCI based on any of the demographic factors to the lack of variability in the sample and the small sample size. Kitchener (1994) notes that unbalanced sample sizes and
differential variability in performance reduces the statistical power of epistemological hypothesis testing.

Hypothesis Testing for RCI Scores

This study predicted that students who participated in a case method course would increase their scores on the RCI by the end of the course and that increases would be greater than those experienced in the comparison group. The RCI scores of both the intervention and comparison group decreased at posttest. However, the scores of the comparison group decreased significantly (\(-.474, p = .047\)), while the intervention group scores decreased very slightly, \((-0.041, p = .764)\). Based on findings regarding the test-retest reliability of the Reflective Judgment Interview (.87), King & Kitchener suggest that regressions observed in RJ scores between testing over short intervals are likely to be a result of measurement error (1994). In a meta-analysis of longitudinal studies, they found across studies that participants’ scores either stayed the same or increased based primarily on the length of time between testing. However, one short-term study with three months between testings reported reversals in 16% of the cases. Based on the consistency of all other findings, King & Kitchener attributed these reversals to measurement error.

To date test-retest reliability measures have not been reported for the RCI, so it is not possible to draw conclusions regarding the likelihood that the regression observed simply reflects measurement error. However, the differences between the nature of the tasks involved in the two assessment measures makes it improbable that test-retest
reliability measures for the two instruments are comparable. The ability of a personal interviewer to engage and sustain the interest of participants in questions regarding their epistemic assumptions is likely to be much greater than the level of interest and engagement generated by a retest of a computerized assessment measure. The familiarity of the instrument and urgency of other demands are more likely to result in careless responses that do not reflect true scores.

Owen (2004, as cited in Owen, 2005) found that the internal consistency of the RCI increased when students took at least 35 minutes to complete the test. Therefore, it is possible that the regression in scores observed in this study may be attributed to haste and decreased interest at the end of the semester, when students were pressed by competing concerns. This trend has been observed by others completing posttest measures at the end of a semester (Allen & Razvi, 2006; Cassarino, 2006; Hesterberg, 2005). Students in the intervention group may have sustained greater interest in the study than those in the comparison group because they were aware that the findings were related to relevant coursework. This possibility is supported by the finding that RCI pretest and posttest scores were significantly correlated for intervention group participants $r (34) = .405, p = .016$, but not for comparison group participants, $r (17) = -.105, p = .678$.

The most significant factor in predicting whether student’s scores increased, decreased, or were constant was RCI pretest scores. Boyd (2005) reported a similar finding in a study of the effects of clinical journaling on the reflective judgment of 37 dental students who participated in an RCI pre and posttest at the beginning and end of the first year. In the current study, pretest scores were negatively correlated with change
scores, indicating that participants who began with high scores regressed toward the mean at posttest, while those with low pretest scores improved. A stepwise multiple regression conducted to determine the best predictor of change in RCI scores indicated that the mean RCI pretest score was the only factor that accounted for any of the variability in the change score. While group membership, age, and race were excluded from the model, pretest scores accounted for 33% of the variability.

This finding suggests the possibility that variability in RCI scores between pre and posttest may have been a function of the principle of regression toward the mean, which is a concern in non-equivalent quasi-experimental designs due to the lack of random assignment to the groups (Shaughnessy & Zechmeister, 1990). Although the distribution of RCI scores met the assumptions of normality, and there were no significant differences between groups on any of the demographic variables assessed, there is a possibility that high and low pretest scores were a function of measurement error. A comparison between participants in both groups who scored below the mean on the RCI at pretest (and therefore showed the most improvement at posttest) indicated that although the intervention group participants ($M = .36$) improved slightly more than the comparison group ($M = .30$), the differences were not significant, $t (14) = .149, p = .883$. These results suggest that the increase in posttest scores observed among those who scored below the mean on the pretest cannot be attributed to a treatment effect for participants in the intervention group.

The study design called for a comparison of the pretest scores of both groups to determine the amount of change that could be attributed to simple maturation. It was,
predicted that increases in the intervention group would exceed the difference that existed between foundation year and advanced year students. This hypothesis could not be tested because there were no significant differences between the RCI scores of foundation year and second year students. Comparison of the intervention group \( n = 35 \) and the comparison group \( n = 18 \) pretest scores did not support the assumption that there would be a measurable maturation effect evidenced by higher RCI scores in the intervention group. Although the comparison was cross-sectional rather than longitudinal, this finding further supports the premise that reflective judgment develops slowly. However, the similarity between pretest scores may have been impacted by the fact that the intervention group contained advanced standing students which were essentially in their first year of graduate school although completing advanced year courses. Although this information was not captured, 31% of all students enrolled in the case method course were advanced standing students.

Because the RCI seeks to assess changes in the epistemological assumptions of respondents, the results of hypothesis testing must be interpreted within that context. Although theories regarding the relationship between epistemic assumptions and the ability to engage in complex problem solving have been well-supported (M. M. K. Brabeck, 1980; B. K. Hofer & Pintrich, 1997; King & Kitchener, 1994; King & Kitchener, 2004), the methodological challenges of assessing the development of more complex epistemology are numerous. Wood and Kadrash (2002) noted that while studies have been able to document substantial differences in epistemological assumptions across educational levels, they have been less successful in assessing the efficacy of educational
interventions or in detecting patterns of differential growth. Because reflective judgment changes slowly, studies with a short time between testing are less likely to show significant change. In a review of longitudinal studies using the Reflective Judgment Interview, King and Kitchener (1994) observed that only samples (N = 3) that were retested within less than a year failed to show significant change. Wood and Kadrash (2002) conclude that while educational interventions may have an effect on reflective judgment, the lack of sensitivity of measures of epistemology to short term changes requires substantially larger sample sizes in order to detect differences. As a result, most studies seeking to detect change as a result of educational interventions are underpowered and prone to Type II error.

Although the population of MSW students at the host university participating in the case method course was large enough to warrant an attempt to use the RCI, the researcher was unable to secure a high percentage of participation in spite of incentives. Based on projections of the sample sizes required to assess changes in RCI scores for short-term educational interventions, the study was critically underpowered (Wood & Kadrash, 2002). Because of these limitations, conclusions regarding the efficacy of case method teaching based on RCI pre and posttest scores alone would be premature.

_Hypothesis Testing for Content Analysis Procedures_

Content analysis was used to determine whether students enrolled in the case method course demonstrated increased reflective thinking skills between the initial and final decision case analysis completed. A review of the literature indicates that it is a
frequently used method for assessing evidence of critical thinking in student 
communication (Corich & Kinshuk, 2006; Levin, 1993; Lundeberg & Fawver, 1994;  
Newman et al., 1995). The content analysis themes were selected based on their 
congruence with the Reflective Judgment Model. Wolcott’s (2006b) template for 
developing a critical thinking rubric, which is based on the Reflective Judgment Model 
and the cognitive development theories of Fischer, was adapted to correspond with the 
requirements of the decision case analysis assignment. Thirty-two of the 40 students 
participating in the intervention group (80%) submitted an initial and final case analysis. 

This study predicted that students enrolled in the case method course would 
demonstrate changes in reflective thinking based on their scores on a customized rubric 
designed to assess problem-solving skills related to the resolution of ill-structured 
problems. Students’ scores decreased slightly between the initial and final case 
submitted. The mean for the initial case was 1.1, while the mean for the final case was 
1.09, indicating that overall there were no group changes observed between the beginning 
and end of the semester. Paired samples t-tests on individual rubric items, as well as the 
overall mean, indicated that student performance did not change significantly between 
pretest and posttest. 

Students’ individual scores on the coding rubric varied considerably, ranging 
from .42 to 2.2 on the initial case and .42 to 2.7 on the final case, indicating a 
developmental range of over two stages. Although the ranges almost completely 
overlapped from pre to posttest, there was substantial variability within the group. Ten 
students’ scores increased by .25, which was the criteria established for meaningful
change, while twelve students’ scores decreased by the same measure, and ten did not change appreciably. Consistent with the findings for the RCI scores, students who began with lower scores tended to improve, while those with higher scores on the initial case were significantly more likely to regress. Although the principle of regression toward the mean may have accounted for this trend, patterns observed in the content analysis suggest an alternate explanation.

**Differential Performance Based on Beginning RJM Level**

Fifteen (47%) students scored in the Pre-Reflective Performance Pattern 0 range on the initial case. This group made statistically significant progress moving from an initial mean score of .705 to a final mean score of .938, indicating greater reliance on quasi-reflective strategies at the end of the semester. In comparison, 16 students (50%) scored in the Quasi-Reflective Performance Pattern 1 range. Their initial mean score was 1.4, but the final score was 1.2 indicating that students’ performance in this range stayed relatively flat but moved in the opposite direction. Only one student scored in Quasi-Reflective Performance Pattern 2 range on the initial case. That student’s score of 2.16 regressed ¾ of a stage to 1.4.

*Pre-Reflective Performance Pattern 0.* Although it has been suggested that students with more complex epistemology may benefit the most from a case method course (Allen & Razvi, 2006; Ertmer et al., 1996), it is plausible that students at the pre-reflective stages were provided with the contextual support necessary to progress to the quasi-reflective levels, while those already in the quasi-reflective levels lacked the
support necessary to facilitate the development of the underlying epistemic assumptions and skills characteristic of Stage 5. Previous research (Kitchener et al., 1993) suggests that when individuals receive appropriate contextual support their performance will move from their functional levels of reflective judgment, which represents their “everyday” level of reasoning, toward their optimal level, which is the level they are capable of when provided with appropriate support.

The content analysis of students’ decision case papers supported the premise that participants functioning at the pre-reflective level at the start of the study moved to a quasi-reflective level in their approach to problem solving by the end of the course. Students in the pre-reflective range at pretest adopted a problem-solving approach at posttest that was more consistent with Stage 4 assumptions.

Students functioning in the pre-reflective stages view knowledge as certain and largely defined by authorities. Assignments that require that they make judgments may elicit expressions of confusion or suspicion that the professor is withholding information regarding the correct answer. When confronted with the uncertainties inherent in an ill-structured problem, they may not recognize the ambiguity and attempt to find the right answer. Highly motivated students may research the issue in order find the correct answer. Alternately, they may determine that the uncertainty is temporary and will be resolved when more information is available. Until then they are likely to draw their conclusions by identifying a position that fits with previous beliefs or personal preference. Because the correct answer is unknown, they do not perceive a need to evaluate perspectives based on their plausibility.
The primary developmental task for students in this range is to perceive the enduring uncertainty in an ill-structured problem and begin to acknowledge the viability of multiple perspectives. This change is grounded in transformative learning experiences that enable students to begin to perceive that what is known is frequently uncertain and that where there is uncertainty there is room for the consideration of alternate perspectives. The decision case analysis assignment and ensuing discussion provides contextual support for students with dualistic views of reality to move to a more multiplistic view as they are exposed to the various perspectives of their classmates and must defend the plausibility of their own viewpoints. The professor’s (authority) reinforcement that there is not a “right or wrong” approach facilitates epistemological growth by giving students permission to entertain multiple perspectives.

In comparison with the initial papers, final papers were less likely to be characterized by dichotomous presentations of the issues. Eight of the 32 students completing the initial case analysis (25%) presented the issues as if the perspective of one party was clearly wrong and the perspective of the other clearly right. By contrast, this tendency to present issues dichotomously only occurred on three (9%) of the final papers. While students writing the final paper continued to present fundamentally one-sided positions, they acknowledged that there was more than one way of perceiving the issues based on the personal characteristics of the stakeholders. For example, students analyzing Seattle Community Association developed their recommendations largely based upon whether they identified with the positions of the director or the staff.
Additionally, while seven students (22%) justified their positions on the initial case based on an authoritative source, no students used an authoritative source as justification for their position on the final case. Those who justified their recommendations on the initial case by referring to the dictums of an authoritative source, were more likely to develop their own perspective and justify their solutions based on evidence that they believed supported their opinion on the final case.

*Quasi-Reflective Performance Pattern 1.* The mean RCI score of 5.2 and mean rubric score of 1.1 of the intervention group suggests that students in the sample were predominantly functioning in the lower range of Stage 4 of the Reflective Judgment Model, or Quasi-Reflective Performance Pattern 1. Fifty percent of students scored between 1.0 and 1.9 on the initial case, the majority scoring between 1.0 and 1.5. Students who scored in this range on the initial case regressed slightly but not significantly, on the final case. This performance pattern and its corresponding developmental stage is characterized by the belief that because there are no absolutely certain ways to know the right solutions to an open-ended problem, each person must decide what is right for themselves, based on criteria that is idiosyncratic to the individual. Students at this stage are more comfortable with making their own judgments in light of the realization that authorities cannot provide absolute answers to open-ended problems. They recognize the viability of multiple perspectives, but differences are attributed to personal characteristics (King & Kitchener, 1994; Wolcott, 2006a). For example, the majority of students analyzing the initial case framed the problem as an
interpersonal conflict resulting from the differing value systems of attorneys and social workers (King & Kitchener, 1994; Wolcott, 2006a).

Consistent with the Reflective Judgment Model these students used evidence to support their position, but they tended to use evidence inconsistently and focus primarily on supporting their own positions. They tended to ignore perspectives that differed from their own or evidence/information in the case that contradicted their conclusions. This quasi-reflective tendency toward confirmatory bias has been widely reported in the literature as a source of error in clinical decision-making (Gambrill, 1990; Havercamp, 1993; Snyder & Swann, 1978; Spengler & Strohmer, 1994). A recent study to determine whether the reflective judgment level of graduate student counselors ($M = 5.4$) was related to their use of confirmatory clinical judgment strategies (Owen, 2005) when searching for information. However, students with higher reflective judgment levels were more likely to use neutral strategies.

The fact that the majority of students scoring in Quasi-Reflective Performance Pattern 1 focused on evidence in the case that supported their own perspective and justified their solutions based on personal experience, personal values, or intuition provides evidence of this reflective judgment stage. While students using Pre-Reflective strategies relied on authoritative sources to justify their conclusions, students who primarily used Performance Pattern 1 skills exhibited a strong sense of personal ownership for their decisions. The most frequently cited rationale used to justify positions was personal experience (40% on initial and 38% on final case). Students recommended solutions to the dilemma presented in the case based on previous experience and
preconceived beliefs, a hallmark of Stage 4 thinking. Students commonly cited intuition, instincts, feelings, and personal opinions as their primary rationale, and secondarily other sources of knowledge. For example:

The basis for my recommendation is my personal opinion and interpretation…I considered a previous class discussion in my crossover class that mentioned how having a solid organizational structure helps a company function effectively and efficiently.

Note that the focus is primarily on the student’s personal opinion, which is supported superficially by something that was “mentioned” in a previous class.

Although the course syllabus states that students will be required to think multi-systemically “as they consider various approaches suggested in the literature and the resources offered in a wide variety of human service settings,” there was little evidence that students used research to consider alternate approaches. Only five students (16%) cited an outside source to support their conclusions on the final case. Four of the five made only a brief mention of one source to support their conclusion and none indicated that they had referred to literature to consider alternate perspectives. Instead, research was used superficially to confirm or support the preferred view.

The developmental challenge for students in the Quasi-Reflective Performance Pattern 1 range is to begin to view open-ended problems with a wider view of contextual factors, to learn to identify personal biases, to evaluate the quality of information and knowledge claims by using evidence, and to consider the various implications of different perspectives. However, this approach hinges upon a transition in epistemic assumptions
that views knowledge as constructed, but subject to evaluation. As a group, the students did not demonstrate improvement in these areas between pre and posttest measures.

*Quasi-Reflective Performance Pattern 2.* Only one student scored in this level on the initial case, however, seven students scored between 1.5 and 2.0, indicating that the skills they were using were more consistent with Quasi-Reflective Pattern 2 than Pattern 1. Students scoring in the upper range of Quasi-Reflective Performance Pattern 1 showed beginning evidence of the ability to understand problems more complexly, organize information more effectively, link ideas to form coherent arguments, and use evidence more consistently. However, only one of the seven students that scored above 1.5 on the initial case improved their score on the final case. Given that the process of case analysis is expected to increase reflective thinking, this finding begs the question, “Why did students who showed promise at the start of the study fail to improve their reasoning ability after a semester of analyzing and discussing open-ended problems?”

An examination of the course syllabus suggests the possibility that the actual structure of the assignment did not lend itself to the further development of Reflective Judgment Stage 5 thinking and Pattern 2 performance. According to the syllabus:

Case analyses should be written as executive summaries. Executive summaries …provide a concise analysis and recommendation but without all of the analytic detail. In fact, executive summaries often represent the first few pages of a more comprehensive analysis. The executive summary format is not intended to be an exhaustive analysis of all possible issues and alternate strategies but rather a concise, focused summary with the
issues and alternatives only mentioned to insure they receive consideration. Any situation, no matter how complex, can generally be summarized in no more than three pages if reduced to its most essential elements. Limit case analyses to 700-1,000 words.

While this assignment description provides appropriate guidelines for students with well-developed Quasi-Reflective Performance Pattern 2 skills to move toward Reflective Performance Pattern 3, it may discourage the development of Pattern 2 skills for those in the upper ends of Quasi-Reflective Pattern 1 and beginning levels of Pattern 2. While the strength of students in Pattern 2 is their ability to perform a thorough and complex analysis, their weakness is in prioritizing the issues and coming to strong conclusions (King & Kitchener, 1994; Wolcott, 2006a). The sheer volume of information and contextual considerations tends to overwhelm learners who are using epistemic assumptions consistent with Stage 5 of the model. Research to validate the Reflective Judgment Model indicates that the ability to process and interpret information effectively, establish criteria to prioritize relevant issues and to judge between competing options does not emerge until Stage 6, which rarely occurs in beginning graduate students (King et al., 1990; King & Kitchener, 1994).

The requirement that students frame their analysis as an executive summary assumes that graduate level students will be capable of reducing a complex problem to its most essential elements. Research strongly suggests that the majority of graduate students are unable to demonstrate this level of sophistication in their problem-solving approaches (Boostrom, 2005; Creamer & Associates, 1990; King et al., 1990; King et al., 1990;
Norris, 1985). Recent research using the RCI to assess the reflective judgment level of
graduate students, the majority of which were doctoral students, indicates that most are
functioning in the lower ranges of quasi-reflective thought (Boyd, 2005; MacDonald,
2003; Owen, 2005).

Relatively few students in the sample demonstrated the ability to conduct a
thorough and objective analysis, which is the level of complexity required before students
are able to progress to reflective thought. The research of Perry (1970), King and
Kitchener (1994), Kuhn (Kuhn, Ho, & Adams, 1979), and other developmental cognitive
theorists (Hofer & Pintrich, 1997) indicate that each stage must be fully realized before
individuals can progress to new stages. Although there are limits to the amount of time
and energy that can be reasonably expended on a comprehensive analysis, these skills
prepare students to engage in problem-solving strategies at the next level of cognitive
complexity. Unless the course fosters this level of analysis, students in the beginning
stages of Quasi-Reflective Pattern 2 may regress to Pattern 1 when required to produce a
summary analysis, drawing conclusions based on personal opinion or previous
experience rather than a studied approach to the case in hand.

