RUNNING HEAD: Dietitians' reflection

# How dietitians turn experience into knowledge about practice in community-based prenatal nutrition

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## A b s t r a c t

As a practicing dietitian, I am reminded by the dietetics and education literatures of just how important it is for me, and for the profession, to develop skills to continue to learn and improve practice. Although reflection is an integral step of professional development strategies in dietetics, little is known about it in our context. The study's purpose is to assist dietitians in their quest for continuous learning and improved practice by documenting experiences of dietitians and exploring the reflection process embedded in this data. Research questions guiding this exploration focused on 1) the process through which dietitians reflect on their practice, 2) the outcomes of dietitians' reflection on practice and, 3) conditions influencing dietitians' reflection. Reflection is defined as a process of turning experience into knowledge about practice and improving it. The study was designed based on grounded theory to allow for detailed exploration of dietitians' reflection and theory generation. Data collection consisted of a) a pilot study to determine effectiveness of instruments and procedures, b) formal interviews to document participant experiences and thinking during and following it, and, c) follow-up interviews to verify interpretation of data and to pursue themes arising from analysis. Interview questions invited participants to recall and relate a time when they experienced something uncertain, puzzling, surprising or satisfying, an experience in which learning about prenatal nutrition occurred or one that had an impact on their thinking or approach. Participants were six dietitians practicing in prenatal projects sponsored by community organizations or in prenatal initiatives of governmental departments, both of which targeted pregnant women facing challenging social, economic or cultural situations. Data analysis centered on identification of concepts and constant comparisons within and between participants. Study findings suggest participants' reflection was more often than not a slow, steady process of knowledge

construction based on routine, day-to-day experiences. These results imply that, as practicing dietitians, we need to be more intentional about learning from our experiences by putting in place formal and informal strategies that will favour reflection. Implications of results for dietetics education include the pursuit of specialized and advanced degrees in nutrition.

## R é s u m é

Les litératures en diététique et en éducation nous rapellent, qu'en tant que diététiste, nous nous devons de développer les habiletés pour continuer à apprendre et pour améliorer notre pratique. Bien que la réflexion soit une étape intégrale des stratégies de développement professionnel en diététique, nous en savons peu sur ce processus dans notre domaine. Le but de cette étude est de faciliter l'apprentissage continu des diététistes et le développement de leur compétence. Dans ce but, des expériences de diététistes sont recueillies et le processus de réflexion contenu dans ces données est examiné. Les questions guidant cette exploration portent sur 1) le processus utilisé par des diététistes pour réfléchir à leur pratique, 2) le résultat des réflexions sur leur pratique et, 3) les conditions favorisant leur réflexion. La réflexion se définit comme un processus de transformation d'expériences en connaissances sur la pratique et d'amélioration. L'étude a été conçu selon la théorie ancrée puisque cette approche permet un examen détaillé des réflexions de diététistes et le développement d'une théorie. La collecte de données comprenaient a) une étude pilote pour déterminer l'efficacité des instruments ainsi que des procédures, b) des entrevues permettant de recueillir des expériences de participantes et leurs pensées pendant, et après une expérience, et, c) des suivis pour vérifier l'interprétation des données et explorer des thèmes ayant surgit lors de l'analyse. L'entrevue invitait les participantes à se remémorer et à détailler une situation incertaine, énigmatique, surprenante ou satisfaisante, une expérience ayant influencé le développment de leur savoir, leur conception ou leur approche en nutrition prénatale. Six diététistes, pratiquant en nutrition prénatale dans le cadre de projets d'organismes communautaires ou de programmes gouvernementaux ciblant des femmes affrontant des situations sociales, culturelles ou économiques difficiles, ont participées à l'étude. L'analyse de données comprenait l'identification de concepts et une comparaison

continuelle par participantes et entre participantes. Les résultats de l'étude suggèrent que la réflexion des participantes était souvent un processus lent et régulier de l'évolution du savoir basé sur des expériences journalières et routinières. Ces résultats suggèrent que, comme diététistes, nous devons adopter une approche plus intentionnelle en mettant en place des stratégies d'apprentissage formelles et informelles qui favoriseront notre réflexion. Pour nos universités, une des conséquences de ces résultats est l'exploration et la création de diplômes professionnels spécialisés et supérieurs en nutrition.

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read, think or write. I began a long journey, searching for the value of reflection, and found it within myself.

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# CHAPTER ONE

## Introduction

No matter how well we prepare graduating dietitians, much learning and growth takes place in the ensuing years of practice. Schools can only prepare professionals to begin practice (e.g. Shulman, 1987; Zeichner, 1994b). A study on the perceived competencies of graduating dietitians in Canada found that, of the 45 competencies dietetics students were expected to develop by graduation, slightly more than half of the competencies (56%) were rated as sufficiently developed for practice (Lucas, 2000). These results may highlight challenges for dietetics education but may more importantly point to the amount of learning that naturally occurs on the job. As a practicing dietitian, it reminds me just how important it is for me, and for the profession, to develop skills to continue to learn and to improve practice.

Our need for continuous learning may be explained, in part, by differences in school and work contexts. For one thing, dietetic students are not necessarily exposed to the broad range of situations they are likely to encounter once practicing. As Benner (1984/2001) noted:

> In encountering clinical situations with their many nuances, qualitative differences, and confounding problems, clinicians gain a different understanding of theory or preconceived notions. ... There is always more to a situation than the theory predicts. It is this learning about the exceptions and shades of meaning that only concrete experience can provide (p. 178)."

In addition, the knowledge and skills dietitians require for their practice continue to expand and increase. For example, fifteen years ago undergraduate students rarely or never discussed food security, genetically-modified foods, self-efficacy or the

educational possibilities of the worldwide web. The issues dietitians face are also more and more complex. One only has to think of the obesity question.

Therefore, to maintain competency and develop expertise, dietitians must, and have embraced lifelong learning. For example, Dietitians of Canada (1998) refers to itself as a professional organization "in the learning business." That organization's commitment to learning, and that of provincial associations, is made evident by some of the statements found in their Code of Ethics. Among these is a resolution "to maintain a high standard of personal competence through continuing education and an ongoing critical evaluation of professional experience" (Dietitians of Canada, 2001). Dietitians of Canada further demonstrates its engagement through two of the four priorities it has set, "best practices" and "a growing, learning community of members". More specifically, these priorities involve "enabl[ing] members to build their professional capacity, knowledge, skills, confidence and profile (p.46)" as well as "encourag[ing members] to constantly refine and improve their approach to practice (p. 46)." In the United States, the American Dietetic Association expresses this commitment through the introduction of a professional development portfolio (Anonymous, 1999; Pertel, 1999; Keim, Johnson and Gates, 2001). This portfolio incorporates "reflect on practice" as one of the major steps to facilitate professional development. Similarly, the British Dietetic Association sets as one of its professional standards, self-development to improve knowledge and skills (Burton, 2000). A process of self-evaluation and reflection on practice is proposed to achieve this goal.