Susan Wolcott, who has used case method instruction and created the Steps for
Better Thinking to assess student progress, indicated in a personal email communication
(January 18, 2009) that she suspects that most case method courses reinforce Reflective
Judgment Stage 4 (Performance Pattern 1) thinking.

Students are often rewarded for arguing their positions rather than for fully
thinking through the problem. Although students are exposed to other
peoples’ points of view during the discussion, many of them are focused primarily on how to get their own comments into the discussion to earn credit for participation.

Although in this course students were not awarded points for participation, this observation may shed light on why students who showed evidence of epistemic assumptions consistent with Stage 3 improved, while higher functioning students regressed. Although anecdotal, this observation rings true in light of the researcher’s own experience with case method teaching. A pervasive focus on what students think and feel about the case with an emphasis on respect and tolerance for the multiplicity of perspectives presented may dissuade Stage 3 thinkers from their authority based assumptions, but not encourage the level of analysis that provokes consideration of the credibility of arguments within the given context. Instead, this level of discussion will reinforce Stage 4 epistemic assumptions that knowledge is uncertain, and therefore each person makes decisions that are idiosyncratic to him or herself based on personal values and experiences. In contrast, a focus on the analysis which challenges students’ assumptions and requires them to warrant claims, identify personal biases and the limitations of their proposals may provide the scaffolding and contextual support that students at Quasi-Reflective Performance Pattern 1 require in order to move toward Pattern 2.

In comparison, students who are using well-developed Reflective Judgment Stage 5 epistemic assumptions and Quasi-Reflective Performance Pattern 2 skills will perceive the need to identify biases and complete a thorough analysis in order to consider all
viable perspectives and to situate decision-making within the context in which it occurs. While these students may produce a skillful analysis, their tendency to become overwhelmed results in poor decision-making. Luitgaarden (2009) notes that what may initially be considered strong critical thinking skills can degenerate into decision making paralysis as a result of over analyzing the complexity and unpredictability of common social work problems. Students at this stage need assistance in identifying principles that can be applied across contexts in order to organize their analysis, prioritize relevant elements, and arrive at a well-supported conclusion. In-class discussions that focus on identifying criteria such as the credibility of the evidence, the utility of the solution, the pragmatic need for action, or the primacy of certain values over others, may provide the support these students need to become effective decision makers.

**Rationale**

Although students’ use of rationale could not be isolated for individual analysis, rationale statements were generally consistent with expectations regarding performance patterns and underlying epistemic assumptions. For example, students who used authority as a rationale, which is a pre-reflective problem-solving approach, scored in Pre-Reflective Performance Pattern 0 and had the lowest mean scores of any other group. Students who cited facts that fit an established belief or who used an unsupported opinion also scored in the pre-reflective pattern rage.

In comparison, student who used intuition, personal and professional experience or personal values scored in the bottom quarter of Quasi-Reflective Performance Pattern 1. This is consistent with the epistemic assumptions of RJM Stage 4 that because
knowledge is uncertain, conclusions about knowledge are determined by the personal values, experience or other idiosyncratic characteristics of the individual. Although still within the bottom half of Quasi-Reflective Performance Pattern 1, the highest mean scores were observed among those who used previous knowledge, research and utility on the final case.

**Differential Performance by Section**

An additional, and possibly related, predictor of increased performance was the section of the case method course in which the student was enrolled. While improvement in eight of the sections ranged from no improvement to 33% improving by .25 at posttest, 67% of students in Section 1 (n = 6) and 100% of students in Section 10 (n = 2) improved by at least .25. A value of .40 for Lambda indicated evidence of a strong association between section and meaningful growth, \( p = .021 \). That is, knowing the section that the student was enrolled in improved the chances of predicting whether they would increase their scores between pre and posttest by 40%.

Unfortunately, no information was captured regarding fidelity to the case method among the various sections of the course. Although, individual professors’ level of experience with the case method ranged from no previous experience to many years of experience, the individual professors methods or expertise are unknown. In a similar study regarding the impact of Problem-Based Learning on the critical thinking and self-efficacy of students, the author concluded that lack of fidelity to the model among
various instructors limited conclusions that could be drawn regarding outcomes (Hesterberg, 2005).

Because most case method advocates argue that cognitive growth occurs primarily as result of class discussions (Gill, 2005; Harrington, 1999; Levin, 1995; Lundeberg et al., 1999), the expertise of individual professors in facilitating case analysis discussions is relevant. Additionally, the ability to use questions to successfully educe critical thinking is a factor in students’ learning (Wood & Anderson, 2001). In an assessment of problem based learning in an undergraduate social work class, Coleman, Collins and Baylis (2007) observed that the role of instructors and the methods used to ask questions had a significant impact on student learning. Similarly, in a qualitative study of case method teaching, Allen and Razvi (2006) found that the types of questions asked by the professor impacted the level of epistemological understanding elicited from students. Specifically, Evaluativist level questions asked by the instructor (roughly equivalent to RJ Level 5 and/or 6 based on Kuhn’s (2004) model were directly related to Evaluativist responses from students.

The Socratic questioning encouraged by case method proponents is not an easily acquired skill (Burgoyne & Mumford, 2001; Hesterberg, 2005). Professors more familiar with traditional instructional methods may be too quick to make their own assertions, thus circumventing students’ process of discovery. They may fail to ask the kind of questions that stimulate curiosity, provoke exploration of alternate perspectives and facilitate the process of problem resolution. According to Boehrer and Linsky (1990)
case method teaching “is really about questions, framing them to initiate, focus, and direct the inquiry carried out by students, and using them to teach inquiry itself” (p. 53).

Similarly, while creating a learning environment of mutual empathy and respect for diverse perspectives is essential to foster the risk-taking necessary for a lively and stimulating student-centered discussion, a failure to utilize equally important challenging skills may reinforce Stage 4 assumptions that “all opinions are equally valid” since there is not an absolutely correct answer. King and Kitchener (1994) and others argue that fostering reflective thinking requires that students experience challenges to their current epistemic assumptions within an atmosphere of emotional support. The multiple and nuanced roles of the instructor as planner, facilitator, encourager, empathic responder, devil’s advocate, and fellow student is a challenging dance even for the most seasoned educators. Thus, some professors may have been more adept at providing the contextual support necessary to encourage epistemological growth than others.

_Correlation between Rubric Scores and RCI_

This hypothesis that there would be a positive correlation between students’ scores on the RCI and the content analysis rubric was not supported. Because the rubric is based on the Reflective Judgment Model, this was an unexpected finding. However, the mean scores for both measures supported the premise that the majority of students in the sample were using epistemic assumptions and skills related to Stage 4 of the Reflective Judgment Model. A comparison of individual student scores adjusted to reflect the true reflective judgment stage indicated that 44% of student’s scores were within half a stage
of each other on the two measures, suggesting that both measures were capturing the approximate level of the students’ reflective thinking range. Twenty-five percent had scores that were more than one-half of a stage higher on the RCI than on the rubric; and 17% had higher scores on the rubric than on the RCI. The finding that 25% of students had scores that were more than one-half stage above the rubric score is consistent with the relationship between the RJI which is a production task, and the RCI which is a recognition task. However, the only explanation for the 17% who had higher scores on the rubric than the RCI is either that the two instruments are assessing different kinds of information or that the differences are a result of measurement error. Both explanations are plausible. Interestingly, this percentage approximates a 16% estimate of measurement error in RJI scores suggested by King and Kitchener (1994) based on a study in which 16% of cases experienced reversals in a retest taken after 4 months. The challenges of accurately assessing abstract reasoning skills are well supported in the literature (Blai, 1992; Boostrom, 2005; Brookfield, 1987; Ennis, 1993; Facione et al., 2000); therefore, the possibility of error in the coding of students papers is likely. In reality, the lack of correlation between the two scores is apt to be the result of both measurement error and the different nature of the assessments.

It is commonly recognized that aptitude and performance are not necessarily correlated. For example, researchers using the Watson-Glaser Critical Thinking Appraisal found that students who performed well on the standardized measure did not meet the expected performance level on an essay test (Browne, 1978). They argued that while the Watson-Glaser measured their ability to recognize valid reasoning strategies, it did not
test the ability of students to apply valid deductive and inductive reasoning to a problem. Similarly, while the RCI measures the epistemic assumptions of respondents based on recognition rather than production, the Steps for Better Thinking rubric measures related problem-solving skills via production tasks. Previous research indicates that students tend to perform in their functional level on production tasks, but at their optimal level on recognition tasks (King & Kitchener, 2004; Kitchener et al., 1993). Additionally, while the RCI assesses a student’s capability to resolve ill-structured problems based on the cognitive complexity of their epistemological perspective, the actual use of the problem-solving skills may be based on many other variables. These may include factors as diverse as the nature of the task (decision case), the amount of time and energy available to devote to the task, individual student characteristics, previous feedback regarding the adequacy of one’s problem-solving approaches, the amount of curiosity stimulated by the task, and the degree to which the task is perceived as familiar or perplexing.

A frequent observation among those who are seeking to encourage critical or reflective thinking is that engaging in these skills is simply “hard work” requiring a great deal of persistence, effort, and self-motivation (Boostrom, 2005; Brookfield, 1987; Ertmer & Dillon, 1998; Paul & Elder, 2006). Based on qualitative research with veterinary students participating in a case-based course, Ertmer and Dillon (1998) suggest that individual student characteristics such as self-regulation, the value attributed to process as opposed to product, and the ability to manage the anxiety of ambiguity and uncertainty, impact how much students gain from a case-based course.
Furthermore, whether a student engages in the hard work required is likely to be affected by the amount of time and energy available and the perceived payoff. Students who performed in the Performance Pattern 0 range on the initial case were likely to receive feedback from their professors that encouraged increased effort and attention on subsequent papers, while those who scored in the higher range may have received positive feedback, reducing the payoff for greater effort at the end of the course. Waning interest, and the work overload commonly experienced by students completing their final semester was also likely to impact optimal performance.

Although factors such as individual characteristics or the amount of time and energy students invest in the problem-solving task are not subject to control, the influence of the nature of the task on the problem-solving skills induced is of particular interest. According to Dewey (1933), the pivotal component of learning (and therefore thinking) is experience. In order to induce learning, students must encounter a situation that is new (and therefore uncertain and problematic) and yet which can be sufficiently connected with existing knowledge as to provoke an effective response. Therefore, in order to call forth the problem-solving skills that a student is capable of the task must be perceived as problematic but not capricious or completely unpredictable.

For example, the fact that students cited research as well as the NASW Code of Ethics much more frequently when analyzing the initial case than the final case may indicate that the nature of the initial case itself elicited more information seeking strategies based on the unfamiliarity of the terrain. In comparison, the fact that students most often cited previous experience and intuition on the final decision case may indicate
that students more often perceived these cases as routine, resulting in the failure to explore the subtle complexities of the case or utilize more complex problem-solving strategies.

Gill (2008) suggests that the structural complexity of a problem is a property of the “problem space used to perform the task” rather than of the task itself (p. 254). He defines problem space as:

a representation of the cognitive system that will be used to perform a task
“described in terms of (1) a set of states of knowledge, (2) operators for changing one state into another, (3) constraints on applying operators, and (4) control knowledge for deciding what knowledge to apply next.

He notes that the structural complexity (or the degree of uncertainty) of a task diminishes with experience or expertise. Consequently, what one student perceives as an ill-structured problem eliciting complex problem-solving strategies, may be perceived by another as familiar. It is possible that the more subtle nature of the dilemmas presented by the latter cases triggered the basic decision making strategy identified by Klein (1998, as cited by Luitgaarden, 2009) in which decision makers recognize a familiar situation and immediately take action based on “the recognition of goals, cues, expectancies and actions.” (p. 253).

Using Klein’s Recognition Primed Decision Making Model, Luitgaarden (2009) explains that when faced with a situation that is novel (or ill-structured), experts modify this decision making strategy by using mental simulations to evaluate the consequences of alternate actions until a “good enough” course of action is discovered.
Luitgaarden (2009) argues that this intuitive model is more suitable for social work practice, which is characterized by a high degree of complexity, unpredictability, and the need to make quick decisions, than analytical decision-making strategies. A significant concern however, is that novices who lack the experience or expertise to identify relevant cues, plausible goals, and expectancies in the same way that experts do, will tend to misinterpret cues based on superficial familiarity resulting in naive problem assessment and decision-making errors. Arguably, the goal of using an experience based learning model, such as case method instruction, is to provide students with the necessary knowledge, skills, and cognitive scaffolding, to learn to utilize the analytical skills necessary for resolving ill-structured problems while still protected in a low-risk environment. While expectations that practitioners engage in the problem-solving strategies espoused by rational choice theory may prove impractical in real world settings, adopting a model for ideal practice that propels novices to make decisions based on intuition without the prerequisite experience will result in decision-making errors at the expense of vulnerable populations. Social work educators then must model effective problem framing and decision making, provide opportunities for students to grapple with real-world problems, and place a high premium on the value of objectivity, open-mindedness, reflective thinking, and life-long learning.
Limitations

Unbalanced Groups

The challenges of ensuring internal and external validity of research conducted in educational settings has been well documented in the literature (Campbell & Stanley, 1963; Royse et al., 2006). Although ideal, randomized control groups are unusual in educational settings because either all the students are exposed to the educational intervention, or students select courses based on preference and convenience. At the institution from which the sample was drawn, the instructional methods used in the capstone course are a significant aspect of their educational philosophy; therefore, it was not possible to use an equivalent control group because all sections of the capstone course used a case method approach.

Because random assignment was not possible, a quasi-experimental design was used to attempt to eliminate alternative explanations (Royse et al., 2006). Although the statistical analysis indicated that the two groups were not significantly different on any of the measures, the difference in the size of the groups led to an unbalanced design with roughly twice as many students participating in the intervention group as in the comparison group. Additionally, the groups were unbalanced with regard to gender and race. Although approximately 86% of MSW students are female, in the current study, 95% of the sample was female and only one male participated in the intervention group. While there were seven minority students, only one African American participated in the study. Therefore, although the statistical procedures used are generally robust to
unbalanced designs (Montacalm & Royse, 2002), the findings cannot be said to be representative of the student population, or generalized to MSW students at other institutions. An additional concern regarding the variability between groups when compared on gender, race, age, group membership is Kitchener’s (1994) observation that unbalanced sample sizes and differential variability in performance reduces the statistical power of epistemological hypothesis testing resulting in Type II error.

Instrumentation

One of the primary challenges faced when conducting research to assess changes in reflective judgment as a result of an educational intervention is the lack of measures with sufficient sensitivity to detect changes in epistemology, which research has shown develops slowly. To date only one study has reported a significant change in reasoning on the Reflective Judgment Interview following a semester-long educational intervention (Kronholm, 1996). Wood and Kadrash (2002) questioned whether the changes detected could be attributed to the course, given that the intervention group had significantly lower scores at baseline. Because these results have not been duplicated, they concluded that the findings of Kronholm’s study were inconclusive because of the nonequivalence of the two groups. While research indicates that reflective judgment is associated with educational experience, King and Kitchener (King & Kitchener, 1994) cautioned that short-term interventions were unlikely to have a measurable effect on student’s epistemology. Therefore, one significant limitation of the current study was the fact that it involved assessing changes over 12 weeks. Although the case method course may have
fostered reflective thinking, the small changes in student’s epistemic understanding that may have occurred in such a brief period were unlikely to be detected.

Sample Size

One method for increasing power is to substantially increase sample size. Given the fact that the case method is not widely used in social work education, it was not possible to generate a larger sample. The setting used was selected because it had a large cohort of students and instructors who are invested in the case method. Although efforts were made to secure as much participation as possible by personally recruiting students, offering incentives, and sending reminders, the sample was significantly smaller than anticipated and further impacted by attrition. Therefore, because the sample size resulted in lack of sufficient power to detect differences that may have existed, the findings of the quantitative analysis should not be used to draw conclusions regarding the efficacy of the case method approach.

Unequivalence of Qualitative Posttest Measure

This study used a concurrent, mixed methods approach in order to strengthen anticipated weaknesses of the quantitative measure to detect changes in reflective judgment within a short time frame. However, an additional limitation that may have affected internal validity was fact that the initial and final measure for the qualitative analysis may not have been comparable. While all students completed the same initial case, students completed five different cases for the final assignment. Not only were these cases qualitatively different in that the original case presented an obvious ethical
dilemma, while the others were more subtle (as previously discussed), but the time of measurement ranged anywhere from Week 7 to Week 12 on the course calendar. Therefore, some students submitted their final case analysis when they were only halfway through the course and had not yet completed the “intervention.” An examination of mean initial scores by case submitted indicates that students with higher pretest scores were more likely to submit their cases early, while those with lower scores were more likely to submit the final case. Therefore, it is not known whether students who submitted early may have shown improvement had they been required to submit an analysis at the end of the course. The findings suggest that there may have been a correlation between time of submission and improvement. While ten students who submitted the last two cases showed improvement, nine reaching the criteria for “meaningful” change (+.25), only three who submitted the earlier cases did, and only one was categorized as “meaningful” based on the established criteria.

*Fidelity to Case Method Model*

A significant limitation of the current study to assess the effect of a case method course on the reflective judgment of students is the lack of any measures regarding fidelity to the case method. Nine different instructors with varying levels of experience and knowledge regarding the case method approach taught the course. The researcher began with the assumption that the history of the institution in using the case method, and the ongoing efforts made to collaborate on a weekly basis regarding instructional focus assured uniformity of delivery. However, the finding that students appeared to perform differently based on the section in which they were enrolled called that assumption into
question. Although post hoc comparisons did not validate the omnibus test that indicated significant differences between sections, students in section 1 and 10 were more likely to improve than students in the other sections. Lambda indicated that knowing the section would improve one’s ability to predict whether a student would improve “meaningfully” by 40%. It is not clear whether there were differences in the way in which these instructors applied the course method in their instruction. Differences in personal teaching style, grading, ability to use Socratic questioning, willingness to challenge students to move beyond their current comfort zones, and the ability to facilitate discussion which are appropriately challenging and supportive are only a few of the factors that may have impacted differential performance. This once again limits the conclusions that can be drawn from the findings.

Lack of Empirical Validation of Steps for Better Thinking Rubric

Although the Steps for Better Thinking have been used to train faculty across the nation to assess and foster the development of reflective thought in students, it has not been empirically tested. The current study is the first to attempt to correlate the rubric with the RCI. Although the rubric has face validity in that it appears to be clearly related to the Reflective Judgment Model, convergent validity was not established through correlation with the RCI in the current study. Although the findings indicate that it had adequate reliability and internally consistency, the lack of correlation suggests that the two measures are assessing different aspects of cognitive complexity. While the rubric assesses students’ ability to use skills related to a range of cognitive complexity, the RCI
assesses their ability to choose among options that most closely mirror their epistemic assumptions about knowledge.

Match between Content Analysis and Assignment Description

While the content analysis rubric sought to examine patterns in students’ reasoning as they resolved the ill-structured dilemma in the decision case, the requirement that they write an executive summary may have limited the evidence of the processes by which students arrived at their conclusions. Because some students may have failed to articulate important elements of their analysis, their reasoning may have appeared to be more whimsical or superficial than it actually was, had more of their reasoning been apparent.

Implications for Social Work Education

Importance of Assessing Reflective Judgment

The most important finding of this study is that MSW students in the sample were functioning substantially below the level of cognitive complexity that cognitive theorists argue is necessary to make well-informed decisions when faced with complex problems which cannot be defined or resolved with certainty (Dewey, 1933; King & Kitchener, 1994; Kuhn et al., 1979). Social work educators have cited the many risks associated with reasoning errors in terms of lost potential, human suffering, cultural incompetence, unethical practice, inadequate intervention, and lack of service provision as grounds for the need to prepare graduates who can apply critical thinking skills to practice (Gambrill,
1990; Gibbs, 1991; Gibbs, 2007). However, in spite of concern regarding potential harm to vulnerable populations, as well as legal risks to social work practitioners, the skills and aptitudes required to engage in effective problem solving and avoid errors in decision making have been little studied in social work literature when compared to other helping professions (Murdach, 1994). Although evidence-based practiced (EBP) has been offered as a primary solution to these concerns (Blythe & Witkin, 1992; Gambrill, 1999; Gibbs, 2007), the role of practitioner cognitive complexity and thinking processes required in the application of EBP has not been studied (McCracken & Marsh, 2008). McCracken and Marsh (2008) argue that effective use of EBP requires reflective thinking skills in order to interpret and apply evidence appropriately to client concerns within the context of social work practice.

Recognition of the highly ambiguous, contextualized, and multi-faceted nature of social work practice (Gambrill, 1990; Gibbons & Gray, 2004; Murdach, 1994; Sung-Chan & Yuen-Tsang, 2008; van de Luitgaarden, G. M. J., 2009; Wright & Michaud, 2002) obliges educators to seek methods which will enhance the reasoning skills required to make effective decisions regarding ill-structured problems as opposed to well-structured problems.

Based on the extensive research that supports the relationship between reflective judgment and the ability to reason effectively when confronted with ill-structured problems, the potential of the Reflective Judgment Model within social work education to assess and target the reasoning skills of social work students is significant. Research suggests that developmental gaps in the reasoning of those with lower levels of reflective
judgment may restrict their ability to engage in best practice. Owen (2005) found that graduate student counselors who had lower scores on the RCI were more likely to use confirmatory bias when searching for or attending to information regarding a client problem than those with higher scores. In the current study, students often looked for facts and information that supported their opinion, while ignoring relevant and potentially hazardous information. For example, on the initial case, the majority of students argued in favor of the client’s right to self-determination, while ignoring or discounting evidence that called to question his mental competence to make a decision regarding life and death. Similarly, only four of eleven students analyzing a final case regarding a teenager referred for treatment because of depression, inability to eat or sleep and suicidal ideation appraised the potential severity of these symptoms or included a suicide risk assessment in their recommendation.

Owen (2005) also observed the proclivity of students using lower levels of reflective judgment to focus on deficits rather than strengths when assessing client problems. Graduate student counselors who scored in the lower levels of the quasi-reflective stages rated client problems as more severe than those in the higher ranges. He attributed this to the inability of individuals at the lower levels of RJ to develop a more balanced assessment that incorporated the client’s strengths. This pattern was also observed in the current study, as only students using Quasi-Reflective Performance Pattern 2 skills demonstrated the ability to present characters on both sides of an issue in a fair and balanced way. The tendency was to focus on the deficits of those with whom they did not agree, while ignoring the weaknesses of those with whom they identified.
An additional concern is preliminary evidence that students who demonstrate lower levels of reflective judgment are less likely to practice without discrimination with regard to client differences. In a mixed methods study, Guthrie (1996) found a significant correlation between reflective judgment levels as measured by the Reflective Judgment Appraisal (a paper and pencil precursor to the RCI), Reflective Judgment Interviews, and college students’ attitudes toward African Americans and homosexuals. Tolerance for diversity was measured using the New Racism Scale, the Heterosexuals Attitudes towards Lesbians and Gay Men Scale, and individual interviews. Guthrie concluded that truly tolerant responses to diversity required reasoning that was at least at or above the quasi-reflective thinking stage 4 of the Reflective Judgment Model.

**Evidence-Based Practice and Case Method Instruction**

Several decades of research support the finding that the majority of college seniors and beginning graduate students are functioning within Stage 4 of the Reflective Judgment Model [{462 Hofer, Barbara K. 1997; 443 King, P. M. 1990; 465 Perry, W. G. 1970}]. This means that students entering graduate programs are likely to believe that knowledge is so uncertain that research and theories have little more value than their own opinion. They are unlikely to support their decisions with research, unless prompted, and then will use evidence primarily to support their own opinions. The observation in the current study that very few students used research to support their proposed solutions, and that when used, research primarily served to confirm preconceived ideas rather than to explore options, is consistent with previous studies (Haercamp, 1993; King et al., 1990; Owen, 2005; Spengler & Strohmer, 1994). Similarly, students’ tendency in the
current study to refer vaguely to previous coursework rather than to specific theoretical perspectives is consistent with previous research indicating the existence of a significant gap between theory and practice in helping professions (Freshwater, 2007; Osmond & O'Connor, 2006; Rosen, Proctor, Morrow-Howell, & Staudt, 1995; Schön, 1983; Wilson, 2008).

Over the last three decades, numerous studies have concluded that social work practitioners rarely support their clinical decisions with empirical evidence or theory (Gambrill, 1990; Osmond & O'Connor, 2006; Rosen et al., 1995). Following a study that indicated that novice workers were even less likely than more experienced workers to support clinical decisions with theory or research, Rosen (1995) concluded that social work education must prepare graduates to equate social work activity with critical evaluation of available knowledge. Rosen and colleagues concluded that schools of social work needed to provide “better training of students to regularly justify their practice decisions, explicating the knowledge base and subjecting the decisions to critical scrutiny” (1995, p. 521).

Although a criticism of evidence-based practice is its incongruence with the way that experts make practice decisions (Sung-Chan & Yuen-Tsang, 2008; van de Luitgaarden, G. M. J., 2009), the need to provide novice workers with the missing connections between theory and practice that experience will eventually provide cannot be overstated. Until graduates can begin to draw upon the wealth of their own practice experience to make decisions, they must not be lulled into believing that their limited life experiences provide them with the necessary expertise to accurately assess and resolve
complex problems. Requiring students to support their positions with evidence and to search for information that contradicts their own points of view is a necessary aspect of graduate education if students are to become practitioners who will assume responsibility for becoming critical consumers of knowledge as a life-long learning strategy.

Active learning strategies that focus on collaboration and encourage students to assume responsibility for their own learning continue to hold the best promise for fostering critical and reflective thinking skills in students (Boyer Commission on Educating Undergraduates in the Research University, 1998; Brookfield, 1987; Browne & Freeman, 2000; Coleman et al., 2007; Holten & Baldwin, 2000; King & Kitchener, 1994; Steiner, Stromwall, Brzuzy, & Gerdes, 1999). The first recommendation for transforming undergraduate education in answer to the finding of the Boyer Commission (1998) that most graduates were unable to integrate course learning with practice was to “make research-based learning the standard” (p. 15). A problem-based learning approach in which students work collaboratively to seek the necessary information to solve open-ended problems was one option recommended by the Boyer Commission (1998) for engaging students in the process of inquiry. This strategy is closely related to case method instruction; however, it has a stronger emphasis on the students’ responsibility to use research to fill the gaps in their existing knowledge (Altshuler & Bosch, 2003; Gibbons & Gray, 2002).

Rowe (2007b) suggests that experience-based research is not only engaging and enjoyable but also involves analysis and creative thinking. Adding a collaborative research component to the use of decision cases may increase student “buy-in” to the
value of research in assessing problems and formulating action plans as well as the likelihood that students will use more objective information search strategies. While searching for research that encompasses all potential perspectives or addresses all relevant contextual factors in a decision case may be implausible as an individual undertaking, having students divide the work in small groups after identifying relevant issues, encourages an interchange of ideas and the appraisal of previously unconsidered alternatives.

*Tailoring Assignments to the Development Level of Students*

In order to facilitate reflective thought, educators must be aware of the epistemological beliefs and related problem solving approaches that may hinder student progress. An important observation made in this study is that it may be possible to actually reinforce lower levels of reflective thought by failing to design assignments that take in to account the actual cognitive developmental level of students in the course. While students in the course were at the lower levels of quasi-reflective judgment, the course assignment was designed to promote movement from Quasi-Reflective Pattern 5 to Reflective Pattern 6.

Although this level of reflective judgment is clearly the goal of graduate education, the developmental nature of cognitive complexity has been well established by numerous cognitive theorists (Baxter- Magolda, 1990; Hofer, 1997; King, 1994; Kuhn, 1979; Perry, 1970; Piaget, 1964). Proponents of the various stage models of cognitive complexity argue that movement through each of the stages is imperative before
progression to the next stage is possible. Movement to each new stage challenges students’ current worldviews, as it requires them to deal with greater levels of uncertainty and responsibility. Because students often resist the transition, a mixture of support and challenge is required to facilitate movement from one stage to the next (Dewey, 1933; Boostrom, 2005; Perry, 1970; Piaget, 1964).

MSW curriculums should be designed with the assumption that entering students will be functioning primarily in Reflective Judgment Model Stage 4 and that the majority of students do not have the skills to reason effectively through ill-structured problems. Several studies have reported positive outcomes from intentionally including content on critical thinking (Mumm & Kersting, 1997; Plath et al., 1999), however, as a stand-alone approach it has fallen short of the expected outcomes (Kersting & Mumm, 2001). The integration of both active learning strategies such as case method or problem based learning with specific content on effective reasoning and decision making may be a more effective approach (Bellefeuille, 2006; Plath et al., 1999).

Assignments in the first semester should provide the contextual support necessary for these students to examine different points of view on various topics reflectively. King and Kitchener (1994) note that the type of synthesized conclusions represented in most textbooks will not serve this purpose. They suggest that students read widely on topics, including discussion of alternate views, before an educator offers their own interpretation. The use of evidence to support personal opinions must be strongly encouraged without shaming students into personal retreat and withdrawal.
As students move into Stage 5 of the RJM they must be encouraged to use analytical skills to view problems more systemically and with a more balanced and neutral perspective. Educators can facilitate growth by understanding students’ relative weakness in coming to conclusions as a function of their cognitive developmental level and avoiding harsh penalties for overly lengthy analyses and lack of strong conclusions. Each semester should intentionally include assignments that gradually increase the level of cognitive complexity required while creating environments in which students can experience a measure of cognitive dissonance within a supportive environment. In addition, efforts should include addressing the unique developmental needs of students who are at the low end by pairing them with higher functioning students, and at the high end by calling on them to demonstrate higher-level skills in class discussion.

**Social Work Values and Ethical Decision Making**

A major aspect of social work education is the socialization of students into the values of the profession. It has been said that a “little knowledge” can be a dangerous thing. Content analysis of the decision case papers indicated that students who had not developed the cognitive schemas for understanding issues contextually were likely to apply the code of ethics simplistically in a way that puts their clients at risk. Dewey (1910) made the following observation:

Genuine ignorance is profitable because it is likely to be accompanied by humility, curiosity, and open mindedness; whereas ability to repeat catch
phrases, cant terms, familiar propositions, gives the conceit of learning and coats the mind with a varnish, waterproof to new ideas. (p. 177).

Social work educators must guard against arming students with a superficial understanding of the social work values that precludes a thorough analysis of the issues. For example, prized social work values such as self-determination and confidentiality must be balanced against the duty to protect those who may be unable to protect themselves. The fact that students did not use authoritative approaches to resolve the final decision case analyses provides preliminary support for the effectiveness of case method teaching to facilitate the transition from viewing social work values as absolutes to guidelines that must be placed within the contextual realities in which graduates will be required to apply them. Decision cases can provide pre-practice learning opportunities to practice ethical decision making in the face of competing values and complex realities.

Recommendations for Targeting Reflective Judgment through Case Method Instruction

Based on the observations of this study, the following specific recommendations may facilitate the fostering of reflective thought using case method instruction.

Determine the baseline level of reflective judgment of entering MSW students. Based on extensive research on the reflective judgment model, social work educators should assume that beginning graduate students are functioning at the lower levels of quasi-reflective thought and that some are still functioning in the pre-reflective levels. Educators can informally assess individual students’ RJ levels based on their ability to deal with uncertainty, the assumptions they make about sources of knowledge, and the
methods they use to justify their decisions in early assignments (King & Kitchener, 1994).

1. Develop a case based curriculum that is developmental and spans at least two semesters, and preferably four. Current research on reflective judgment strongly suggests that while students’ ability to think reflectively is positively influenced by education, it develops slowly. An educational intervention that targets reasoning skills over one semester is not likely to yield measurable results (King & Kitchener, 1994; Wolcott, 2006a). Wolcott (2006a) suggests integrating critical thinking across the curriculum and expecting that it may take as long as two years to develop strong Stage 5 skills for undergraduates. Graduate programs aspiring to develop strong Stage 6 skills might expect a similar trajectory.

2. Focus initially on identifying uncertainty, and framing problems to foster movement from RJM Stage 3 to RJM Stage 4. Before students can effectively analyze problems and make decisions, they must be able to perceive the inherent ambiguity of ill-structured problems and frame problems accurately. While the majority of graduate students will be able to distinguish a well-structured problem from an ill-structured problem, some will need help distinguishing between the problem-solving strategies that are appropriate for each.

3. Because research suggests that beginning graduate students are likely to use RJM Stage 4 epistemic assumptions, resulting in predominantly one-sided
approaches to problem solving, a significant emphasis should be placed on encouraging students to identify and control biases. Embedding questions in the case analysis that requires students to identify biases is one possibility. Requiring students to take a position on an issue and then write an objective paper taking an opposing view is one suggestion offered by Wolcott (2006a) in her Faculty Handbook.

4. Require students to support their positions and claims with evidence, and to support their recommendations based on applicable theory and empirical evidence (Gibbs, 2007; Rowe, 2007b). Although open-ended problems require students to make judgments rather than find correct solutions, in order to foster reflective judgment, students must understand the relationship between evidence and justification of their positions. While students using Reflective Judgment Stage 4 skills are comfortable making judgments about problems, they do not see the need to warrant their claims or to evaluate the relative strength or weakness of the evidence used. Requiring them to support their claims and to evaluate the strength of the evidence they use augments their understanding of the relationship between knowledge claims and sound evidence. This may be encouraged within small or large class discussions as well as in written assignments.

5. In order to foster Stage 5 analysis skills, require students to complete a comprehensive, objective analysis and to search for disconfirming evidence as well as confirming evidence (Kitchener & Fischer, 1990; Kitchener, 1994).
While requiring frequent comprehensive analyses can be daunting, both for students and instructors who must assess the work, spending more time on fewer cases in earlier courses in the curriculum can facilitate this level of skill development. Lundeberg (1999) reported that repeated exposures to a case strengthened theoretical and practical knowledge as well as reasoning and metacognition. Requiring that students complete less frequent case analyses after the class has had time to process the issues may be beneficial as well (Levin, 1995).

6. In order to facilitate movement from Stage 5 ambivalence to more effective decision making, educators may focus on identifying and prioritizing values that can be used to judge across alternatives in spite of contextual considerations. Once students have become adept at performing a comprehensive analysis, class discussions can be used to help students identify principles, or values that can be applied across contexts to choose among viable alternatives (Wolcott, 2006a). At this stage, more of class discussion time should focus on problem resolution than problem analysis.

7. Consider pairing higher functioning students with lower functioning students for collaborative small group work. Social learning theory (Bandura & Walters, 1963) provides support for the powerful role of modeling in the development of new skills. Bidel and Fischer (1992, as cited in King & Kitchener, 1994) suggest that students may be able to function at an even higher level than their optimal level when a coach models or assists the
learner with the new behavior. Requiring higher skills such as identifying and evaluating assumptions, limitations of proposed solutions, and warranting claims with evidence may inhibit the likelihood that stronger students will regress to Stage 4 reasoning.

8. Require students to engage in meta analysis, reflecting on their own thinking. Questions regarding the processes that students used to arrive at their conclusions can be embedded in the case analysis. Alternately, asking students to reflect on how the case discussion may or may not have affected their thinking about the case provides insight into the students own thinking processes as well as providing feedback to the professor regarding the influence of class discussions.

9. Assess the impact of case discussions to determine whether students’ post-discussion positions reflect enhanced ability to consider the viability of multiple perspectives, and reflective thinking attitudes such as humility, open-mindedness, objectivity, and self-awareness. Moje, Remillard, and Southerland (1999) reported that while students indicated that they enjoyed the case discussions and instructors assumed that rich discussion indicated meaningful learning was taking place, an analysis of the interactions during the case discussion told a different story. These researchers concluded that “case [discussions] did not necessarily facilitate learning or change as much as they provided tools for supporting students’ already-developed assumptions about teaching” (p. 84). These findings point to the need for assessment of
case discussions to determine whether they are meeting curricular goals. Instructors who find that the discussions are reinforcing existing beliefs and problem-solving strategies may need to make adjustments in the type of Socratic questions used to facilitate discussion based on the RJ levels demonstrated by students.

10. Provide instructors with training in case method teaching, Socratic questioning, and assessment of the development of reflective judgment (Burgoyne & Mumford, 2001; Wood & Anderson, 2001). A frequent observation in academia is that although instructors of higher learning are often experts in their respective disciplines, they often have no formal training in pedagogy. The unique challenges of case method instruction discussed previously make it imperative that deans and directors of social work programs provide instructors with training rather than assuming that the process is intuitive. While requiring reading and preparation may be beneficial, encouraging instructors to participate in a case method course facilitated by an experienced and effective case method teacher is ideal.

Recommendations for Further Research

This study was the first to apply the Reflective Judgment Model to social work students. While the results of this study do not indicate that the RCI is an effective measure for assessing the effect of short-term educational interventions, it is recommended as a measure for assessing the baseline level of reflective judgment. In
addition, a follow-up longitudinal study, which uses the RCI at the beginning and end of the MSW curriculum, is likely to provide a more accurate representation of reflective judgment growth.