Reflection emerges as an integral step in these dietetics organizations' professional development strategies. Reflection permeates discussions on professional competence and development at other levels of our profession. In an opinion paper, Duyff (1999), a former American Dietetic Association president, lists reflection as one of

the key skills in learning. Another example of our interest in reflection comes from academia. The University of Toronto's master's degree in Community Nutrition (2001) "emphasizes principles of adult education: self-assessment, self-directed learning, critical reflection..." Its program objectives include "preparing students to be critically reflective practitioners...." In addition, calls to "reflect on why we do what we do (Anderson, 1999)" or remarks such as "our profession and our individual practice would best be served by becoming more reflective think[ers] about what exactly it is we DO everyday and why (Power, 1999)" are frequent in professional documents. A professional development workshop developed by and for dietitians who guide students through the internship component of a university dietetics program (Lucas and Starkey, 2000) provides further evidence that reflection penetrated dietetics. The authors write that "the important notion of reflection was inherent throughout [this workshop] and strategies to promote reflection were highlighted as a desirable outcome (p. 19)." From these accounts, it is evident dietitians have adopted reflection as a valuable learning strategy. Yet, in spite of its appeal and the push towards it, we know little about reflection in the context of dietetic practice. Efforts to understand reflection can only help us to engage in it and benefit from it through developing knowledge and growing expertise.

In the dietetics literature, however, reflection is too often portrayed as solely a way for practitioners to assess their learning needs and develop a learning plan. Further, this plan usually centres on formal learning opportunities such as continuing education programs or workplace training. It is unfortunate our discussions on professional development generally emphasize formal learning and ignore informal ways of learning. While formal opportunities significantly contribute to professional development, some (e. g. Boud and Garrick, 1999; Hager, 1999; Merriam and Caffarella,

1991; Torff and Sternberg, 1998) argue that the workplace, or everyday professional practice, can provide powerful and important learning experiences. In fact, research has demonstrated that expertise may only be attained after years of intentional practice (e.g. Ericsson and Lehmann, 1996; Ericsson and Smith, 1991). Obviously, this refers to practice in a work environment. Thus, to become better, more efficient practitioners, dietitians can and do learn from their day-to-day experiences. As Neufeld and Grimmett (1994) wrote, experience "... has the potential to educate practitioners, thereby changing and improving their practice." Tennant and Pogson (1995) contended that recent work by educational theorists and researchers "reinforces the significance of experience as the locus of developmental growth in adulthood (p. 3)." There are nuances and qualitative differences that can only be gained through practice (Benner, 1984/2001). In addition to effectiveness, learning through experience is about transforming the nature of work and creating new work practices (Boud and Garrick, 1999). How does this kind of learning occur? Boud and Garrick (1999) note that there are several ways of understanding learning at work. Many educational theorists, researchers and professional development specialists (e.g. Boud, 2001; Bruner, 1996; McAlpine and Weston, 2000) believe that one of the best ways to learn from and to improve practice is to examine it. In other words, it is to reflect. Not only can reflection help refine day-to-day practices but it can also facilitate the construction of knowledge or the development of skills needed to excel in an area of practice. Thus as practitioners committed to our professional development, we need to attend to what we learn from our experiences and how this learning occurs through reflection. Documenting this learning will tap into the knowledge embedded in our practice and facilitate its development (Benner, 1984/2001).

Few studies concentrate on dietitians' practice and even fewer on what and how they learn from it, or how they reflect. This situation was noted by Lucas (2000) who suggested the exploration of dietitians' practice. Browsing through dietetics publications, one does notice papers devoted to assessments of dietitians' learning needs (e.g. Dietitians of Canada, 1998; Morley-Hauchecorne and LePatourel, 2000), assessments of dietitians' knowledge and attitudes (e.g. Simonson, Whiting, Berenbaum and Ryan-Harshman, 2001) or descriptions of interventions on student supervision (e.g. Lucas and Starkey, 2000). There are some descriptions of dietitians' practice as well. These descriptions (e. g. Lee, Georgiou and Raab, 2000; Rogers, Leonberg and Broadhurst, 2002), however, focus on describing dietitians' activities instead of on what and how they learned from practice. Marquis and Gayraud (2002) explored clinical dietitians' day-to-day practice by asking study participants to describe favourable and unfavourable events. The study's main focus was on clarifying training needs of dietitians. It did not explore what these clinical dietitians might have actually learned from the events, let alone how this might have occurred. Another study (Barr, Walters and Hagan, 2002) determined the value of experiential education (also referred to as supervised practice, internship, practicum or stage) in dietetic education as opposed to didactic program, work experience and continuing education. Survey respondents were asked to rate the contribution of each area to their ability, confidence, knowledge, skills and competence as a dietitian. Although the survey confirmed work experience's contribution, it did not explore how this learning occurred. Furthermore, it lacked information about the qualitative differences in each areas' contribution. Questions remain as to the exact nature of the knowledge developed from experience. One essay (Burton, 2000) exploring the contribution of clinical supervision and reflection to professional development was identified in the dietetics literature.

As a dietitian, I aspire to advance my knowledge and skills and to improve my practice. The dietetics literature clearly showed it is an aspiration we all share. Though I am committed to learning, I realize a great part of it will have to occur in an informal way. My collaboration in a program of study (McAlpine, Weston, Beauchamp, Wiseman and Beauchamp, 1999a; McAlpine, Weston, Beauchamp, Wiseman and Beauchamp, 1999b; Weston, Gandell, Beauchamp, McAlpine, Wiseman and Beauchamp, 2001) led me to appreciate the relevance of reflection in professional development, specifically as an informal learning strategy. Through interviews and observations, our research team validated a model of reflection on teaching with award-winning university professors. However, this work concentrated on informal learning about teaching in a university setting. Considering a review of the dietetics literature confirmed a marked interest in reflection, and having identified how little work had been done to date to explore our learning from experience or to explore dietitians' reflection, the next step for me involved exploring informal learning about dietetics practice.

Accordingly, the purpose of this study is to assist dietitians in their quest for continuous learning and improved practice by documenting experiences of dietitians and exploring the reflection process embedded in this data. The following three research questions guided this exploration:

- What is the process through which dietitians reflect on their practice in community-based prenatal nutrition?
- What are the outcomes of dietitians' reflection on practice in community-based prenatal nutrition?
- What conditions influence dietitians' reflection?

**Process** referred to how a participant constructed knowledge about practice and improved it from experience. Specifically, it involved her thoughts, decisions, actions and emotions and their progression over time. **Outcome** referred to either an impact on practice or learning (knowledge construction.) **Condition** referred to any factor that may influence a participant's construction of knowledge or improvement of practice from experience. Knowledge here is not understood as universal truths but as "an individual's personal stock of information" (Alexander, Schallert and Hare, 1991). It is what dietitians "bring to their work and their understanding of it" (Fenstermacher, 1994). By the same token, improvement to practice relates to changes made by dietitians without consideration of its merits. Still, these changes are considered improvements in that the intent of the practitioner may be assumed to be the advancement of her practice.