Efforts to assess the effects of case method teaching objectively should continue, as previous research suggest that students’ perception of their own ability to think critically may not match up with their performance on objective measures (Hesterberg, 2005; Owen, 2005). A replication should ensure that pre and posttest decision cases are comparable, and that all participants submit their analyses at the same point in the course.

Additionally, a replication of this study should include a measure of fidelity to case method teaching with a focus on skills that are related to reflective thinking outcomes. Efforts should be made to identify differences in style, experience, use of questions, and assessment of student work. Because the group dynamics and role of the instructor are important factors in student learning, an analysis of the actual class discussions may also yield rich information regarding instructor practices that foster reflective judgment through student-centered case discussions.

Because the decision cases do not directly elicit information regarding students’ epistemic assumptions, follow-up interviews or surveys should be utilized to capture a more accurate perception of the underlying epistemological framework that students are using. Questions should address students’ acknowledgement of uncertainty, their explanations for disagreement between experts about the issues addressed in the decision cases and their approaches to resolving competing knowledge claims (King & Kitchener, 1994).
The following table addresses the limitations of the current study and specific modifications that may be used to further inquiry regarding the ability of case method instruction to foster the ability to use reflective judgment in social work students.

**Table 10.**

**Recommendations for Future Research**

<table>
<thead>
<tr>
<th>Limitation</th>
<th>Recommended Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small sample size</td>
<td>Incorporate assessment measures into course design so that all students participate in pre-post measures; If it is not possible to substantially increase sample size, increase time between testing</td>
</tr>
<tr>
<td>Unbalanced design</td>
<td>Consider a stratified sample, oversampling males and minorities Use same strategies to recruit comparison group as intervention group; If possible, random assignment to case based course or traditional course.</td>
</tr>
<tr>
<td>Time Frame Too Short</td>
<td>Extend case method instruction over two semesters with assessment measures at beginning of each semester and end of second semester</td>
</tr>
<tr>
<td>Unequivalence of Qualitative Post-Test Measures</td>
<td>Have all students complete the same case at the same point in the semester. Ensure that the case is similar in terms of level of uncertainty and the perplexity it is likely to illicit from graduate students</td>
</tr>
<tr>
<td>Lack of measure regarding fidelity to the case method</td>
<td>Include a measure regarding instructor experience and adherence to the principles of case method teaching Consider adding a content analysis of case discussions to explore whether characteristics of the in-class discussion influence learning outcomes and reflective thinking levels.</td>
</tr>
<tr>
<td>Lack of match between content analysis and assignment description</td>
<td>Include more comprehensive analysis which will yield richer information regarding students problem-solving strategies</td>
</tr>
<tr>
<td>Lack of evidence regarding metacognitive analysis</td>
<td>Require students to reflect on own thinking including reflecting on process, rationale, biases and limitations of their proposed solutions.</td>
</tr>
<tr>
<td>Lack of measures regarding impact of discussion on students processes</td>
<td>Include a measure that requires students to periodically reflect on specific changes in their thinking regarding a case following case discussion</td>
</tr>
<tr>
<td>Lack of qualitative measure regarding epistemic assumptions</td>
<td>Include a questionnaire or personal interview that captures information regarding students’ epistemic assumptions as they work through pre, mid, and post-case analyses.</td>
</tr>
</tbody>
</table>
As the gatekeepers of the profession, social work educators are responsible for developing strategies that will prepare graduates to think reflectively when faced with complex, multi-faceted problems. The purpose of this study was to evaluate the efficacy of the case method of instruction in fostering the development of students’ reflective judgment skills. While this study was unable to clearly validate the efficacy of the case method as a teaching strategy that accomplishes this important goal, the lessons learned can be used to better assess course outcomes in the future. Additionally, this study sheds light on the cognitive skills and thinking processes that graduate students in social work are likely to employ as they enter the world of practice. In light of professional values such as respect for diversity, strengths-based practice, and competence, findings that lower levels of reflective judgment are associated with intolerance (Guthrie, 1996), the inability to use evidence consistently to justify conclusions (King & Kitchener, 2002), the tendency to focus on client deficits rather than strengths, and engage in confirmatory bias (Owen, 2005), warrant concern. The observations made in this study highlight the importance of assessing and fostering the reflective judgment of MSW students and providing them with guided practice in the decision-making skills that are vital to effective and ethical practice.
References


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Gray, M., & Gibbons, J. (2007). There are no answers, only choices: Teaching ethical decision making in social work. *Australian Social Work, 60*(2), 222-238.


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Appendices
Appendix A: Reflective Judgment Interview (RJI)

King & Kitchener (1994)

The RJI is a semi-structured interview conducted by a trained interviewer. It consists of two to four dilemma topics. Before beginning the interview, the purpose is explained. Students are told that the concern is not with how much information you possess about an issue, but how you think about them. If questions are repeated, it is not because we are looking for a particular answer. Students are given index cards with the question so they may follow along when the question is read.

Students are presented with a topic, and probe questions are then posed according to their responses. Standard dilemma topics include:

- Most historians claim that the pyramids were built as tombs for kings by the ancient Egyptians, using human labor, and aided by ropes, pulleys, and rollers. Others have suggested that the Egyptians could not have built such huge structures by themselves, for they had neither the mathematical knowledge, the necessary tools, nor an adequate source of power.

- Some people believe that news stories represent unbiased, objective reporting of news events. Others say that there is no such thing as unbiased, objective reporting, and that even in reporting the facts, the news reporters project their own interpretations into what they write.

- Many religions of the world have creation stories. These stories suggest that a divine being created the earth and its people. Scientists claim, however, that people evolved from lower animal forms (some of which were similar to apes) into the human forms known today.

- There have been frequent reports about the relationship between chemicals that are added to foods and the safety of these foods. Some studies indicate that such chemicals can cause cancer, making these foods unsafe to eat. Other studies, however, show that chemical additives are not harmful, and actually make the foods containing them more safe to eat.

- The safety of nuclear energy is currently being debated by scientists in many fields. Some scientists believe that nuclear energy is safe and that nuclear energy can substantially alleviate our dependence on non-renewable sources. Others argue that nuclear energy is inherently unsafe and that nuclear energy plants will lead to widespread and long-term environmental pollution (This problem was developed in 1987 for use in Germany.)

Standard probe questions are posed. The first question (posed after each topic is presented) is: "What do you think about these statements?" Following that response,
Appendix A (Continued)

probe questions are dependent on the participant’s response. Each question is focused on at least one of the major concepts of the RJM.

1. What do you think about these statements?
2. How did you come to hold that point of view?
3. On what do you base that point of view?
4. Can you ever know for sure that your position on this is correct? How or why not?
5. When two people differ about matters such as this, is it the case that one opinion is right and one is wrong? If yes, what do you mean by “right?” If no, can you say that one opinion is in some way better than the other? What do you mean by “better?”
6. How is it possible that people have such different points of view about this subject?
7. How is it possible that experts in the field disagree about this subject?

Scores are obtained from two certified raters utilizing three digits. Scoring procedures are explained during interview training and are included in King and Kitchener (1994).
## Appendix B: Longitudinal Studies of Reflective Judgment

<table>
<thead>
<tr>
<th>Sample Source</th>
<th>Sample Size and educational level at first testing</th>
<th>Age at time 1</th>
<th>Time between testings in years</th>
<th>RJ Scores Time 1</th>
<th>RJ Scores Time 2</th>
<th>RJ Growth over time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td></td>
</tr>
<tr>
<td>Polksnak and Winston (1989)</td>
<td>16 college students</td>
<td>17-23</td>
<td>.25</td>
<td>3.42</td>
<td>.44</td>
<td>3.44</td>
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<td>Sakalys (1984)</td>
<td>25 senior female nursing students</td>
<td>25</td>
<td>.33</td>
<td>3.68</td>
<td>.58</td>
<td>3.87</td>
</tr>
<tr>
<td></td>
<td>25 senior female nursing students (control group)</td>
<td>25</td>
<td>.33</td>
<td>3.59</td>
<td>.52</td>
<td>3.64</td>
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<tr>
<td></td>
<td>Overall</td>
<td></td>
<td></td>
<td>3.64</td>
<td>.55</td>
<td>3.76</td>
</tr>
<tr>
<td>Polksnak and Winston (1989)</td>
<td>14 college students</td>
<td></td>
<td>.5</td>
<td>3.42</td>
<td>.44</td>
<td>3.61</td>
</tr>
<tr>
<td>Brabeck and Wood (1990)</td>
<td>25 high school females</td>
<td>18-19</td>
<td>1</td>
<td>3.40</td>
<td>.40</td>
<td>3.56</td>
</tr>
<tr>
<td>Van Tine (1990)</td>
<td>21 high school freshmen</td>
<td></td>
<td>2</td>
<td>2.76</td>
<td>.36</td>
<td>3.26</td>
</tr>
<tr>
<td>King and others (1983)</td>
<td>17 high school juniors</td>
<td>18</td>
<td>2</td>
<td>2.79</td>
<td>.51</td>
<td>3.61</td>
</tr>
<tr>
<td></td>
<td>27 juniors</td>
<td>22</td>
<td></td>
<td>3.75</td>
<td>.72</td>
<td>4.18</td>
</tr>
<tr>
<td></td>
<td>15 advanced doctoral students</td>
<td>30</td>
<td></td>
<td>6.03</td>
<td>.63</td>
<td>6.26</td>
</tr>
<tr>
<td>Schmidt (1985)</td>
<td>34 traditional-age freshmen</td>
<td>18</td>
<td>3</td>
<td>3.35</td>
<td>.26</td>
<td>3.56</td>
</tr>
<tr>
<td></td>
<td>11 adult freshmen</td>
<td>21</td>
<td></td>
<td>3.47</td>
<td>.39</td>
<td>3.52</td>
</tr>
<tr>
<td>Welfel and Davison (1986)</td>
<td>13 engineering freshmen</td>
<td></td>
<td>Not reported</td>
<td>3.69</td>
<td>.25</td>
<td>4.20</td>
</tr>
<tr>
<td></td>
<td>12 social sciences freshmen</td>
<td></td>
<td></td>
<td>3.56</td>
<td>.31</td>
<td>4.17</td>
</tr>
</tbody>
</table>
## Appendix B (Continued)

<table>
<thead>
<tr>
<th>Sample Source</th>
<th>Sample Size and educational level at first testing</th>
<th>Age at time 1</th>
<th>Time between testings in years</th>
<th>RIJI Scores</th>
<th>RI Growth over time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Overall</td>
<td></td>
<td></td>
<td>3.62 .28</td>
<td>4.19 .52</td>
</tr>
<tr>
<td>Kitchener, King, Wood, and Davison (1989)</td>
<td>14 high school juniors</td>
<td>18</td>
<td>6</td>
<td>2.83 .52</td>
<td>4.99 .82</td>
</tr>
<tr>
<td></td>
<td>22 college juniors</td>
<td>22</td>
<td></td>
<td>3.72 .72</td>
<td>4.89 .49</td>
</tr>
<tr>
<td></td>
<td>12 advanced doctoral students</td>
<td>30</td>
<td></td>
<td>6.16 .57</td>
<td>6.27 .39</td>
</tr>
<tr>
<td>King, Kitchener and Wood (1990)</td>
<td>10 high school juniors</td>
<td>18</td>
<td>10</td>
<td>2.93 .56</td>
<td>5.51 .70</td>
</tr>
<tr>
<td></td>
<td>17 college junians</td>
<td>22</td>
<td></td>
<td>3.83 .73</td>
<td>5.14 .66</td>
</tr>
<tr>
<td></td>
<td>11 advanced doctoral students</td>
<td>30</td>
<td></td>
<td>6.20 .57</td>
<td>6.42 .35</td>
</tr>
</tbody>
</table>
Appendix C: RCI Sample

The Reasoning about Current Issues Test

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Demographic and Academic Information

I. Student ID Number: __________________________

II. Birthdate: ________________________________
   MM/DD/YY

III. Are You (check one) _____ Female
     _____ Male

IV. If you can recall, please provide:
     Your ACT composite score: _____________
     Your ACT composite percentile rank: ______
     Your SAT Total score (Verbal + Quantitative) ______
     Your SAT percentile rank: _____________

V. Racial/Ethnic Classification:
   ___ American Indian/Native American
   ___ Asian
   ___ Black
   ___ Hispanic/Latino/Latina
   ___ White/Caucasian
   ___ International Student
   ___ Other: Specify: _______________________

VI. Based on the number of current credit hours toward your degree, would you describe yourself as a:
   ___ Freshman
   ___ Sophomore
   ___ Junior
   ___ Senior
   ___ Beginning Graduate Student (having completed less than three years of graduate coursework)
   ___ Advanced Graduate Student (having completed three or more years of graduate coursework)
Appendix C (Continued)

Part II: Reasoning About Current Issues

Instructions: Because this questionnaire is aimed at understanding how people like you think about various current issues, it asks not only what you think but why you hold the opinions you do.

The Task: You will be shown five short descriptions of some current issues. These issues are similar because people sometimes disagree about the best answer. For each issue, you will be asked consider four general questions.

Question 1: In Question 1, you will be asked for your personal opinion about the issue. Please indicate it in the space provided.

Question 2: For some issues you will be asked:

Why experts disagree.

For other issues you will be asked:

Why you believe the way you do.

Take a moment to consider your opinion about the question. Write down your response to the question in a few sentences in the space provided. (Do not, for example, write down “I think experts disagree.” or “I think that food additives are safe.” Instead indicate in a few sentences why experts disagree or why you believe the way you do.

Please give the best answer you have to each question.

Question 3. You will be shown statements taken from interviews with people like yourself.

Please indicate which statements are most similar to your own views by darkening the appropriate square.

Boxes VS, S, D, and VD are used to indicate whether your response is Very Similar, Similar, Dissimilar, or Very Dissimilar to your own thinking.

For example, if you read sentence A below and decided that it was similar to your views, you would darken the box labeled S as follows:

VS S D VD

A. Researchers who are honest will not disagree about whether a particular artificial sweetener is harmful.

It may be that your views on a topic do not exactly match the ones presented here. Please indicate a few statements for each issue which are at least somewhat similar.

A Check on Reading: Because we have found that some people do not read the statements carefully, we have included some statements that should not make sense to you. When you encounter such statements, mark them as “Meaningless” by darkening the M.

Question 4. You will be asked to indicate your first, second, and third choices for which statements are like how you think.

Try to rank the top three statements for each issue, even if the statements do not exactly match your views. If only one or two statements are similar to your views, check the “none of these” box in the appropriate rankings.

Please mark only one statement per ranking.
Appendix C (Continued)

Artificial Sweeteners

People often have to make decisions that may affect their health such as deciding whether to eat foods or drink beverages that contain artificial sweeteners. There have been conflicting reports about the safety of these additives. For example, some studies have indicated that even in small amounts, artificial sweeteners (such as Nutrasweet) can cause health problems, making foods containing them unsafe to eat. Other studies, however, have indicated that even in large amounts, artificial sweeteners do not cause health problems, and that the foods containing them are safe to eat.

1. Please indicate your personal opinion on this issue: I think that artificial sweeteners:

<table>
<thead>
<tr>
<th>Are not safe for people to eat</th>
<th>I do not know/cannot decide</th>
<th>Are safe for people to eat</th>
</tr>
</thead>
<tbody>
<tr>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

2. How is it possible that researchers in the same field disagree about whether a particular artificial sweetener is harmful? (Please write your answer on the lines provided.)

3. Many people have heard about disagreements among researchers about this, and they suggest different reasons why that might happen. How similar is each of the following reasons to your own understanding of why researchers disagree? (Darken the appropriate circle.)

VS = Very Similar, S = Similar, D = Dissimilar, VD = Very Dissimilar, M = Meaningless

A. Researchers who are honest will not disagree about whether a particular artificial sweetener is harmful.
B. Researchers disagree about this issue because, like everyone else, they are confused about the safety of artificial sweeteners. Therefore it is my perspective that what they conclude is just their opinion.
C. Researchers disagree whether enough studies have been done that show artificial sweeteners are safe or that these chemicals are not safe.
D. Researchers disagree because of the different ways they were brought up and/or the different schools they attended.
E. Researchers disagree because they approach the issue with different opinions already in mind about whether additives are safe. As a result, they conduct studies to support their view.
F. Researchers arrive at different conclusions because the evidence itself is complex and they examine it from several perspectives. They arrive at a decision by synthesizing their knowledge, experiences, and expert opinions.
G. Researchers might say that one view about the safety of a sweetener was better, but they would also say that this viewpoint is relative to a particular way of understanding this issue.
H. Researchers disagree because the preredicated hard evidence is synthesized into available belief systems about different comprehensive factual analyses.
I. Researchers disagree because they are really studying different facets of the issue and the best ways to address one facet of the issue are different than the best ways to address other facets.
J. Researchers disagree because their evaluation of the evidence leads them to defend different conclusions. Some researchers conclusions are more reasonable, however, and reflect a more comprehensive synthesis of the available information.

4. Please rank the statements above (A, B, C, etc.) that are most similar to your thinking. Please check only one statement per line. If no statement beyond one or two is at all like your thinking, check the box labeled “None of These” on the appropriate line(s).

Statement A B C D E F G H I J is most like how I think.
Statement A B C D E F G H I J None of These is second most like how I think.
Statement A B C D E F G H I J None of These is third most like how I think.
Appendix D: Course Syllabus

SOWK 718: Systems Analysis of Social Work Practice

Spring 2008 Course Syllabus

Purpose / Rationale of the Course

Competent social work practice demands integration of a wide range of theories, knowledge, skills, and values. This course is designed to draw on all previous courses and to engage students in integrating and applying all that they have learned. It promotes holistic practice by supporting shared learning among advanced students in both concentrations (Social Work Practice with Individuals, Families, and Groups, and Social Work Practice with Organizations and Communities) and helps students gain competence and confidence as practitioners in accordance with specific College-defined objectives.

Content

This “capstone course” may reference any content to which students have been exposed during their MSW courses and field practica. In addition, it will include new content as students address a social problem or current issue of concern to the profession; they will be expected to use the library, Internet, and personal contacts with other professionals to survey legislation, policies, theories, research, programs, services, practice models, and interventions. As students from the two concentrations interact, they will bring new material to one another. There are twelve decision cases each year, and each year most of the cases are new to this course. Cases contain practice dilemmas concerning social work values and ethics, social justice, and diversity.

Course Objectives

Students who successfully complete this course will be able to:
1. articulate their integration of theories, knowledge, skills, and values developed across the curriculum, including field, in approaching practice situations from an eco-systems perspective;
2. critically analyze:
   a. social problems and cases at all systems levels,
   b. relevant human behavior and practice theories and social welfare policies,
   c. research findings reported in the professional literature and other media,
   d. current practice and intervention alternatives,
   e. issues associated with evaluation of practice;
3. collaborate effectively with others to explore issues and develop intervention plans;
4. defend practice decisions based on current theory and knowledge, and the values and ethics of the profession;
5. link practice decisions to appropriate outcomes and methods for evaluation of practice;
6. apply their understanding of, and commitment to, the promotion of social and economic justice for populations at risk, and their recognition of and respect for diversity, as they respond to a variety of specific cases.

Linkages to Other Courses

This “capstone” course is taught in the final semester of the program, and is intended to help students integrate all their coursework in preparation for graduation and professional practice through the use of decision cases and additional written assignments. Most students will be enrolled in this course concurrently with their final field placement. Ideally, students from both concentrations—Social Work Practice with Individuals, Families and Groups and Social Work Practice with Organizations and Communities—will be enrolled in each section and will facilitate the learning of their colleagues by sharing the knowledge and experiences specific to each concentration.

Methods of Instruction

The course will use discussion on specific decision cases that reflect human services issues, problems, and challenges. Students will be required to think multi-systemically, as they:
1. analyze the context and meaning of the situations for individuals, families, groups, organizations, and communities;
2. consider various approaches suggested in the literature and the resources offered in a wide variety of human service settings; and
3. make recommendations for social work intervention and evaluation of practice and discuss the rationale for choices.

The instructor’s role will be to structure the course and assignments, point students toward resources, assist with group process, facilitate periodic checks on student attainment of objectives, and evaluate performance through assignment of grades.
Appendix D (Continued)

Any student who because of a disability may need special arrangements or accommodations to meet the requirements of this course should consult with the instructor as soon as possible. The office of Disability Services provides an array of services to meet the needs of students with disabilities, according to Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990.

**Attendance Policy**

Students are expected to attend all class meetings as scheduled and all meetings scheduled by their work group. Informed participation in all class sessions is expected. Absence from class meetings or from group meetings may result in a lowered course grade, or, in extreme instances, in a grade of “F” for the course.

**Academic Responsibility** (omitted in order to maintain the anonymity of the host institution).

**Calendar and Required Readings**

There is no text book for this course. All required readings will be available via Blackboard.

All course sections will follow the decision case schedule below. However, some instructors may vary the order and timing of other required readings.
### Appendix D (Continued)

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>January 16-19</strong></td>
<td>Introduction to course, objectives, decision case method, and assignments</td>
</tr>
</tbody>
</table>
Parker, R., & Wolfer, T. A. (2007). Unusual appeal. (Decision case #1) |
Stivers, J., & Kent, J. (2004). Who speaks for us? [Electronic Hallway] (Decision case #2) |
<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>March 12-15</td>
<td>No class—Spring break</td>
</tr>
<tr>
<td>April 9-12</td>
<td>Sherr, M. E., &amp; Wolfer, T. A. (2002). I will not be God’s entertainment. (Decision case #11)</td>
</tr>
</tbody>
</table>
Appendix D (Continued)

<table>
<thead>
<tr>
<th>Date</th>
<th>Source</th>
</tr>
</thead>
</table>

**Required Assignments**

The major classroom activity in this course will be in-depth discussion of assorted decision cases. These discussions will be facilitated using the case method of teaching. The case method of teaching begins with the twin ideas that working to understand and resolve challenging puzzles or problems will stimulate learning and that such efforts closely resemble the assessment and decision making processes needed in professional practice. This educational strategy will be further explained in class. In addition, two required readings briefly describe the case method and suggest ways to prepare for case discussions (Wolfer, 2006; Wolfer & Scales, 2006). Because the course is highly experiential, students must attend class consistently and participate actively to maximize their learning.

There are three types of required assignments for this course. As explained in more detail below, students will: 1) write case analyses, 2) provide feedback on their peers’ case analyses, and 3) write an annotated resume/statement of qualifications. Individual instructors may require additional assignments. Instructors will provide further information about the point distribution for the required assignments and their grading scale.
Appendix D (Continued)

WRITTEN CASE ANALYSES AND FEEDBACK

There are a total of twelve decision cases for in-depth analysis and discussion. The cases involve a variety of problems and dilemmas at various system levels. Each case reports the actual experience of a social work professional, sometimes one who is relatively new to profession practice.

Each week, students will either write and submit case analyses or provide feedback on case analyses written by members of their small group. All case analyses must include the six sections in the table below, although some instructors may require additional elements. Use headings to identify these sections in the case analyses.

<table>
<thead>
<tr>
<th>Required Components of Case Analyses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Introduction</strong>&lt;br&gt;Briefly identify the major elements (i.e., people, settings) of the case.</td>
</tr>
<tr>
<td><strong>Problem Statement</strong>&lt;br&gt;Give a specific and concisely written formulation of the problem to guide analysis and problem-solving. Not a question but a statement of the problem. Usually no more than two sentences.</td>
</tr>
<tr>
<td><strong>Contextual Analysis</strong>&lt;br&gt;Summarize internal and external issues that created or sustain the problem. Depending on the system level, these may include: cultural, economic/resource, political/legal, organizational, social, and ethical issues, interpersonal relationships, and intrapsychic and biological conditions.</td>
</tr>
<tr>
<td><strong>Alternative Strategies</strong>&lt;br&gt;Identify three or more possible solutions to the problem. These solutions should be plausible, distinct and non-contingent (i.e., not interdependent). Briefly note advantages and disadvantages of each possible solution.</td>
</tr>
<tr>
<td><strong>Recommendation</strong>&lt;br&gt;Justify your preferred strategy, explaining why you selected that particular one, how it best resolves the problem, and how you will determine its effectiveness. Be sure your recommended strategy can be supported by resources available in the context.</td>
</tr>
<tr>
<td><strong>Rationale</strong>&lt;br&gt;Identify the actual basis for your analysis and recommendation. For example, did you base it on previous experience, intuition, specific theories, personal values, empirical research, previous discussion of similar problems, or something else?</td>
</tr>
</tbody>
</table>
Appendix D (Continued)

Case analyses should be written as executive summaries. Executive summaries are designed to aid decision makers who need understanding of and advice for dealing with a problematic situation. They provide a concise analysis and recommendation but without all of the analytic detail. In fact, executive summaries often represent the first few pages of a more comprehensive analysis. The executive summary format is not intended to be an exhaustive analysis of all possible issues and alternate strategies but rather a concise, focused summary with the issues and alternatives only mentioned to insure they receive consideration. Any situation, no matter how complex, can generally be summarized in no more than three pages if reduced to its most essential elements. Limit case analyses to 700-1,000 words.

In addition to providing edits and comments with Track Changes, professors will rate written case analyses using the following or a similar matrix:

<table>
<thead>
<tr>
<th>Problem Formulation</th>
<th>Contextual Analysis</th>
<th>Alternative Strategies</th>
<th>Recommended Strategy</th>
<th>“Thinking like a SWer”</th>
<th>Writing Style</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accurate, clear, specific, concise, and useful</td>
<td>Adequately addresses all important issues</td>
<td>Several distinct and appropriate strategies, with well developed pros/cons for each</td>
<td>Explicitly resolves the entire problem</td>
<td>Reflects thorough problem-solving</td>
<td>Compelling, clear and interesting, with no errors</td>
</tr>
<tr>
<td>Mostly accurate but not clear, specific, and/or concise</td>
<td>Adequately addresses most of the important issues</td>
<td>Several distinct and appropriate strategies, but pros/cons not well developed</td>
<td>Resolves most of the problem</td>
<td>Reflects good problem-solving</td>
<td>Clear and interesting, with few errors</td>
</tr>
<tr>
<td>Part of the problem not incorporated</td>
<td>Inadequately addresses some important issues</td>
<td>Several strategies, but they are not distinct and appropriate, and/or pros/cons not well developed</td>
<td>Resolves only part of the problem</td>
<td>Reflects adequate problem-solving</td>
<td>Good, with few errors</td>
</tr>
<tr>
<td>Vague and not useful</td>
<td>Omits some of the important issues</td>
<td>Strategies would only partly resolve the problem</td>
<td>Vaguely resolves problem</td>
<td>Reflects faulty problem-solving</td>
<td>Difficult to follow, and/or many errors</td>
</tr>
<tr>
<td>Misleading</td>
<td>Omits most of the important issues</td>
<td>Strategies would not resolve the problem, and/or no pros/cons</td>
<td>Does not resolve the problem at all</td>
<td>Reflects poor problem-solving</td>
<td>Confusing, and/or excessive errors</td>
</tr>
</tbody>
</table>
Appendix D (Continued)

Guidelines for Submitting Written Case Analyses

The process for writing and submitting case analyses is as follows:

1. The class will be divided into small groups.
2. All students write and submit an analysis of the first two cases; instructors provide detailed feedback to each student.
3. After the first two cases, students will write and submit case analyses for half of the cases (i.e., five of the ten remaining cases); instructors provide detailed feedback.
4. On weeks students do not write and submit a case analysis, they will be responsible for providing feedback to members of their small group who do write.
5. Each small group is responsible for determining a schedule for writing and submitting case analyses and feedback for the second through twelfth cases. For each of these cases, the schedule should indicate which group members will write and submit case analyses and which members will provide feedback.
6. The schedule should be established in such a manner that feedback is alternated between group members (i.e., not the same two people for each case).
7. Each small group should submit a final written schedule to the instructor by the second week of class. All group members should sign this schedule.
8. Instructors may require that students submit case analyses via Safe Assignment on Blackboard.
9. All case analyses must be submitted each week by 1 p.m. on Wednesday (students from Thursday and Saturday sections must also submit their analyses on Wednesday). No late case analyses will be accepted!

Guidelines for Providing Feedback

The process for providing feedback is as follows:

1. In addition to writing case analyses, students will provide feedback to their group members. Providing feedback will help writers to improve their case analyses and provide incentive for them to reciprocate.
2. To provide beneficial feedback (and also participate effectively in class discussions), students must study the cases carefully every week, including weeks when they provide feedback to their small group members. Read and analyze cases before giving feedback (i.e., develop your own judgments and conclusions).
3. To get or receive feedback for revising case analyses prior to submission, students must establish and adhere to a system for timely transfer of draft case analyses and feedback. For example, students scheduled to write and submit case analyses must provide draft case analyses to group members responsible for feedback no less than three days before the analyses are due (i.e., the preceding Sunday). Students who provide feedback must respond to writers with feedback no less than two days before the analyses are due (i.e., the preceding Monday).

4. Beneficial feedback consists of:
   a. Concrete, usable suggestions (avoid vague statements about quality)
   b. Information regarding gaps that authors may have overlooked
   c. Suggestions regarding the content and flow of the paper: Does it make sense? Is the problem formulation accurate and helpful? Are the internal and external issues adequately addressed? Has the author considered an adequate range of strategies? Does the recommendation fit the original problem formulation? Does it seem reasonable?
   d. General assistance with writing (e.g., grammar, spelling, sentence structure).

5. Feedback provided by instructors during the initial weeks of the course will serve as a model for students to follow. Students may also use the matrix for providing feedback.

6. It is recommended that students utilize e-mail for the transmission of analysis drafts and feedback. This can be accomplished by attaching documents to e-mail. Alternately, instructors may set up discussion groups on Blackboard.

7. When writers send case analysis drafts to group members for feedback, they should simultaneously send drafts to the instructor for confirmation. Likewise, when group members provide feedback, they should send the feedback to both the writer and instructor (for grading).

8. Case analysis drafts and feedback must be sent by the Sunday and Monday deadlines, respectively. Late feedback may receive no credit.

In sum, students will read and analyze a total of twelve cases for this course. Every student will write and submit a case analysis of the first two cases and five of the remaining ten cases. When not writing case analyses, students will provide written feedback to their group members for five cases.
RESUME/STATEMENT OF QUALIFICATIONS AND ANNOTATION

This assignment combines reflection on past experience, cumulative learning, areas of strength and areas for continued development, with planning for next steps as an emerging social work professional. The assignment is intended to prepare you for the job search process, aid your transition from graduate school to advanced social work practice, or both.

The final product will have two parts. The first part is a resume/statement of qualifications that can be used in the job search process, in presenting yourself for review at work, or in evaluating your current professional skill set to guide thinking about next steps in your career. The second part is a document that expands on each component of this resume/statement of qualifications, explaining in greater depth the goals, knowledge, theoretical orientation to practice, skills, experiences, and professional relationships that shape who you are as a social worker at this moment in your development.

Part 1: The Resume/Statement of Qualifications

This overview of your current qualifications and goals should be no more than 2 pages long, and should contain the following information:

**Objective.** Your immediate career objective: what type of position are you seeking at this moment in your career? What kind of career change are you considering now that you about to have an MSW? What kind of assessment/feedback do you hope to receive from your supervisor (if you are employed in a social work type position that you intend to keep for the foreseeable future).

**Summary.** Include four bulleted points that highlight:
- your theoretical orientation to practice
- your substantive area of expertise
- the population(s) with which you hope to work
- your particular professional strengths.

**Education.** List your degrees (degree, institution and location, major or concentration, any honors (e.g. cum laude).
Appendix D (Continued)

**Experience.** For each social work related position (paid and practicum), include:
- the agency/organization for which you worked and its location
- your job title
- dates of employment
- bulleted list of major job responsibilities

**Additional diversity experience.** List any experiences you have had – volunteer, classroom-based, etc., that involved work with members of diverse populations. For each, include:
- the agency, organization or activity in which you were involved and its location
- your role and dates of involvement
- bulleted list of major activities and responsibilities

**Community Involvement.** List any additional community volunteer work you have participated in. This could include fundraising, board membership, advocacy efforts, major political participation, volunteering with community and/or faith community service projects, etc.

**Memberships.** List any professional associations in which you are a member (i.e. NASW).

**Seminars and workshops.** List any specific trainings you have attended, either on your own or through work/practicum experience.

**References.** List three people who have agreed to serve as professional references for you.

*Keep in mind that a resume is a tool for selling yourself to a potential employer. The visual presentation, wording, organization, and accuracy (both grammatical/spelling accuracy and accuracy of information) are critical elements in an effective resume.*
Appendix D (Continued)

Part 2: The Annotation.

This document should be approximately 10-12 pages long (double spaced, 12-point font, margins of 1 inch). In general, you will be explaining in greater depth each piece of information on your resume – previewing the type of honest and strengths-focused discussion you might have during a job interview. These explanations should be focused and concise, stressing the ways in which each resume entry is a meaningful reflection of who you are, at this moment, as an emerging social work professional. These explanations should also be specific, and include appropriate citations on theories, approaches and skills that you claim as areas of expertise.

Below are listed some questions that should help guide you in your written reflections. You do not need to address each question for each entry, and not all entries should receive equal attention. This is not intended as an exhaustive set of questions, but rather as a starting point to help stimulate your thinking.

**Objective:** Why are you seeking this type of position at this point in your career? What other directions have you considered, and how have you decided on this one? When you began your MSW, what did you intend to do upon graduation? If your plans have changed, how and why? If not, what experiences or learnings have sustained you in your plans?

**Summary:** First, discuss in some depth your theoretical orientation to practice. You MUST identify at least one theory at the macro level (those that help explain how the social world works), one at the mezzo level (those that explain particular issues/challenges facing the client population with whom you wish to work), and one micro (practice) theory (those that guide intervention). For each, clearly discuss the major concepts, how/why you find this compelling and helpful given your practice interests, and what experience you have in applying this theory to practice. Second, for your substantive area, please explain the nature, extent and severity of the problem(s), and discuss your experience/motivation for working in this area. Third, for your population areas, please describe how this population is affected by the substantive problem(s) you have identified, discuss anything unique to this population group in terms of appropriate practice, and describe your experience working with this population group. Fourth, for your list of professional strengths, discuss: what is the evidence that you actually have these strengths and skills? Why have you focused your learning and practice experience in these particular areas? Finally, considering your bulleted points all together, why do you feel that these characteristics will help a potential employer to understand what you, uniquely, have to offer? (Please give citations throughout this discussion)
Appendix D (Continued)

**Education:** For each degree you have obtained (including the MSW you are about to be awarded), what learnings are most significant in shaping who you are as an emerging social work professional? What learnings best prepare you for the type of job you are seeking? What are the gaps in your professional knowledge that you will need to address in your ongoing development while in the work place?

**Experience:** For each position you have held, what aspects of your work have helped you grow and develop as a social worker? What social work knowledge, theories, skills and approaches have informed your work (please give citations in this discussion)? What have you particularly enjoyed or found meaningful? What have you learned about your strengths and limitations? What have you learned about how your own background, beliefs and values influence who you are as a social worker? What has been most challenging? After going through each position separately, please discuss your current understanding of “use of self” in social work practice. How have you, and how do you plan to use your self within your professional practice? What lessons have you learned about what is appropriate? What does not work? How to make decisions about self-disclosure, etc.? Finally, please discuss your plans for self-care. Given the often stressful demands of social work practice, what strategies do you have for keeping yourself healthy? For avoiding burn out? For maintaining balance between work and personal life?

**Additional diversity experience:** How have your experiences with diverse populations influenced your professional development? What have you learned about particular, vulnerable populations? What have you learned about yourself? What experiences and exposure do you feel you are lacking at this moment in your professional development? How might the job you are seeking make use of these experiences? How might it enhance these experiences? What support or additional training might you need?

**Community involvement:** How have your experiences in community work influenced your professional development? What have you learned about social structural conditions? What have you learned about the service system? What has been most challenging for you, and what have you most enjoyed? What experiences and exposure do you feel you are lacking at this moment in your professional development? How might the job you are seeking make use of these experiences? How might it enhance these experiences? What support or additional training might you need?
Appendix D (Continued)

**Memberships:** What professional affiliations have you formed and why? What type of support do you hope to gain from these affiliations? What will you aim to contribute? What needs for support do you anticipate having to meet outside of professional organizations, and how do you plan to go about meeting them?

**Seminars and workshops:** What, specifically, did you learn from each? How will this learning enhance your social work practice in the type of job you are seeking?

**References:** Why have you chosen each of these people? In what ways are they familiar with you as a social worker? What would each say to a potential employer about your strengths and areas for development?

The annotation requires that you reflect upon the experiences and strengths presented in various sections of the resume. Doing so can help you to discuss this information in hiring interviews.

The resume should be word-processed and formatted to create an attractive professional presentation. The annotation should be double-spaced and word processed, with a reference list for literature cited in the paper (APA style). Headings and sub-headings should be used to identify the above components of the resume. The resume should be no more than 2 pages long, while the annotation should be about 10-12 pages long.