Study questions were explored with dietitians practicing in community based prenatal nutrition for three reasons. First, they were selected as participants because I was familiar with this area of practice, most of my professional experience having been in community nutrition. Second, community-based prenatal nutrition programs largely focus on pregnancies at high risk due to socio-economic factors. As such, it is an area that presents constant challenges. Consequently, it was anticipated dietitians practicing in this area would have learned much from their experiences. Third, nutrition during pregnancy and childbearing years is a priority. The study was designed according to the grounded theory approach. There was no *a priori* conceptual framework guiding data collection or interpretation. Rather, the review of the literature served to focus the exploration of reflection by defining it. The resulting definition guided the development of an interview guide. In individual interviews, participants were invited to recall and describe experiences that were puzzling, surprising or satisfying, that had an impact on their knowledge or practice, or in which learning about their practice occurred. Data

was interpreted by coding individual interview transcripts and then categorizing the emerging concepts. Study results suggest participants' reflection was more often than not a slow, steady process of knowledge construction based predominantly on routine, day-to-day experiences. At times, knowledge was also constructed from emotionally charged experiences (incidents). These results imply that, as practicing dietitians, we need to be more intentional about learning from our experiences by putting in place formal and informal strategies that will favour reflection. Implications of results for dietetics education include the pursuit of specialized and advanced degrees.

# Review of the Literature

Despite its popularity, or perhaps because of it, the concept of reflection is fraught with ambiguity. Many authors (e.g. Atkins & Murphy, 1993; Burton, 2000; Hatton & Smith, 1995; Kompf & Bond, 1995; Kremer-Hayon, 1988; Zeichner, 1994b; Zeichner & Liston, 1996) signal this situation. Confusion about reflection partly lies in its dual use. As a concept, it surfaces in everyday conversations while also being at the centre of many educational endeavours. The meaning attached to the concept of reflection by lay people and educationists likely differs. Perhaps, as some argue (e.g. Eisner, 1993), this ambiguity will lead to more significant contributions than if the concept was clear cut. Copeland, Cruz and Lewin (1993) remark that "the most central question, on which all subsequent work must be built is that of the nature of reflection itself. What is reflection in practice? How would you recognize a reflective practitioner if you saw one? (p. 348)."

Therefore, prior to exploring what was reflection in the context of dietetics practice, a clarification of the concept of reflection was required. To accomplish this the literature was reviewed with two objectives in mind. One objective was to identify meanings attached to reflection in the literature and key characteristics, if any, dominating discussions on it. Discussions that presented a representation of the reflective process were of particular interest. The second objective was to further clarify the meaning of reflection by comparing it to other concepts related to thinking and differentiating it from those concepts. The result of this analysis of the literature helped further define reflection. Having a definition of reflection was critical to the exploration of reflection in dietetics practice. It facilitated the development of an interview protocol and guided data analysis.

To achieve the first objective, conceptualizations of reflection were selected for analysis. These conceptualizations were drawn from the teaching literature (e.g. Colton & Sparks-Langer, 1993; Laboskey, 1994; McAlpine & Weston, 1999a, 1999b, 2000, 2001; Taggart & Wilson, 1998), the professional development literature (e.g. Boud & Walker, 1985a, 1985b, 1990, 1992b; Schön, 1983, 1987) and the reflective learning literature (e.g. Dewey, 1933; King & Kitchener, 1994). There are two main reasons for relying primarily on the teaching literature. First, work on reflection, particularly conceptual work, is most prolific in this area. There has been little, if any, work done on how dietetics practitioners' reflect. Literature in the health professions, such as nursing (e.g. Gould & Masters, 2004; Jones, 1995) and medicine (e.g. Borduas, Gagnon, Lacoursière & Laprise, 2001; Pinsky & Irby, 1997), usually refer back to Dewey or Schön. McAlpine and Weston's model was also included for personal reasons: it prompted my interest in, and research experience with, reflection. Second, a good part of dietitians' practice is teaching. Much like teachers (e.g. Anderson & Burns, 1989), dietitians interact with one or more patient, client or program participant with the purpose of helping them to learn about nutrition or change their eating behaviours. In addition, these eight particular conceptualizations were selected either because of their prominence or because they offered clear, concise representations of reflection.

Each conceptualization was examined to establish what meaning the author(s) attributed to reflection, how it was defined and if and how it was described in terms of 1) process, 2) outcome and, 3) conditions influencing it. **Process** referred to how a participant constructed knowledge about practice and improved it from experience. Specifically, it involved her thoughts, decisions, actions and emotions and their progression over time. **Outcome** referred to either the impact of reflection on a learner's knowledge or practice. Finally, **condition** referred to any factor influencing reflection.

The first conceptualizations examined come from Dewey's treatise on reflection (1933) and Donald Schön's work on reflective practice (1983). Neither Dewey nor Schön formally propose a model or framework of reflection. Still, a brief look at their respective views was warranted as they are generally referred in any discussion on reflection. Most authors credit Dewey as the first to stress reflection's importance. As for Schön, he is acclaimed for renewing interest in it. In addition, Schön's work was interesting because it evolved out of a study of professionals in different disciplines. Boud and Walker's model of learning through experience (1985a, 1985b; 1990; 1992b) follows, then King and Kitchener's (1994) reflective judgment model, Laboskey's (1994) conceptual framework for reflective teacher education, Taggart's (in Taggart & Wilson, 1998) reflective thinking model and Colton and Sparks-Langer's framework for teacher reflection (1993) and finally, McAlpine and Weston's model of reflection (1999a, 1999b, 2000, 2001).

Analyzing these conceptualizations was the first step in attempting to set boundaries on the phenomenon of reflection. A second step involved comparing reflection to other concepts used to describe thinking. This analysis helped differentiate reflection from other thought processes such as critical thinking, decision-making, problem-solving, pedagogical reasoning, metacognition, executive control and self-regulation. These concepts were selected because they are common in the literature on learning and thought processes. The cognitive literature informed this analysis except for critical thinking. In that case, writings in adult education were used as well.

### *Perspectives, Frameworks and Models Related to Reflection*

The analysis of conceptualizations begins with a general description of the author(s) view on reflection, including a definition. Then, the conceptualization is

summarized and examined in terms of process, outcome and finally, condition. Process focuses in part on what may trigger reflection and on its duration.

*John Dewey's Treatise on Reflection*

Dewey (1933) believes that there are ways of thinking that are better than others and that favouring these ways could lead to greater effectiveness. One of these better ways of thinking is reflective thinking. Dewey's often cited definition describes it as the "active, persistent, and careful consideration of any beliefs or supposed form of knowledge in the light of the grounds that support it and the further conclusions to which it tends (p. 9)." Characteristics of reflective thinking are "(1) a state of doubt, hesitation, perplexity, mental difficulty, in which thinking originates, and (2) an act of searching, hunting, inquiring, to find material that will resolve the doubt, settle and dispose of the perplexity (p. 12)."