As appropriate, the following criteria will be used to evaluate the resume/statement of qualifications and the accompanying annotation:

- Ability to identify, summarize and present your relevant practice experience and strengths
- Thoroughness in addressing all components of the assignment
- Specificity of discussion and analysis
- Depth of discussion and analysis
- Professional writing and presentation skills
Appendix E1: Initial Intervention Group Invitation

Marleen Milner

From: Marleen Milner
Sent: Wednesday, January 23, 2008 2:24 PM
To: 'sarahbridges@hotmail.com'; 'maryallen.mann@gmail.com'; 'tsemon.01@yahoo.com'
Subject: Invitation to participate in research and receive a $5.00 Amazon.com Gift Certificate

Dear MSW Student,

Thanks for your warm welcome during my visit to your campus last week. This is your invitation to participate in an important study regarding how MSW students reason through perplexing issues. If you choose to participate you will be asked to take the Reasoning about Current Issues Test any time during the next week and again at the end of the semester. The test typically takes about 30 minutes to complete and can be taken at your convenience from your own computer.

If you would like to participate in this study, just hit reply to this message. When I receive your email, I will send you a unique identifier, a link to the website to begin your survey, and an Amazon.com gift card for $5.00 which you can use immediately. In addition, if you post your initial case analysis with your reply, your number will be entered in a drawing for an additional $50.00 Amazon.com Gift Certificate.

Feel free to email or call me if you have any questions. My contact information appears below. I hope to hear from you soon.

Thanks again!

Marleen Milner, MSSW
University of South Florida
PhD Candidate
mmilner@usf.edu
Phone: 863-667-5163
Fax: 863-667-5200
Appendix E2: Intervention Group Reminder

Marleen Milner

From: Marleen Milner [mailto:mmilner@suniversity.edu]
Sent: Sunday, January 27, 2008 6:38 PM
To: DESJADON, TRACEY
Subject: RE: Reminder: Invitation to participate in research and receive a $5.00 Amazon.com gift card

From: Marleen Milner [mailto:mmilner@suniversity.edu]
Sent: Sun 1/27/2008 5:06 PM
To: amanda@pembhi.org; amordway@comcast.net; angiegirl5454@hotmail.com; anekewarren@gmail.com; aroan@mailbox.sc.edu; bah1721@aol.com; bdash11@hotmail.com; bigcatfan58@yahoo.com; blues_e@hotmail.com; bnoyle@sc.rr.com; BOOZER, KIMBERLY; SIMS, REBEKAH; BOSIO, JENNIFER; BROOME, MEREDITH; catherinehenderson@comcast.net; chandyholland@yahoo.com; chiquthomas@yahoo.com; clarke3@mailbox.sc.edu; CRUMBY, SAUNDRA; cuando09@hotmail.com; dalaria.teague@gmail.com; DESJADON, TRACEY; DIXON, STEPHANIE DIXON; droehl@gmail.com; EUBANK, LOUIS; FEASTER, JIMVARA; Fouch2002@yahoo.com; galdamez.victor@gmail.com; GLASS, BETSY; gleen16@hotmail.com; godsvirtuous79@yahoo.com; GOSNELL, ASHLEY; graceandpamela@yahoo.com; gravy_fbee@yahoo.com; GREENE, ANGELA; GRIFFIN, MELANIE; HAMBRIGHT, LEAH; holsey82@yahoo.com; JACKSON, BRIAN; JASKUNAS, TARYN; jeanne@autumn.clemson.edu; jess63am05@yahoo.com; jeanmofark@hotmail.com; joni-mendenwald@hotmail.com; joranhbe64@yahoo.com; joranhblue64@yahoo.com; juliaflinnow@gmail.com; kat_bond@hotmail.com; Kemaburkett@yahoo.com; keriaoboe@hotmail.com; keristenelso@yahoo.com; KIM, JIYOUN; kpetetien@carolina.rr.com; krysa@sc.rr.com; lyrona.cates@gmail.com; lbihtion@gmail.com; LEE, SU JUNG; lilikalai@aol.com; illiana.stoioc@gmail.com; lissilyverth@yahoo.com; lmacleen@yahoo.com; maddoxd@comcast.net; mafrby@hotmail.com; marsh07@yahoo.com; maryallen.mann@gmail.com; MATHIESON, KATHERINE; may.abby@gmail.com; MCNEAL, JESSICA; MCPHAIL, FRAN; meganncampbell@yahoo.com; MICHALOWSKI, VALERIE; MILLER, IAMIE; moody_shannon@bellouth.net; mooressn07@yahoo.com; mr0217@hotmail.com; MUSE, RICHETTA; NAM, IL SUNG; newthirst@yahoo.com; palmer2@sc.rr.com; paulk704@gmail.com; raney81@hotmail.com; raphaeljude@yahoo.com; ren camarble@hotmail.com; ROAN, MOLLY; ROGERS, DOROTHEA; ROSINSKI, LAUREN; saenuu@gmail.com; sarahbridges@hotmail.com; shortsuffpk@hotmail.com; slevina@mailbox.sc.edu; soya126@hotmail.com; SPENCE, JESSICA; suebrower20@hotmail.com; sweetchaine03@yahoo.com; tal stdin11@hotmail.com; tamny_landis@hotmail.com; tara.schmucker@gmail.com; tiffanystewart81@yahoo.com; tjohanson0982@gmail.com; tsemon.01@yahoo.com; tsemon.01@yahoo.com; wendi_walden@yahoo.com; WIERZBICKI, ASHLEY; www.rierce_2002@yahoo.com; xu, SHAOJUN; YOON, HYUN-WOO; YOUNG, LINDSAY; YOUNG, MARISA
Subject: Reminder: Invitation to participate in research and receive a $5.00 Amazon.com gift card

Dear Fellow Graduate Students,

This is just a reminder regarding the invitation that you received last week to participate in a research study regarding the reflective thinking of MSW students. If you have not yet had an opportunity to respond you still have a few days to participate and receive an Amazon.com gift card. Due to the nature of the study this invitation is time sensitive.

If you would like to participate in this study, just hit reply to this message. When I receive your email, I will send you a unique identifier, a link to the website to begin your survey, and an Amazon.com gift card for $5.00 which you can use immediately. In addition, if you post your initial case analysis with your reply, your number will be entered in a drawing for an additional $50.00 Amazon.com Gift Certificate.

I will send out an announcement regarding who the lucky winner is early next week.

Thanks for your interest in this research project!

Marleen Milner, MSSW
University of South Florida
PhD Candidate
Appendix E3: Intervention Group Identifier & Link

Marleen Milner

From: Marleen Milner
Sent: Thursday, January 24, 2008 9:20 PM
To: SAERUH@GMAIL.COM
Subject: Marleen Milner sent you an Amazon.com Gift Card!

Follow Up Flag: Follow up
Flag Status: Completed

Dear MSW Student,

Thanks for agreeing to participate in this important research! I could not do it without your help!

Your unique identifier is MMSF00019. Please save this identifier and use it in all aspects of your participation in this research.

Please go the following link: http://www.surveymonkey.com/s.aspx?sm=mE5AAtVd2LS_2bHy0VaqNeoA_3d_3d to begin your survey any time before February 1, 2008. After giving your consent to participate and answering a few demographic questions, you will be redirected to the Reasoning about Current Issues Test.

Upon entering the site you will be asked for a user name and password. The user name is issues and the password is thinking. You will then be asked for the identifier above before taking the test. The entire process should take no more than 30 to 35 minutes. If you haven’t already done so, you can still email me your case analysis with your identifier, which will automatically enter you in the drawing for a $50.00 Amazon.com Gift Card. Your gift card appears below! Enjoy!

Thanks again!

Marleen Milner, MSSW
University of South Florida
PhD Candidate
mmliner@seaniversity.edu
Phone: 863-667-5163
Fax: 863-667-5200

DON'T DELETE THIS MESSAGE! You've received a $5.00 Amazon.com Gift Card!
You'll need the claim code below to place your order.

amazon.com
gift card
Appendix E4: Intervention Group Posttest Invitation

Marleen Milner

From: Marleen Milner
Sent: Friday, April 11, 2008 7:34 PM
To: SPENCEJN@MAILBOX.SC.EDU
Subject: Marleen Milner sent you an Amazon.com Gift Card!

Dear Jessica,

Can you believe the end of the semester is finally here? I know you must be counting the days until graduation! I know your plate is already very full, but I need your help to complete the research that I began at USC this semester. I am asking you to once again follow the link to the survey and complete the RCI which is the exact same test that you took at the beginning of the semester and will take no more than 25 to 30 minutes to complete. The link to the website appears below. Please take the post-test sometime over the next ten days. Your personal identifier is MMSF00007.

http://www.surveymonkey.com/s.aspx?sm=AhuSlozY0wmX6i5ybYY7Q_3d_3d

Attached you will find the Amazon.com gift card I promised which you can use immediately to purchase some light summer reading for a change!! In addition, when you send me a copy of your final case analysis, I'll enter you into a drawing for another $50.00 Gift Card!

Feel free to contact me if you have any questions or need further information. My contact information appears below.

Thanks so much for your investment in this project. I realize that your willingness to participate involves a personal sacrifice of time that can not be recompensed monetarily because it involves the goodwill of one graduate student to another, which is priceless.

Many thanks!

Marleen Milner, MSSW

University of South Florida
PhD Candidate
mamilner@seuniversity.edu
Phone: 863-667-5163
Fax: 863-667-5200

DON'T DELETE THIS MESSAGE! You've received a $5.00 Amazon.com Gift Card!
You'll need the claim code below to place your order.
Appendix E5: Intervention Group Reminder 1

Marleen Milner

From: Marleen Milner
Sent: Wednesday, April 23, 2008 3:24 PM
To: andreas010@hotmail.com; bmwesloyn@yahoo.com; boone@mailbox.sc.edu; brownem@mailbox.sc.edu; cooktm2@mailbox.sc.edu; copherica@yahoo.com; deidrasen@csu.sc.edu; donesc@mailbox.sc.edu; drapercl@gmail.com; eatonr@mailbox.sc.edu; elnichoerger@csu.sc.edu; gallowsw@mailbox.sc.edu; gmscelio@gmail.com; heirloomtomatoella@yahoo.com; henderse@mailbox.sc.edu; mawicentki@gmail.com; rebekah.whittet@gm.com; romero@csufresno.edu; sanderls@mailbox.sc.edu; smithla6@mailbox.sc.edu; sowk09@hotmail.com; stepharoberts@gmail.com; takisha_salamon@yahoo.com; tarichbu@netscape.com; templetm@mailbox.sc.edu; tgheyan@sc.r.com; wartfrog13mlm@hotmail.com; wbellinger@gmail.com

Subject: RCI Post-Test Reminder and Incentive

Dear MSW Students,

I know this is crunch time for you all at the end of the semester and that your time is exceedingly scarce and precious. To add a little further encouragement to take the post-test before you escape for the summer I would like to offer to enter those of you who complete the post test by the 30th another $40.00 drawing for an Amazon.com gift certificate. There are less than 30 of you so your chances are very good!! Thanks again for your help with this project and congratulations on completing another semester of graduate education!

Marleen Milner, MSSW
University of South Florida
PhD Candidate
mamilner@seuniversity.edu
Phone: 863-667-5163
Fax: 863-667-5200
Appendix E6: Intervention Group Reminder 2

Marleen Milner

From: Marleen Milner
Sent: Tuesday, April 29, 2008 8:12 PM
To: andrea810@hotmail.com; bmwelsh5@yahoo.com; boone@mailbox.sc.edu;
brownem@mailbox.sc.edu; cocktm2@mailbox.sc.edu; cosherica@yahoo.com;
deidrahenny@gmail.com; donesc@mailbox.sc.edu; drapercl@gmail.com;
eatonsr@mailbox.sc.edu; elschroeder@gmail.com; gallowvs@mailbox.sc.edu;
gmcelfat@gmail.com; heincomtomatoella@yahoo.com; hendersn@emailbox.sc.edu;
mawiernicki@gmail.com; rebekah_whittor@gmail.com; romero@csufresno.edu;
sandels@mailbox.sc.edu; smithra8@mailbox.sc.edu; sowki8@hotmail.com;
stephroberts@gmail.com; takisha_solomon@yahoo.com; tanichbu@netscape.com;
templetm@mailbox.sc.edu; tgohean@sc.rr.com; wartfrog13mjm@hotmail.com;
wbellinger@gmail.com

Subject: RCI Post-Test Reminder

Dear MSW Students,

This is just a reminder that everyone who has taken the post test by April 30th (anytime tomorrow) will be entered into a drawing to win a $40.00 Amazon.com Gift Certificate. If you haven't already taken it here is the link:

http://www.surveymonkey.com/s.aspx?sm=AhSl0zV0wmX8j5ybVY7Q_3d_3d

When you are redirected to the RCI website, enter the username issues and the password which is thinking to begin your test.

Thanks so much for your participation in this research this semester!!

Sincerely,

Marleen Milner

mmilner@scuniversity.edu
Appendix E7: Comparison Group Invitation

Marleen Milner

From: Marleen Milner
Sent: Tuesday, February 05, 2008 10:11 AM
To: 'KatieR485@aol.com'; 'leanderson02@yahoo.com'; 'cosherica@yahoo.com'; 'wbellinger@gmail.com'; 'ehoffman@sc.rr.com'; 'brownem@mailbox.sc.edu'; 'elschroeder@gmail.com'; 'bmwelsh5@yahoo.com'; 'CookTM2@mailbox.sc.edu'; 'tarichbu@netscape.com'; 'gallowws@mailbox.sc.edu'
Subject: Invitation to participate in research study and receive a $50 Amazon.com gift card.
Follow Up Flag: Follow up
Flag Status: Flagged

Dear MSW Student,

I sincerely appreciate your willingness to participate in this research study. Your participation will involve taking the Reasoning about Current Issues Test some time during the next week and again at the end of the semester. The test typically takes about 30 minutes to complete and can be taken at your convenience from your own computer.

If you would like to participate in this study, just hit reply to this message. When I receive your email, I will send you a unique identifier, a link to the website to begin your survey, and an Amazon.com gift card for $5.00 which you can use immediately. You will also be entered in a drawing for a $40.00 Amazon.com gift card.

This invitation is time sensitive, so I need to hear from you within the next few days. I look forward to hear from you soon.

Thanks again!

Marleen Milner, MSSW
University of South Florida
PhD Candidate
mmilner@seuniversity.edu
Phone: 863-667-5163
Fax: 863-667-5200
Appendix E8: Comparison Group Reminder

Marleen Milner

From: Marleen Milner
Sent: Sunday, February 10, 2008 6:02 PM
To: jcason03@yahoo.com; ferdenaa@mailbox.sc.edu; andrea010@hotmail.com; missbojangles112@yahoo.com; tghean@sc.rr.com; henderse@mailbox.sc.edu; carena.aumon@clafin.edu; takisha_solomon@yahoo.com; eatonsr@mailbox.sc.edu; ahillerich@gmail.com; templetm@mailbox.sc.edu; condonw@mailbox.sc.edu
Subject: Reminder: Invitation to participate in research and receive a $5.00 Amazon.com gift card!

Dear Fellow Graduate Students,

This is just a reminder that the survey I invited you to participate in will be closing on February 15th. In addition to receiving a $5.00 Amazon.com gift card, if you take the Reasoning about Current Issues Test by Friday you will automatically be entered into a drawing for an additional $40.00 Gift card. Your chances of winning are pretty good since there is only a small pool of students that will qualify.

So if you are at all interested, please act today. I appreciate your help to complete this important research study!

Sincerely,

Marleen Milner, MSSU
University of South Florida
PhD Candidate
mmiliner@seuniversity.edu
Phone: 863-867-5163
Fax: 863-667-5200
Appendix E9: Website Problem Notice

Marleen Milner

From: Marleen Milner
Sent: Friday, April 18, 2008 2:32 PM
To: 'ANNEKEWARREN@GMAIL.COM'; 'DESDJADON@MAILBOX.SC.EDU'; 'KERISTENNELSON@YAHOO.COM'; 'BLUEROS_E@HOTMAIL.COM'; 'SPENCEJN@MAILBOX.SC.EDU'; 'JASKUNAS@MAILBOX.SC.EDU'; 'ROAN@MAILBOX.SC.EDU'; 'GLASSE@MAILBOX.SC.EDU'; 'JESMCNEAL@YAHOO.COM'; 'AMANDA@EPHIH.IO'; 'YOUNGW@MAILBOX.SC.EDU'; 'DORRIAL@GMAIL.COM'; 'DALORIATEAGUE@GMAIL.COM'; 'YOUUGL@MAILBOX.SC.EDU'; 'KRYSLA@SC.RR.COM'; 'LILIANA.STOISOR@GMAIL.COM'; 'SAERUH@GMAIL.COM'; 'BROOMEM2@MAILBOX.SC.EDU'; 'GOSNELAS@MAILBOX.SC.EDU'; 'JOANNOFARK@HOTMAIL.COM'; 'BMOULE@SC.RR.COM'; 'KPELLETIER@CAROLINA.RR.COM'; 'JULIAFILLNOW@GMAIL.COM'; 'ban1721@aol.com'; 'tammyn_landis@hotmail.com'; 'l dkinton@gmail.com'; 'graceandpamela@yahoo.com'; 'maryallen.mann@gmail.com'; 'tammynlyn@bryant@hotmail.com'; 'lkatt19@hotmail.com'; 'raphaeljude@yahoo.com'; 'joni-medewald@hotmail.com'; 'amordway@comcast.net'; 'catherinehencerson@comcast.net'; 'BOOZERK@mailbox.sc.edu'; 'lisalivethorn@yahoo.com'; 'chandy.holland@yahoo.com'; 'raney81@hotmail.com'; 'GRIFFIMH@mailbox.sc.edu'; 'MICHALOW@mailbox.sc.edu'; 'jeanette8281@yahoo.com'; 'ROSINSKL@mailbox.sc.edu'; 'maddoxdi@comcast.net'; 'YOON6@mailbox.sc.edu'; 'EUBANK@mailbox.sc.edu'; 'talaetuitele@gmail.com'; 'sweetelaine03@yahoo.com'; 'Lilakala@com@yahoo.com'; 'MILLERJ5@MAILBOX.SC.EDU'
Cc: 'Terry Wolfe'
Subject: RE: RCI Username and Password is working again!

Dear Graduate Students,

Thank you so much for your patience over the last 48 hours as I have attempted to resolve the problem with the user name and password for the RCI. The administrator of the test has finally resolved the problem and the user name is still issues and the password is thinking. If you have not had an opportunity to take the post-test you can do so now. Thanks so much for your help with this project. I greatly appreciate your help and your willingness to persist in the face of obstacles.

Please let me know if you experience any problems at all.

Thanks!

Marleen Milner, MSSW
University of South Florida
PhD Candidate
mmilner@seu.university.edu
Phone: 863-667-5163
Fax: 863-667-5200

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Dear Lauren,

The end of the semester is here and you must be counting the days until graduation! I know your plate is already very full, but I need your help to complete the research that you helped me begin at USC this semester. I am asking you to once again follow the link to the survey and complete the RCI which will take no more than 25 to 30 minutes to complete. The link to the website appears below. In case you have misplaced it, your personal identifier is MMSF00047.

http://www.surveymonkey.com/s.aspx?sm=AhaSlozV0wmX8jl5ybVY7Q_3d_3d

Attached you will find the Amazon.com gift card I promised which you can use immediately to purchase some light summer reading for a change!!

Thanks so much for your investment in this project. I realize that your willingness to participate involves a personal sacrifice of time that can not be recompensed monetarily because it involves the goodwill of one graduate student to another, which is priceless.

Many thanks!

Marleen Milner

University of South Florida
PhD Candidate
mmilner@seuniversity.edu

Phone: 863-667-5163
Fax: 863-667-5200
Dear Anne,

I’m sure things must be nuts for you now as the semester is coming to a close, but I would like to ask you to take a few seconds to attach your final case analysis in a reply to this email. Since I have your initial case analysis, I would really like to include you in my data set. Thanks for all your help and patience this semester! And congratulations on your newly minted MSW!

Marleen

Marleen Milner, MSSW
University of South Florida
PhD Candidate
mmilner@seuniversity.edu
Phone: 863-667-5163
Fax: 863-667-5200
Appendix F: Permission to use RCI

Marleen Milner

From: Marleen Milner
Sent: Wednesday, November 28, 2007 4:22 PM
To: alevtov@umich.edu
Cc: Sheila Summers Thompson
Subject: Permission to use RCI

Dear Anat,

I am writing because I am interested in using the RCI as a pretest and posttest measure for a dissertation research project that I am involved in as a part of my doctoral studies at the University of South Florida. I would need to have access to the test beginning in early January and then again during the last weeks of April as this will be used to assess changes as a result of an educational intervention with graduate students. I estimate that 150 to 250 students will take the test.

Below is the information requested on your website:
Name: Marleen Milner
Institution: University of South Florida
Advisor: Dr. William Rowe, University of South Florida
My address, phone, email appears below.

Please let me know if there is any further information that you need from me. Thanks so much for your prompt attention to this matter.

Sincerely,

Marleen Milner, MSW
Social Work Program Director

Southeastern University
1000 Longfellow Blvd
Lakeland, FL 33801
www.seuuniversity.edu
Phone: 863.667.5163
Fax: 863.667.5007
Appendix F (Continued)

Marleen Milner

From: Marleen Milner
Sent: Thursday, November 29, 2007 10:12 AM
To: Anat H. Levov
Cc: Sheila.Thompson@du.edu
Subject: RE: Permission to use RCI

Anat,

Thanks for your quick response. I am aware of the limitations of this instrument to detect changes over a short period of time, but in the absence of a comparable measure I have decided with the support of my advisor to attempt it anyway, based on the fact that it apparently has not been attempted with graduate students and that there is at least limited precedent for its use in this manner with undergraduates (Kronholm, 1996; Thompson, 1995). I had an exchange with Dr. Thompson about this matter earlier in the year and have decided to move ahead with it. I will also be using a content analysis of students' case analyses to detect changes in reasoning over the course of the semester, which has been found to be an effective way to assess changes in the reasoning of students. I will defend my proposal on the 10th of December and assuming there are no major objections (the committee is already aware of the limitations) I hope to proceed.

One other question I had is whether there is any possibility of altering the preliminary questions on the RCI. I am interested in updating the race/ethnicity categories and also adding a category for social work experience. I can do this separately if it is not possible.

Thanks!

Marleen Milner

From: Anat H. Levov [alevov@umich.edu]
Sent: Wednesday, November 28, 2007 5:51 PM
To: Marleen Milner
Cc: Sheila.Thompson@du.edu
Subject: Re: Permission to use RCI

Dear Marleen,

Thanks for your email. It should not be a problem to get you set up for the administration of the online instrument fairly quickly. I do want to call your attention to a complicating factor. As you may have seen already on the Reflective Judgment web site, the RCI is not intended to be used as an individual assessment instrument, but only on a group basis. Reflective judgment as a skill is developed over a relatively long period of time, so the short time between the pre- and post- administrations you suggest may not be enough time to detect gains. Please let me or Dr. Summers-Thompson know if you have any additional questions - she has worked with many researchers who are posing similar questions and may have valuable advice on how to most effectively use the RCI.

Thanks!

Anat
Appendix G: Permission from IRB

Informed Consent to Participate in Research
Information to Consider Before Taking Part in this Research Study

Researchers at the University of South Florida (USF) study many topics. To do this, we need the help of people who agree to take part in a research study. This form tells you about this research study.

We are asking you to take part in a research study that is called: The Impact of Case-Based Instruction on the Reflective Thinking of Graduate Social Work Students

The person who is in charge of this research study is Marleen Milner. The research will be done at The University of South Carolina.

Purpose of the study

The purpose of this study is to evaluate the impact of case-based instruction on reflective thinking, which is an aspect of critical thinking. You are being asked to participate in this study because you are involved in a case-based course.

Study Procedures

If you take part in this study, you will be asked to take the Reasoning about Current Issues Test during the first and thirteenth week of the semester. This test typically takes 30 minutes to complete. The test can be taken at your own computer if you have access to the internet. Otherwise it can be taken from a computer in the computer lab at your university.

In addition, if you are involved in a case based course you may be asked to post a copy of your first and final case analyses without any identifying information included. You may be asked to participate in a brief interview about your learning experiences in the case based course.

Alternatives

You have the alternative to choose not to participate in this research study or to choose to participate in certain portions and not in others.

Benefits

Participation in this study may help you become more aware of your assumptions about knowledge and how you approach controversial issues. In addition, your participation in this study may help social work educators discover methods of teaching that encourage reflective thinking in MSW students.
Appendix G (Continued)

Risks or Discomfort
There are no known risks to those who take part in this study.

Compensation
You will receive a $5.00 Amazon.com gift card as a small compensation for your time and willingness to participate each time you take the RCI test. This gift card will be emailed to you together with the unique identifier that will be used to track your test results anonymously. Those students who post their papers to the blackboard website will also be entered in a drawing each time for a $35.00 gift card at a local restaurant.

Confidentiality
Your study records will be kept confidential. The results of your test will be completely anonymous and not linked to you individually in any way. Your scores will not be shared with your instructors or your graduate school.

Test scores will be evaluated by the administrator of the RCI test, however no information that links the test to you personally will be available to them.

Students who post their first and final case analysis will do so without any identifying information. If you would like to be entered into the drawing you may identify your case analysis with the identifier that will be assigned to you when you volunteer to participate. The winner of the two drawings (one for each posting) will be notified by email.

If you choose to participate in an interview, interview transcripts will be kept in a locked file cabinet and will not contain any identifying information that can be linked to you in any way.

We may publish what we learn from this study. If we do, we will not let anyone know your name. We will not publish anything else that would let people know who you are.

Voluntary Participation / Withdrawal
You should only take part in this study if you want to volunteer. You should not feel that there is any pressure to take part in the study, to please the investigator the research staff. You are free to participate in this research or withdraw at any time. There will be no penalty if you stop taking part in this study. Your decision to participate or not participate will not affect your course grade in any way.

Questions, concerns, or complaints
If you have any questions, concerns or complaints about this study, please direct your questions to Marleen Milnor at 863-667-5163.

If you have questions about your rights, general questions, complaints, or issues as a person taking part in this study, call the Division of Research Integrity and Compliance of the University of South Florida at (813) 974-9343.

If you experience an adverse event or an unexpected problem call Marleen Milnor at 863-667-5163.
Consent to Take Part in this Research Study

Consent to Take Part in this Research Study

It is up to you to decide whether you want to take part in this study. If you want to take part, please sign the form, if the following statements are true.

I freely give my consent to take part in this study. I understand that by signing this form I am agreeing to take part in research. I have received a copy of this form to take with me.

Signature of Person Taking Part in Study

Date

Printed Name of Person Taking Part in Study

Statement of Person Obtaining Informed Consent

I have carefully explained to the person taking part in the study what he or she can expect.

I hereby certify that when this person signs this form, to the best of my knowledge, he or she understands:

• What the study is about.
• What procedures/interventions/investigational drugs or devices will be used.
• What the potential benefits might be.
• What the known risks might be.

I also certify that he or she does not have any problems that could make it hard to understand what it means to take part in this research. This person speaks the language that was used to explain this research.

This person reads well enough to understand this form or, if not, this person is able to hear and understand when the form is read to him or her.

This person does not have a medical/psychological problem that would compromise comprehension and therefore makes it hard to understand what is being explained and can, therefore, give informed consent.

This person is not under any type of anesthesia or analgesic that may cloud their judgment or make it hard to understand what is being explained and, therefore, can be considered competent to give informed consent.
Appendix G (Continued)

Signature of Person Obtaining Informed Consent

Date

Printed Name of Person Obtaining Informed Consent

It is up to you to decide whether you want to take part in this study. If you do not wish to participate, please click on the "no" button. If you want to take part, please indicate your consent to do so by clicking on the "yes" button below. You may then continue on to answer the brief demographic questionnaire and to take the RCI Test.

Your decision to click "yes" indicates that you freely consent to take part in this study.
# Reflective Judgment Study Survey

## 1. Reflective Judgment Study

Thank you for your interest in this research. Please read the informed consent below and indicate your consent by clicking on the yes button. If you do not wish to continue, you may exit the survey at any time. After giving your consent, click next to answer a few questions before proceeding on to take the Reasoning About Current Issues Test.

## 2. Informed Consent to Participate in Research Study

### Information to Consider Before Taking Part in this Research Study

I am asking you to take part in a study that is called: The Impact of Case-Based Instruction on the Reflective Thinking of Graduate Social Work Students.

Marleen Milner is conducting this research study.

### Purpose of the Study

The purpose of this study is to evaluate the impact of case-based instruction on reflective thinking, which is an aspect of critical thinking. You are being asked to participate in this study because you are either involved in a case-based course or are comparable to students who are.

### Study Procedures

If you take part in this study, you will be asked to take the Reasoning about Current Issues Test during the second and thirteenth week of the semester. This test typically takes about 30 minutes to complete. The test can be taken on your own computer if you have access to the internet. Otherwise, it can be taken from a computer in the computer lab at your university.

In addition, if you are involved in a case-based course, you will be asked to post a copy of your first and final case analyses without any identifying information included.

### Alternatives

You have the alternative to choose not to participate in this research study.

### Benefits

Participating in this study will help further knowledge about teaching strategies that help to foster critical thinking skills in MSW students. We do not know whether you will receive any personal benefits from participating.

### Risks or Discomfort

There are no known risks to those who take part in this study.

### Compensation

You will receive a $5.00 gift card as a small compensation for your time each time you take the RCI test. This gift card was emailed to you in the invitation to participate. Those students who attach their papers in the email reply will also be entered in a drawing each time for a $50.00 Amazon.com gift card.

### Confidentiality

I must keep your study records confidential. The results of your test will be completely anonymous and not linked to you individually in any way. Your scores will not be shared with your instructors or graduate school. Your participation in this study has no bearing on your course grade.

I may publish what I learn from this study. If I do, I will not let anyone know your name. I will not publish anything else that would let people know who you are.

### Voluntary Participation / Withdrawal


Appendix H (Continued)

Reflective Judgment Study Survey

You should only take part in this study if you want to volunteer. You should not feel that there is any pressure to take part in the study, to please the investigator or your professor. You are free to participate in this research or withdraw at any time. There will be no penalty if you stop taking part in this study. Your decision to participate or not participate will not affect your course grade in any way.

Questions, concerns, or complaints

If you have any questions, concerns or complaints about this study, call Marleen Milner at 863-667-5163.

If you have questions about your rights, general questions, complaints, or issues as a person taking part in this study call the Division of Research Integrity and Compliance of the University of South Florida at (813) 974-9343.

If you experience an adverse event or unanticipated problem call Marleen Milner at 863-667-5163.

Consent to Take Part in this Research Study

It is up to you to decide whether you want to take part in this study. If you do, please click yes in response to the question below and then click next. If not, you may exit the survey at any time.

1. Please click yes on the button below to indicate that you freely consent to participate in this research study. If you do not wish to participate, click no.

- Yes
- No

3. Personal Information

Identifier and Demographics

1. Please enter the personal identifier that was emailed to you along with your Amazon.com gift code, for example, MMSF00036.

2. Please indicate the social work course number and section that you are enrolled in and in which you were recruited to participate in this research, for example, SOWK 718-001.

3. Please click on the button that best describes your racial/ethnic group identification

- African American/Other Black (non-Hispanic)
- American Indian/Native American/Alaskan Native
- Asian American
- Mexican American
- Multiple race/Ethnicity
- Other
- Other Latino/Hispanic
- Pacific Islander
- Puerto Rican
- White
Appendix H (Continued)

<table>
<thead>
<tr>
<th>Reflective Judgment Study Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>4. Please click the button below that best describes your gender:</strong></td>
</tr>
<tr>
<td>☐ male ☐ female</td>
</tr>
<tr>
<td><strong>5. Please enter your age.</strong></td>
</tr>
<tr>
<td>______________________</td>
</tr>
<tr>
<td><strong>6. Please click on the button that most clearly describes the number of years of paid social work experience that you have.</strong></td>
</tr>
<tr>
<td>☐ 0 ☐ Less than 3</td>
</tr>
<tr>
<td>☐ 3-5 ☐ 6-10</td>
</tr>
<tr>
<td>☐ 11-19 ☐ 20 or more</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4. Reasoning About Current Issues Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>You will now be redirected to the Reasoning About Current Issues Test. To enter the site you must enter the username: issues; then enter the password which is thinking. You will be asked to enter an identifier when you enter the site. Please enter the identifier which was emailed to you together with the link and the gift certificate. Thank you for your participation!</td>
</tr>
<tr>
<td><strong>Important Note:</strong> You will be asked to complete demographic information at the beginning of the Reasoning about Current Issues Test. The categories are outdated and do not include an &quot;other&quot; category; however they are required order for you to submit your test. Please just check the one you are most comfortable with. The categories that you checked on the initial survey are the ones that I will use. Thanks!</td>
</tr>
</tbody>
</table>
Appendix I: Steps for Better Thinking Rubric

<table>
<thead>
<tr>
<th>Steps for Better Thinking</th>
<th>Less Complex Performance Patterns</th>
<th>More Complex Performance Patterns</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IDENTIFY</strong></td>
<td>&quot;Confused Fact Finder&quot;</td>
<td>&quot;Pragmatic Performer&quot;</td>
</tr>
<tr>
<td>A- Identify and use relevant information</td>
<td>Performance Pattern 2—How performance might appear when Step 1, 2, and 3 skills are adequate, but Step 4 skill is weak</td>
<td>Performance Pattern 3—How performance might appear when Step 1 and 2 skills are adequate, but Step 3 skill is weak</td>
</tr>
<tr>
<td>B- Indicate uncertainty</td>
<td>&quot;Biased Jumper&quot;</td>
<td>&quot;Strategic De-Visioner&quot;</td>
</tr>
<tr>
<td>C. Use very limited information; primarily facts, definitions, or expert opinions</td>
<td>&quot;Perpetual Analyst&quot;</td>
<td>&quot;Performance Pattern 4—How performance might appear when one has strong Step 1, 2, and 4 skills</td>
</tr>
<tr>
<td>D- Either denies uncertainty OR attributes uncertainty to temporary lack of information or to one's lack of knowledge</td>
<td>&quot;A. Uses limited information, primarily evidence and information supporting own conclusion&quot;</td>
<td>&quot;A. Uses a range of carefully evaluated, relevant information, including alternative criteria for judging among solutions&quot;</td>
</tr>
<tr>
<td>E- Identifies at least one reason for significant and enduring uncertainty</td>
<td>&quot;B- Indicates complex relations related to uncertainties and the relationships among different sources of uncertainty&quot;</td>
<td>&quot;C. Exhibits complex awareness of relative importance of different sources of uncertainties&quot;</td>
</tr>
</tbody>
</table>

**EXPLORE**

| C- Integrate multiple perspectives and clarify assumptions | "C- Acknowledges more than one potential solution, approach, or viewpoint; does not acknowledge own assumptions or biases" | "C- Evaluates evidence using general principles that allow comparisons across viewpoints; adequately justifies assumptions" |
| D- Qualitatively interpret information and create a meaningful organization | "D- Interprets information from multiple viewpoints; identifies and evaluates assumptions; attempts to control own biases" | "D- Objectively analyzes quality of information; organizes information and concepts into a viable framework for exploring realistic complexities of the problem" |

**PRIORITIZE**

| E- Use guidelines or principles to judge objectively across the various options | "E- Provides limited analysis of alternatives; offers partially reasoned conclusions; uses superficially understood information in support of beliefs" | "E- Uses evidence to reason logically within a given perspective, but unable to establish criteria that apply across alternatives to reach a well-founded conclusion OR unable to reach a conclusion in light of reasonable alternatives and/or uncertainty" |
| F- Implement and communicate conclusions for the setting and audience | "F- Fails to adequately address alternative viewpoints in implementation plans; provides insufficient information on the relative importance of the problem" | "F- Establishes overly complicated implementation plans OR delays implementation process in search of additional information; provides insufficient information on the relative importance of the problem" |

**ENVISION**

| G- Acknowledge and monitor solution limitations through next steps | "G- Does not acknowledge significant limitations; beyond temporary uncertainty; next steps articulated as finding the "right" answer (often by experts)" | "G- A. Indicates at least one limitation or reason for significant and enduring uncertainty; if prompted, next steps generally address gathering more information" |
| H- Overall approach to the problem | "H- Proceeds as if goal is to find the single, "correct" answer" | "H- Proceeds as if goal is to establish an unbiased, balanced view of evidence and information from different points of view" |