*Process.* At the onset, reflection originates in or is triggered by an event which leaves one in doubt, hesitant or perplexed. Although Dewey's conception of reflection may at first seem similar to problem-solving, how he defines problem differs from the common pejorative use of the word. To Dewey, the word problem means "whatever – no matter how slight and commonplace in character – perplexes and challenges the mind so that it makes belief at all uncertain, there is a genuine problem, or question, involved in an experience of sudden change (p. 13)." The verbs perplex and challenge suggest that for Dewey, reflection thus not only arises from problematic situations but also from situations that arouse one's curiosity. Therefore to be intrigued or fascinated might initiate the process just as much as a problem.

According to Dewey, once reflection is triggered "...we begin to inquire into the reliability, the worth, of any particular indication when we try to test its value and see what guarantee there is that the existing data really point to the idea that is

suggested...(p. 11)." Hence reflection is characterized by inquiry. It comprises cognitive processes such as observing, collecting, examining and analyzing evidence, generating, evaluating as well as testing alternative views and finally drawing conclusions. Analysis and synthesis seem to be key reflective activities. There is "a sort of picking to pieces (p. 129)" and "a sort of physical piecing together (p. 129)." According to Dewey, the goal of analysis is defining the problem as much as addressing it. The following excerpt supports this point:

> There is a troubled, perplexed, trying situation, where the difficulty is, as it were, spread throughout the entire situation, infecting it as a whole. If we knew what the difficulty was and where it lay, the job of reflection would be much easier than it is. As the saying truly goes, a question well put is half answered. In fact, we know what the problem exactly is simultaneously with finding a way out and getting it resolved. (Dewey, 1933; p. 108)

Dewey delineated five phases or states of reflective thinking: suggestions, intellectualization, guiding idea/hypothesis, reasoning and testing hypothesis. Suggestions refers to the conception of possible solutions. It may be thought of as the knowledge from which one draws. Intellectualization is the conversion of the perplexing or uncertain situation into a question to be answered or a problem to be solved. The third phase, guiding idea/hypothesis involves selecting one suggestion over another based on an analysis of the evidence at hand. Information gathered from the environment and memory is again brought to bear on the hypothesis. This leads to further elaboration, correction or modification of the hypothesis. Dewey calls this phase reasoning. Finally, the hypothesis is tested by "overt or imaginative action." It is a way to verify or reject the hypothesis. Dewey carefully notes that "the five phases...do not follow one another in a set order (p. 115)." Reflection "consists in turning a subject over in the mind and giving it serious and consecutive consideration (p. 3)." Hence the

reflective process he describes should be seen as neither hierarchical nor procedural. Rather it is highly interactive, at times even discursive. In other words, each phase informs the other and may affect it. They may also be somewhat disconnected. Turning over a subject in the mind involves a certain messiness.

Although Dewey does not explicitly state that reflection is spread out over a certain amount of time, he seems to see it as an important aspect of the process. Dewey first indicates that reflection begins with an experience that cannot be resolved immediately. He then contends that "one can think reflectively only when one is willing to endure suspense and to undergo the trouble of searching (p. 16)." This suggests reflection is not a process that usually unfolds within seconds or minutes. It requires time and perseverance. There has to be a willingness to sustain and prolong the state of doubt to further inquiry. This may explain why, as Dewey argues, not everyone may be willing to reflect. To these people, "suspense of judgment and intellectual search (p. 16)" may be disagreeable or it may be "regarded as evidence of mental inferiority (p. 16)." Dewey even suggests that a period of incubation is often beneficial. It allows the mind to rearrange and clarify information. Incubation is "one phase of the rhythmic process (p. 284)."

*Outcome.* Dewey indicates that reflection leads to new knowledge. For example, he states that when reflecting, we inquire into an idea "...to justify acceptance of the latter (p. 11)." By using the word acceptance, he implies that an outcome of reflective thought is developing knowledge.

*Conditions.* Dewey summarily addresses conditions that influence reflection. According to him, one's disposition is the main factor influencing reflection. Disposition includes personal characteristics such as whole-heartedness, responsibility and open-mindedness. Whole-heartedness implies one is sympathetic or concerned about the

issues faced in practice. To be responsible is to acknowledge that our actions have consequences. Acknowledging responsibility means one is more likely to reflect to examine one's actions and their consequences. Since reflection is a process of inquiry, it requires one to inquire, to investigate and to look into things.

*Donald A. Schön's Work on Reflective Practice*

A professor at the Massachusetts Institute of Technology, Schön (1983, 1987) launched reflection in the field of educational and professional research. The premise of Schön's first book is that claims to particular professional knowledge are questioned as is professional effectiveness. From the point of view of professionals, the problem lies in a mismatch between their knowledge base and the changing character of practice (Schön, 1983). Situations faced by professionals have increased in complexity, uncertainty, instability, uniqueness and value conflicts. Nevertheless, Schön notes, many practitioners manage to perform their duties competently. How can this be explained? The answer, according to Schön, may relate to the source of the knowledge used. Typically, practitioners rely on scientific knowledge to address problems they face. They are relegated to being mere problem solvers using knowledge produced by others. Schön expresses the issue as follows:

> An artful practice of the unique case appears anomalous when professional competence is modeled in terms of application of established techniques to recurrent events. Problem setting has no place in a body of professional knowledge concerned exclusively with problem solving (p. 19).

In other words, he deplores that "instrumental problem solving made rigorous by the application of scientific theory and technique (p. 21)" dominates practice as well as research and professional education. The result is a hierarchical separation of practice and research. Research generates the basic and applied knowledge from which

techniques to solve practical problems are derived. Practice is content with suggesting problems to solve and testing solutions elaborated though research.

*Process.* Schön suggests how reflective thought may begin. He emphasizes uncertain and complex situations as usual triggers. Much like Dewey, Schön believes surprising experiences, either pleasing, promising or unwanted, may also be catalysts of reflection. "The practitioner allows himself to experience surprise, puzzlement, or confusion in a situation he finds uncertain or unique (p. 68)." It is interesting to note the positive tones employed by Schön. To Schön, the element of surprise present in either pleasant or unpleasant experiences is the main trigger. As it relates to why some people may not want to invest energy and time in reflective thinking, Schön concurs with Dewey. He states that people might see uncertain situations, or opportunities to reflect, as threats. Its admission might be seen as a sign of weakness.

To Schön, reflection is clearly a form of inquiry. "He [the practitioner] carries out an experiment … When someone reflects-in-action, he becomes a researcher in the practice context (1983, p. 68)." A key aspect of this process consists of framing and reframing the problem. This basically means examining a problem from many different perspectives. Schön, just like Dewey, addresses the issue of time or duration. There are two distinct periods of reflection: in-action or on-action. In-action reflection occurs while still involved in an activity while on-action reflection occurs after the activity is over. Since Schön differentiates these periods only by when they take place, we may assume that, in either case, reflection proceeds in the same way. As for its duration, he acknowledges that "reflection-in-action may not be very rapid (p. 62)." In fact, it is what he refers to as the "action-present" that determines whether or not a practitioner is reflecting-in-action. Action-present may be defined as "the zone of time in which action can still make a difference to the situation. [It] may stretch over minutes, hours, days, or

months, depending on the pace of activity and the situational boundaries that are characteristic of the practice (p. 62)."

*Outcome.* Knowledge construction and improvement of practice are integral to Schön's view of reflection. The exploration of a phenomenon "...generates both a new understanding of the phenomenon and a change in the situation (1983, p. 68)."

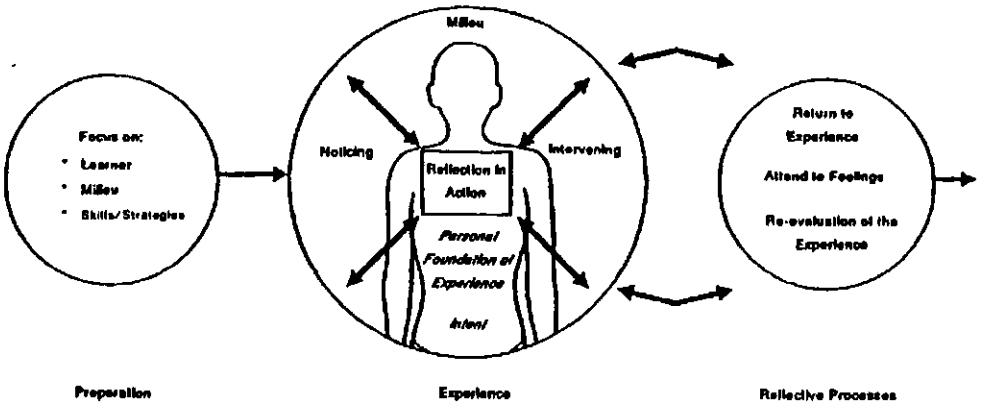
*Conditions.* Conditions influencing reflection can also be drawn from Schön's writing. For example, in The Reflective Practitioner (1983) he writes about how a reflective professional is open to discovery. Further on, he writes about "the feel for media, language, and repertoire which shapes [individual's] reflection-in-action (p. 272)" and states that "constancy of appreciative system is an essential condition for reflection-in-action (p. 272).' This parallels Dewey's notions of openness and whole-heartedness.

*Boud and Walker's Model of Learning through Experience*

Boud and Walker led a group of Australian researchers interested in reflection as a way to learn from experience (1985a, 1985b, 1990, 1992b). This group defined reflection as "an active process of exploration and discovery which often leads to very unexpected outcomes (1985a, p. 7)." They deplore how reflection is often overlooked by educators because it seems so familiar and because it cannot be observed. Boud and his colleagues encourage exploring what it means to reflect in the hope of fostering reflection and to improve practice.

These researchers developed two models: a model of reflection (Boud, Keogh & Walker, 1985a) and a model of learning through experience (Boud & Walker, 1990; 1992b). The latter being an elaboration of the former, the following description focuses on the model of learning through experience (see Figure 1.). Experience refers to the "total response of a person to a situation or event: what he or she

Figure 1. Model of Facilitating Learning from Experience (Boud and Walker, 1992b)




thinks, feels, does and concludes at the time and immediately thereafter (p. 18)." By its nature, an experience requires total immersion. Consequently, the model, at least initially, firmly positions reflection after experience. Reflection is "a processing phase (p. 19)"whereby an experience is relived, analyzed and evaluated. Still, Boud et al. (1990) subsequently acknowledged one may reflect during experience and revised the model to include reflection-in-action. To represent it, they added two mechanisms: noticing and intervening. Reflection is grounded in actions or what Boud et al. refer to as experience. They claim that the process is meaningless if it does not inform actions. In this context, the word actions is not restricted to what can be observed but also to thinking.

*Process.* Boud et al. discuss what may trigger reflective thoughts. In their view, it may arise from any of life's occurrences, both positive and negative. In fact, they state that one of the best ways to initiate reflection is to "recollect what has taken place and replay the experience in the mind's eye, to observe the event as it has happened and to

notice exactly what occurred and one's reactions to it in all its elements (p. 27)." Through this detailed reconstruction, something that escaped attention during the experience may emerge and serve as a catalyst.

As for a series of cognitive actions defining reflective thinking, Boud et al. argue it is difficult to precisely describe them. To them, reflection "is so integral to every aspect of learning that in some way it touches most of the processes of the mind (p. 21)." Furthermore, they note that "most people are unaware of their internal processes (p. 30)." Obviously then, articulating these processes is a real challenge. Still, they identify five key actions: returning to experience, attending to feelings, re-evaluating the experience, noticing and intervening. 'Returning to experience' refers to the reconstruction of the experience while 're-evaluating the experience' refers to an examination of an experience based on goals, associating previous knowledge with the new data, integrating it and validating it in a subsequent experience. 'Attending to feelings' involves recognizing and removing negative feelings. Rounding out the process are 'noticing', the act of observing one's surroundings and 'intervening', the act of making change in the midst of experience. To these researchers, reflection is both a rational and an affective process. As for how long reflection may last, Boud et al. state that the duration of the process depends on the learner. They note that reflection allows one to leisurely analyze and develop an experience. There is no pressure to act immediately.

*Outcome.* Boud et al. state that the outcome of reflection "may be a personal synthesis, integration and appropriation of knowledge, a new affective state, or the decision to engage in some further activity (p. 20)." Reflection allows a learner to "make connections and consolidate what they have learned (p.10)." Boud et al. add that reflection "leads to new understandings and appreciations (p. 19)." They note the change

may be small or large and could also include a change in behaviour. Overall, construction of knowledge clearly emerges as an outcome of reflection.