## Appendix J: Coding Rubric

<table>
<thead>
<tr>
<th>Code</th>
<th>Skills</th>
<th>Pre-Reflective Performance Pattern 0</th>
<th>Quasi-reflective Performance Pattern 1</th>
<th>Quasi-reflective Performance Pattern 2</th>
<th>Reflective Performance Pattern 3</th>
<th>Reflective Performance Pattern 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Identifies and summarizes the problem/question in case</td>
<td>Does not identify the main problem; seems to “miss the point.”</td>
<td>Identifies the main problem (or what might reasonably be considered to be the main problem); but does not identify subsidiary, embedded, or implicit aspects of the problem</td>
<td>Clearly identifies the main problem and subsidiary, embedded, or implicit aspects of the problem</td>
<td>In addition to previous level, emphasizes and states criteria for identifying the most important aspects of the problem</td>
<td>In addition to previous level, anticipates future problems and identifies issues arising from current limitations</td>
</tr>
<tr>
<td>U</td>
<td>Identifies and addresses uncertainties (i.e., reasons why the problem is open ended)</td>
<td>Ignores uncertainty, or attributes uncertainty to temporary lack of information or to own lack of knowledge</td>
<td>Identifies at least one reason for significant and permanent uncertainty, but does not integrate uncertainties into analysis</td>
<td>Addresses significant and permanent uncertainties when interpreting and analyzing information</td>
<td>Identifies and discusses the significance of the most important uncertainties</td>
<td>Develops viable strategies for minimizing the most important uncertainties over time</td>
</tr>
<tr>
<td>R</td>
<td>Identifies information/evidence that is relevant to the problem</td>
<td>Identifies at least some information that is relevant to the problem</td>
<td>Identifies most of the information that is relevant to the problem</td>
<td>Explores (considers from different perspectives) a wide range of relevant information</td>
<td>Focuses on the most important relevant information to prioritize</td>
<td>Develops viable strategies for generating important relevant information</td>
</tr>
<tr>
<td>MP</td>
<td>Integrates multiple perspectives</td>
<td>Describes information without acknowledging multiple perspectives OR portrays perspectives and information dichotomously, e.g. good/bad, right/wrong</td>
<td>Acknowledges more than one potential viewpoint, approach or perspective;</td>
<td>Interprets information from multiple viewpoints;</td>
<td>Evaluates information using general principles that allow comparisons across viewpoints;</td>
<td>Same as 3 PLUS argues convincingly using a complex, coherent discussion of own perspective, including strengths and limitations,</td>
</tr>
</tbody>
</table>
| IN   | Qualitatively interprets information and creates a meaningful organization | Describes rather than interpreting information; or may use contradictory or illogical arguments; lacks organization | Interprets information superficially as either supporting or not supporting a point of view; ignores relevant information that disagrees with own position; fails to sufficiently break down the problem | Objectively analyzes quality of information; Organizes information and concepts into viable framework for exploring realistic complexities of the problem | Focuses analysis on the most important information based on reasonable assumptions about relative importance; organizes information using criteria that apply across different viewpoints | Same as 3 PLUS systematically reinterprets evidence as new information is generated over time OR describes process that could be used to systematically reinterpret evidence.
## Appendix J (Continued)

<table>
<thead>
<tr>
<th>E (Evaluation)</th>
<th>Identifies and evaluates implications and consequences of alternatives</th>
<th>Cites pros or cons that don’t make sense based on the information provided or does not address implications or consequences beyond dichotomous characterizations</th>
<th>Considers implications and consequences only superficially; ignores negative consequences of own position</th>
<th>Analyzes implications and consequences for multiple alternatives</th>
<th>In addition establishes criteria to prioritize implications and consequences across alternatives</th>
<th>In addition to previous level, identifies processes for addressing implications and consequences over time.</th>
</tr>
</thead>
<tbody>
<tr>
<td>S (Supports Conclusions)</td>
<td>Clearly presents and supports conclusions</td>
<td>Provides fact, definitions, or other “authoritative” information that mask as conclusions instead of own conclusion</td>
<td>Clearly states conclusions and reasons, but limited to supporting primarily one perspective</td>
<td>Reluctant to select and defend a single overall conclusion in light of viable alternative; may provide conclusions with inadequate support</td>
<td>Articulates criteria that apply across viable alternatives to reach well-founded conclusions</td>
<td>In addition to previous level, articulates how problem-solving approach and criteria can be refined, leading to better solutions or greater confidence over time.</td>
</tr>
<tr>
<td>J (Justification)</td>
<td>Justifies positions with supportive evidence</td>
<td>Based on authoritative source OR where absolute answers are not available on an unsupported opinion.</td>
<td>Based on facts, evidence that fits an established belief or own perspective</td>
<td>Based on interpretations of facts/evidence that are used to justify solutions within particular context. (Right solution depends on a variety of contextual factors).</td>
<td>Based on Comparing evidence and opinion from different perspectives and constructing solutions that are evaluated by personally endorsed criteria, such as one’s personal values, utility, or need for action</td>
<td>Justified probabilistically on the basis of a variety of interpretive considerations, such as the weight of evidence, explanatory value of the interpretations, the risk of erroneous conclusions, the consequences of alternative judgments, and the interrelationships of these factors</td>
</tr>
</tbody>
</table>
### Appendix J (Continued)

<table>
<thead>
<tr>
<th>L (Limitations)</th>
<th>Identifies limitations of position/thesis and establishes plans for addressing those limitations</th>
<th>Does not acknowledge significant limitations beyond temporary uncertainty</th>
<th>Acknowledges at least one limitation or reason for significant and enduring uncertainty;</th>
<th>Articulates connections among underlying contributors to limitations</th>
<th>Adequately describes relative importance of solution limitations when compared to other viable options;</th>
<th>In addition to 3, identifies viable processes for strategically generating new information/knowledge to aid in addressing significant limitations over time</th>
</tr>
</thead>
<tbody>
<tr>
<td>C (Context)</td>
<td>Identifies and considers the influence of the context on the issue</td>
<td>Does not address context beyond dichotomous characterizations such as right/wrong, good/bad, smart/stupid</td>
<td>Acknowledges the existence of different contexts, but focuses on context in support of own opinion</td>
<td>Identifies and considers the influence of context when analyzing perspectives and evidence</td>
<td>Analyzes the issue with a clear sense of scope and context-sees the bigger picture</td>
<td>Identifies and addresses long-term considerations related to the scope and context</td>
</tr>
<tr>
<td>OA</td>
<td>Overall Approach to Problem</td>
<td>Attempts to find single “correct answer to open-ended questions/problems</td>
<td>Appears to begin with conclusions and then stack up evidence/arguments to support it</td>
<td>Appears to perform comprehensive and objective analyses from different viewpoints, but unable to reach or strongly defend conclusions</td>
<td>Appears to develop well-founded conclusions based on comprehensive and objective comparison of viable alternatives.</td>
<td>Proceeds as if goal is to construct knowledge, to move toward better conclusions or greater confidence in conclusions as the problem is addressed over time.</td>
</tr>
</tbody>
</table>
Appendix K: Coded Paper

ID MMSF00033*names have been changed to protect anonymity

Introduction:

Social worker Cynthia Sanders works for a nonprofit agency in Florida that provides free legal assistance to prison inmates. She is asked to collaborate on the case of Jose Aranda, a young man convicted of armed robbery and murder. Cynthia is brought into the case to serve as the mitigation investigator for Mr. Aranda's case largely because she is very knowledgeable of the mental health field.

Problem Statement:

The dilemma of this scenario is that Cynthia is uncertain whether she should represent the wishes of her client to die, thus encouraging his right to self-determination, or to conform to the approach posed by her colleagues, which supports an appeal to his death sentence regardless of his stated desire. Believing that Mr. Aranda may be competent enough to represent his true desire in this situation, Cynthia finds herself asking the question, "what is my responsibility as a social worker to this client?"

Contextual Analysis:

Cynthia believes that she has found her "dream job" at the agency. Her boss, however, implies that if she does not conform to their agenda that she may lose her job. Cynthia admits that she does not support the death penalty, but she does sympathize with her client's description of degrading prison conditions. Mr. Aranda describes being naked "half the time" with guards staring, not receiving medications for his mental illness because it is "too expensive," and instances of staff injecting him with the immobilizing drug Haldol against his will. Mr. Aranda is diagnosed with paranoid schizophrenia, symptoms of which are commonly "exacerbated" by prison conditions.
Appendix K (Continued)

**Alternative Strategies:**

Cynthia could follow the agenda of the attorneys and not address to the court the client’s stated desire to die. As benefits, she could maintain the approval of her colleagues and assure job security. As detriments, Cynthia would be violating the Code of Ethics for failing to promote her client’s self-determination and for failing to advocate for improved physical conditions and necessary mental health treatment. Cynthia would likely lose the trust and respect of her client.

Cynthia could alternatively represent the wishes of her client (to die) rather than standing united with her colleagues. As benefits, she would be supporting the client’s self-determination and would likely maintain her client’s trust and respect. As detriments, she could potentially lose her job and professional respect. Also as a detriment, Cynthia would have to live with her decision to recommend that a man die despite his suffering from untreated mental illness.

Alternatively, Cynthia could reframe her approach to the case, focusing on the common ground held by the client, the employer, and herself—that the client is not receiving proper physical or mental health treatment in prison. Advocating for such could have the positive impact of maintaining the support of all parties—Cynthia would need to carefully explain to her client that she will be reporting to the court his desire to die, but that she will also request that a third party practitioner affirm his soundness of mind in order to strengthen his credibility.

The attorneys, of course, anticipate that he will be found incompetent, and if so, they may be able to strengthen their mitigation case. Because the client is confident in his own mental stability, he would likely anticipate that the judge would see his side. As pros, Cynthia could be exercising social work principles of advocating for her client’s well-being and safety, and she would be seeking to represent the facts as objectively as possible. If she fails to carefully explain her agenda she could risk misunderstanding and distrust among her client and/or colleagues.
Appendix K (Continued)

Recommendations:

The third alternative is the preferred strategy because it most objectively seeks to assure that the client's basic mental health needs are met. As a "compromise," this decision takes into account the client's desire to be treated more humanely, it satisfies the social worker's obligation to advocate for her client's physical and mental health needs, and it takes into account the agency's desire to provide Mr. Aranda with a chance to survive and to possibly even be found innocent. Cynthia is not "deciding this case," but she is pushing it forward to the next stage of judicial assessment. If, after treatment, the client still wants to die, this should be presented to the court. If he renews his desire to live, this could fuel his appeal process.

Rationale:

This third alternative provides a more "balanced" approach to the situation, leaving room for more reliable support to be gathered. "No single expert can address all ... factors, which is why the multidisciplinary team is so important" (Guin et al., 2003, quoted in Holdman, 2000).

Making some compromises among highly skilled colleagues for the potential benefit of a client can be favorable in capital cases, "where developing a holistic individual picture of the client is vital to accurately assess the convicted person" (Guin et al., 2003).

"Social workers service to clients must reflect the presumption of innocence and the client's right to due process" (Shroder, 2003, p. 438). As a social worker, Cynthia must advocate for her client's rights and needs, whether she believes he is innocent or not. I agree with J. Shroder who writes that "social workers providing mitigation services should advocate for clients to receive appropriate mental health services while awaiting trial and beyond" (2003, p. 430). Most state statutes concerning mitigation allow evidence related to mental illness (Guin et al., 2003), so this critical element cannot be overlooked.
Appendix K (Continued)

According to Section 10.01 of the NASW Code of Ethics, "social workers' primary responsibility is to promote the well-being of clients" (p. 7). Because Mr. Aranda is diagnosed with paranoid schizophrenia and because he is imprisoned for murder, Cynthia's responsibility to the "larger society" (including even prison guards) is to advocate for her client's treatment to ensure that no one (including the client himself) gets hurt. "The [multidisciplinary] team must remember," of course, "the client's right to self-determination" (Shroeder, 2003, p. 427).

Cynthia is not discrediting her client's right to self-determination. By stating his current desire to die and then recommending follow up services from the court, she is responsibly seeking additional information that will allow all involved parties to better assess the client's soundness of mind.

References:


## Appendix L: Performance Pattern Frequencies

<table>
<thead>
<tr>
<th>Item</th>
<th>Pre</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( f )</td>
<td>( % )</td>
</tr>
<tr>
<td><strong>Identification</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(I0) Seems to miss the point</td>
<td>4</td>
<td>12.5</td>
</tr>
<tr>
<td>(I1) Identifies main problem</td>
<td>17</td>
<td>53.1</td>
</tr>
<tr>
<td>(I2) Identifies primary issues and subsidiary, embedded, or implicit aspects of the problem</td>
<td>11</td>
<td>34.4</td>
</tr>
<tr>
<td><strong>Uncertainty</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(U0) Ignores uncertainty, or considers it temporary</td>
<td>4</td>
<td>12.5</td>
</tr>
<tr>
<td>(U1) Identifies at least one reason for uncertainty</td>
<td>22</td>
<td>68.8</td>
</tr>
<tr>
<td>(U2) Addresses significant uncertainties in analysis</td>
<td>6</td>
<td>18.8</td>
</tr>
<tr>
<td>(U3) Discusses the significance of the most important uncertainties</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
## Appendix L (Continued)

<table>
<thead>
<tr>
<th>Item</th>
<th>Pre</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Multiple Perspectives</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(MP0) Does not acknowledge multiple perspectives</td>
<td>7</td>
<td>21.9</td>
</tr>
<tr>
<td>(MP1) Acknowledges more than one perspectives</td>
<td>20</td>
<td>62.5</td>
</tr>
<tr>
<td>(MP2) Interprets information from multiple perspectives</td>
<td>5</td>
<td>15.6</td>
</tr>
<tr>
<td><strong>Interpretation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(IN0) Describes rather than interprets</td>
<td>3</td>
<td>9.4</td>
</tr>
<tr>
<td>(IN1) Interprets information superficially as supporting one position</td>
<td>22</td>
<td>68.8</td>
</tr>
<tr>
<td>(IN2) Interprets information; objectively analyzes quality of information; organizes information into viable framework for exploring complexities of problem.</td>
<td>7</td>
<td>21.9</td>
</tr>
<tr>
<td><strong>Evaluation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(E0) Cites pros or cons that don’t make sense</td>
<td>4</td>
<td>12.5</td>
</tr>
<tr>
<td>(E1) Considers implication and consequences only superficially</td>
<td>13</td>
<td>40.6</td>
</tr>
<tr>
<td>(E2) Analyzes implications and consequences of various alternatives</td>
<td>5</td>
<td>46.9</td>
</tr>
<tr>
<td>(E3) In addition establishes criteria to prioritize implications and consequences across alternatives</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
## Appendix L (Continued)

<table>
<thead>
<tr>
<th>Item</th>
<th>Pre</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(f)</td>
<td>%</td>
</tr>
<tr>
<td><strong>Objectivity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(O0) Fails to reason logically from pros/cons to conclusions</td>
<td>9</td>
<td>28.1</td>
</tr>
<tr>
<td>(O1) Provides arguments in favor of recommended option and provides little or no opposing argument; uses superficially understood evidence in support of conclusions.</td>
<td>11</td>
<td>34.4</td>
</tr>
<tr>
<td>(O2) Provides logical arguments for each option and either a) fails to provide an overall recommendation or b) offers a recommendation with little/no support</td>
<td>10</td>
<td>31.2</td>
</tr>
<tr>
<td>(O3) Provides well-founded, overarching principles to objectively compare and choose among alternative solutions</td>
<td>2</td>
<td>6.2</td>
</tr>
<tr>
<td><strong>Supports Conclusions</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(S0) Provides fact, definitions, or other “authoritative” information that mask as conclusions instead of own conclusion</td>
<td>1</td>
<td>3.1</td>
</tr>
<tr>
<td>(S1) Clearly states conclusions and reasons, but limited to supporting primarily one perspective</td>
<td>26</td>
<td>81.2</td>
</tr>
<tr>
<td>(S2) Reluctant to select and defend a single overall conclusion in light of viable alternative; may provide conclusions with inadequate support</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>(S3) Articulates criteria that apply across viable alternatives to reach well-founded conclusions</td>
<td>5</td>
<td>10.4</td>
</tr>
</tbody>
</table>
### Justification

<table>
<thead>
<tr>
<th>Item</th>
<th>Pre</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>(J0) Based on authoritative source OR where absolute answers are not available on an unsupported opinion.</td>
<td>8 25.0</td>
<td>2 6.2</td>
</tr>
<tr>
<td>(J1) Based on facts, evidence that fits an established belief or own perspective</td>
<td>11 34.4</td>
<td>18 56.2</td>
</tr>
<tr>
<td>(J2) Based on interpretations of facts/evidence that are used to justify solutions within particular context. (Right solution depends on a variety of contextual factors).</td>
<td>11 34.4</td>
<td>11 34.4</td>
</tr>
<tr>
<td>(J3) Based on Comparing evidence and opinion from different perspectives and constructing solutions that are evaluated by personally endorsed criteria, such as one’s personal values, utility, or need for action</td>
<td>2 6.2</td>
<td>1 3.1</td>
</tr>
</tbody>
</table>

### Limitations

<table>
<thead>
<tr>
<th>Item</th>
<th>Pre</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>(L0) Does not acknowledge significant limitations beyond temporary uncertainty</td>
<td>17 53.1</td>
<td>27 84.4</td>
</tr>
<tr>
<td>(L1) Acknowledges at least one limitation or reason for significant and enduring uncertainty;</td>
<td>15 46.9</td>
<td>4 12.5</td>
</tr>
<tr>
<td>(L2) Articulates connections among underlying contributors to limitations</td>
<td>0 0</td>
<td>1 3.1</td>
</tr>
</tbody>
</table>
Appendix L (Continued)

<table>
<thead>
<tr>
<th>Item</th>
<th>Pre</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f</td>
<td>%</td>
</tr>
<tr>
<td>Context</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(C0) Does not address context beyond dichotomous characterizations such as right/wrong, good/bad, smart/stupid</td>
<td>3</td>
<td>9.4</td>
</tr>
<tr>
<td>(C1) Acknowledges the existence of different contexts, but focuses on context in support of own opinion</td>
<td>21</td>
<td>65.6</td>
</tr>
<tr>
<td>(C2) Identifies and considers the influence of context when analyzing perspectives and evidence</td>
<td>7</td>
<td>21.9</td>
</tr>
<tr>
<td>(C3) Analyzes the issue with a clear sense of scope and context- sees the bigger picture</td>
<td>1</td>
<td>3.1</td>
</tr>
<tr>
<td>Overall Approach</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(OA0) Attempts to find single “correct” answer to open-ended questions/problems</td>
<td>4</td>
<td>12.5</td>
</tr>
<tr>
<td>(OA1) Appears to begin with conclusions and then stack up evidence/arguments to support it</td>
<td>17</td>
<td>53.1</td>
</tr>
<tr>
<td>(OA2) Appears to perform comprehensive and objective analyses from different viewpoints, but unable to reach or strongly defend conclusions</td>
<td>2</td>
<td>25.0</td>
</tr>
<tr>
<td>(OA3) Appears to develop well-founded conclusions based on comprehensive and objective comparison of viable alternatives.</td>
<td>3</td>
<td>9.4</td>
</tr>
</tbody>
</table>
About the Author

Marleen Milner received her BSW from the University of Texas at El Paso and her MSSW from the University of Texas at Arlington. She has practiced social work in the fields of child welfare, adoptions, substance abuse, aging, and mental health. She is currently the Director of the Social Work Program at Southeastern University in Lakeland, Florida, where she has taught for eight years. Her research interests are in the areas of social work education, spirituality, and cultural competence.