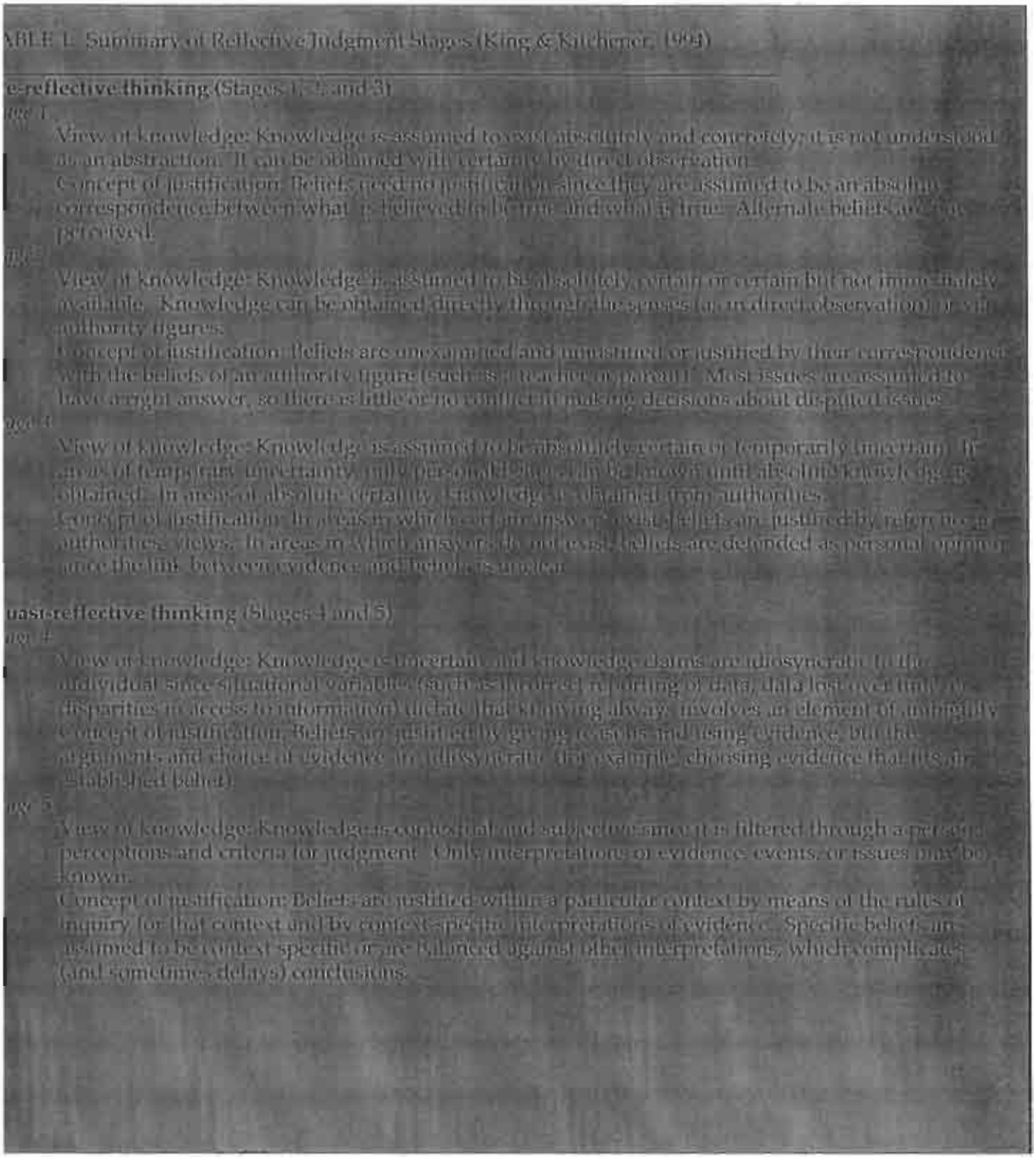
*Conditions.* The main factor influencing reflection according to Boud and Walker is feelings. By heightening or impairing flexibility and creativity, feelings can facilitate or hinder the reflective process. That is why 'attending to feelings' is one of the steps in the reflection process.

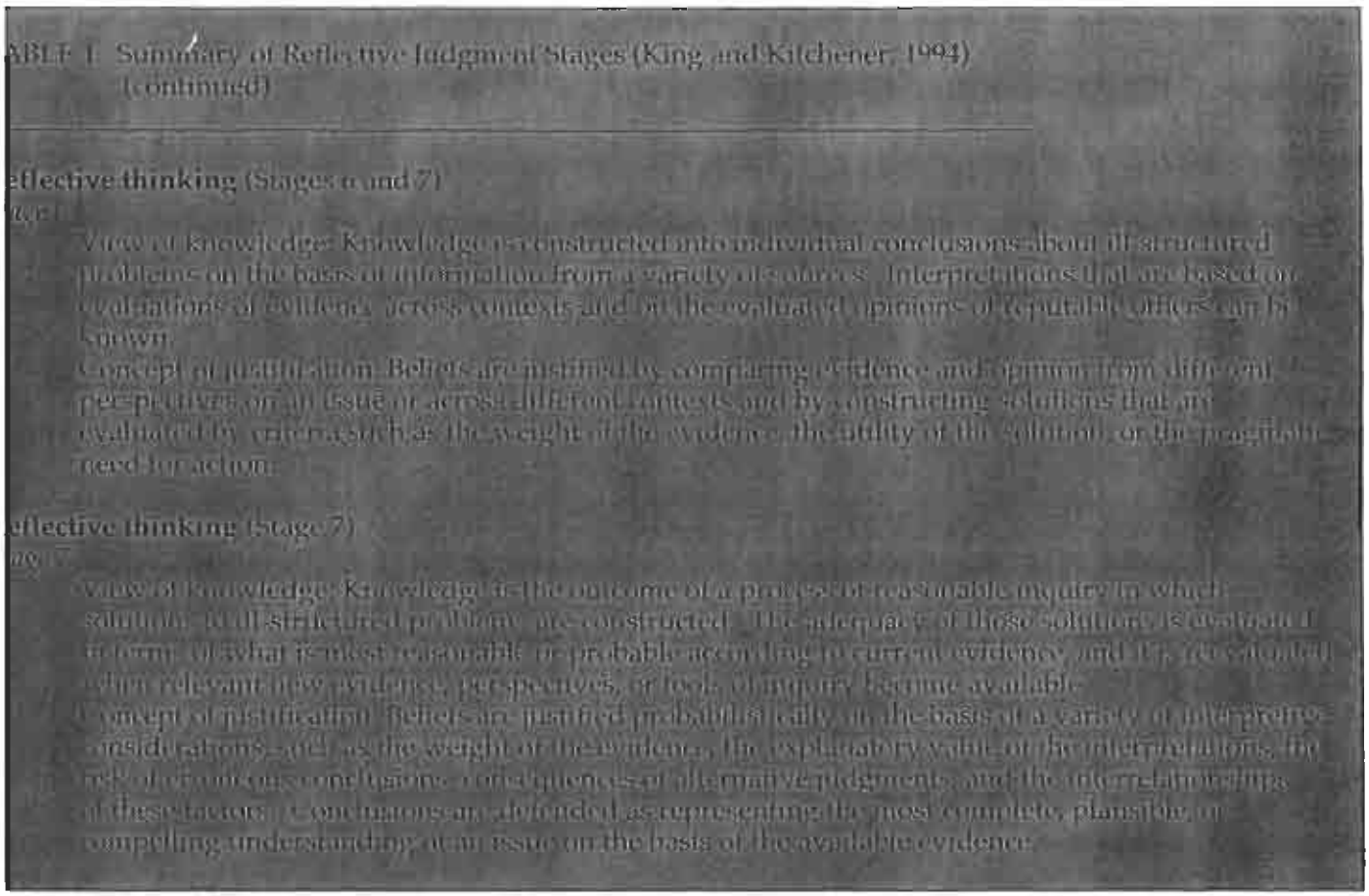
*King and Kitchener's Reflective Judgment Model*

King and Kitchener (1994) developed their model to understand how people reason through complex and controversial problems. Theirs is "a model of cognitive development that describes how people justify their beliefs when they are faced with complex or vexing problems (p. 5)." In other words, their model describes how one evolves to become a reflective thinker. Through this description, they also give an overview of how one thinks reflectively. Although their study focused on post-secondary students, they believe their ideas may also guide the development of reflective abilities in adults. According to King and Kitchener, reflection is apparent when one "understand[s] the complexity in the world but still take[s] the responsibility to make judgments and draw conclusions (p. 5)." That is, while knowledge is uncertain it can be supported using evidence. Conclusions may always be questioned and reassessed.

The model (summarized in Table 1) is divided into seven stages, each qualitatively different, each a progression towards what King and Kitchener call true reflective states. How one views knowledge, how one justifies its source and what strategies one uses to solve complex problems serve to differentiate the stages. The first three stages are considered pre-reflective. People operating at these stages see

knowledge as certain. In their view, for every problem there is a correct answer. These stages are characterized by little, if any, criticism or doubt. Quasi-reflective





thinking, or stages 4 and 5, are characterized by the recognition of the existence of ill-structured problems and some uncertainty. Evidence is used ineffectively. Reflective thinking occurs in the last two stages. At these stages, people "argue that knowledge is not a 'given' but must be actively constructed and that claims of knowledge must be understood in relation to the context in which they were generated (p. 66)." Another mark of these stages is the acknowledgement that any conclusion reached can always be reassessed. "Part of the process of forming a reflective judgment involves identifying which facts, formulas and theories are relevant to the problem and the generating of potential solutions. These strategies must then be evaluated for their relevance and validity (p. 7)."

*Process.* The Reflective Judgment Model reinforces the uncertainty characteristic of reflection. However, in this case, uncertainty refers specifically to what it means to know. King and Kitchener's view of reflection is akin to what is sometimes referred to as critical reflection. One may be said to reflect when and only when one questions assumptions while developing a defensible position. King and Kitchener's other defining characteristic is the nature of problems. For any problem that "can be addressed with a high degree of completeness (p. 11)" and "can be solved with a high degree of certainty (p. 11)", reflective thinking is not warranted. In their view, not only is reflection exclusively called for problems but problems such as "overpopulation, hunger, pollution and inflation (p. 10)." This view may be too restrictive. It ignores the fact that reflection is also a way to learn from experience, even as it relates to mundane issues.

King and Kitchener's description of the cognitive processes typical of reflection are similar to that of Dewey and Schön. As they write, "reflective thinking requires the continual evaluation of beliefs, assumptions, and hypotheses against existing data and against other plausible interpretations of the data. The resulting judgments are offered as reasonable integration or synthesis of opposing points of view (p. 7)." Hence reflection is an exploration whereby data is collected, interpreted, analyzed and hypotheses generated, evaluated and adopted. King and Kitchener do not directly address the issue of time or duration of reflection. Their goal is primarily to describe how a learner may develop to become a reflective thinker. However, since hypotheses, even once integrated into one's ways of thinking, are open to further scrutiny and evaluation, reflection can be thought of as an on-going process. In essence, time is mostly essential to develop reflective thinking ability.

*Outcome.* Based on the view of knowledge and the concept of justification associated with stages 6 and 7 (reflective thinking), knowledge construction is the main outcome of reflection.

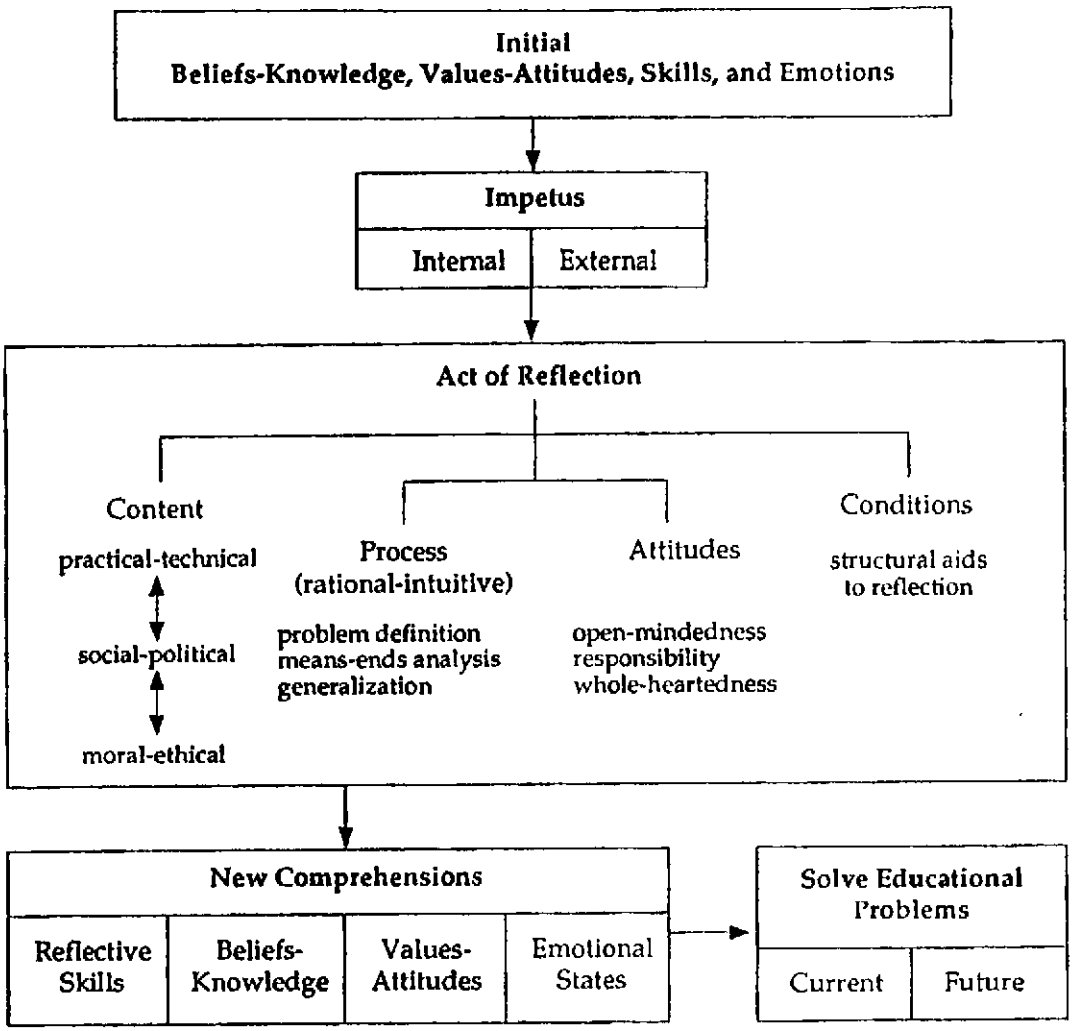
*Conditions.* As for conditions influencing reflection, none are clearly specified by King and Kitchener. However, their writing suggests personal factors as one condition. This deduction was made based on two points. First, their model is a developmental model. Second, similar to Dewey, they write about taking responsibility for making judgments and decisions.

*Laboskey's Conceptual Framework for Reflective Teacher Education*

Laboskey (1994) reports on a study of the nature of reflection and of how to measure it. She is interested in whether or not learners (in this case students in education) can master reflection. To guide her study, she developed a conceptual framework (see Figure 2).

*Process.* Laboskey's framework divides reflection into five sections. The third section focuses on the act of reflection. Under this section, she includes content, process, attitudes and conditions. Content refers to the domains defined by vanManen (1977): practical-technical, social-political and moral-ethical. Laboskey believes all three domains are included in reflective thought. She notes students, as opposed to practitioners, may need to be encouraged to consider these various aspects. In general, though, reflection would extend to each domain. To Laboskey, reflection is both rational and intuitive. Understanding, analysis and generalization are key processes.

Figure 2. Conceptual Framework for Reflective Teacher Education (Laboskey, 1994)




In her discussion of content, Laboskey explains how reflection is initiated:

> An act of reflection is begun either when there is a problem that the teacher cannot resolve ... or when a teacher simply wishes to rethink an educational situation or a conclusion previously reached – maybe even one with which he or she has thus far been satisfied. (p. 11)

Like other authors reviewed, Laboskey considers both positive and negative experiences as potential triggers. Her choice of words ( "wishes to rethink" and "one with

which...has thus far been satisfied") is particularly apt. In other words, some instances of reflective thinking may originate in a teacher's desire to push her limits. Noteworthy in this framework is the emphasis of certain cognitive processes (understanding, analysis and creation).

*Outcome.* One section of Laboskey's framework is labeled new comprehensions. Reflection is thus a way to develop new knowledge, beliefs, values and attitudes. As well, it hopefully affects the student teachers' reflective skills or metacognitive knowledge. This is important to Laboskey since one of her goals is to develop students' autonomy as learners. It is also interesting to note that she specifies values-attitudes and emotional states as outcomes. New comprehensions are instrumental in solving current and future educational problems students teachers may encounter.

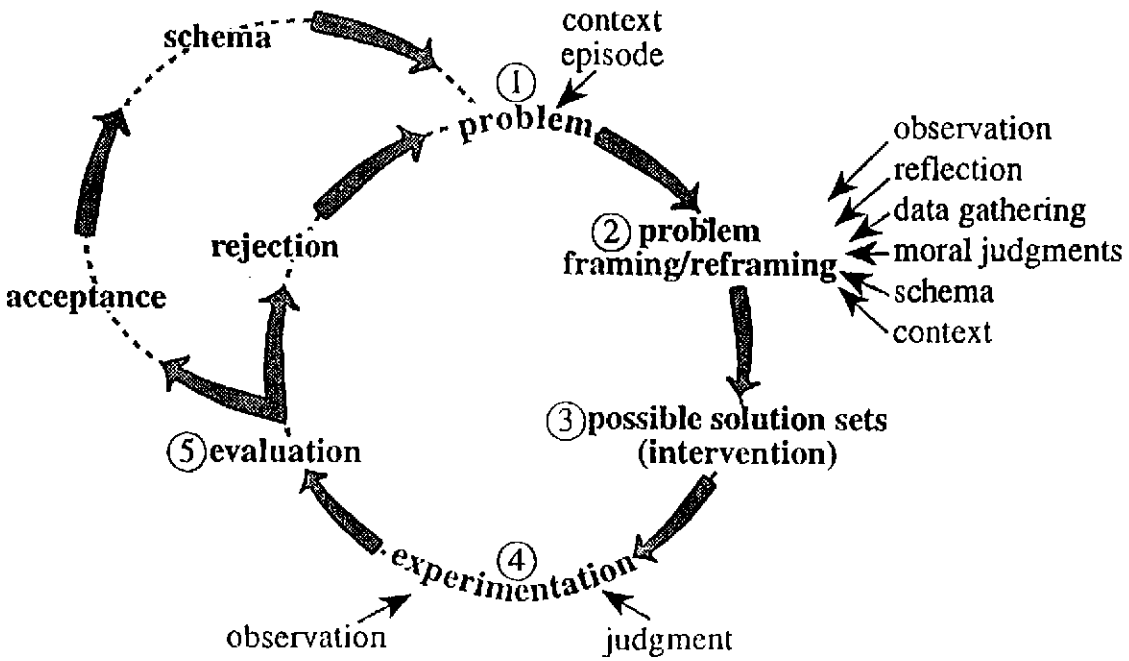
*Conditions.* Laboskey incorporates conditions influencing reflection at different levels of her framework. The first one is labeled initial orientations. It is an acknowledgement of the characteristics that will influence the reflective potential of a learner. Orientations include beliefs-knowledge, values-attitudes, skills and emotions. The second section is named impetus. Laboskey points out that students may not have the intrinsic motivation to reflect. Therefore, educators may need to devise external stimuli. Because she is interested in developing life-long learners, Laboskey still includes internal factors as the impetus for reflection. Attitudes refer to open-mindedness, responsibility and whole-heartedness as first proposed by Dewey (1933) whereas conditions refers to structural aids that may facilitate students' engagement in reflection. These structural aids could be keeping a journal, taking part in research or interacting with a colleague. Initial orientations (i.e. skills, emotions, beliefs-knowledge and values-attitudes), impetus (i.e. internal factors that motivate to reflect) and attitudes all influence a learner's engagement in reflection. It is not clear why Laboskey included

attitudes at two different levels. Another factor influencing reflection is what she refers to as condition or structural aids.

*Taggart's Reflective Thinking Model*

Taggart developed a representation to guide teachers' reflection as part of her doctoral thesis (G. Taggart, personal communication, June 10, 2004.) Taggart's model draws on constructivist views of learning and conceives reflective thinking as a cyclical process. To create her model, she reports relying on the writing of Dewey and Schön among others. In contrast to other frameworks, Taggart's reflective thinking model (see Figure 3) focuses primarily on cognitive processes of reflection.

Figure 3. Reflective Thinking Model (in Taggart and Wilson, 1998)



*Process.* The first step in the process is the identification of a problem. This is followed by the analysis of the problem from different perspectives. It involves observing, data gathering, moral judgments, schema (routines, past experiences) and context. This step allows the teacher to frame and reframe the problem and to arrive at a satisfactory description of it. Once the problem is set, possible solutions are generated. The teacher proceeds to experimentation whereby these solutions are tested and judged for their effectiveness. Next, the process moves to evaluation
which "consists of a review of the implementation process and the consequences of the solution (p. 6)." Based on this evaluation, the solution is either accepted or rejected. If accepted, it is stored as schema and is available for future use. On the other hand, if it is rejected, the cycle is repeated, starting with the framing of the problem. Although Taggart's explanation of the model does not refer to it, the graphical representation indicates that it is also the case when a solution is accepted.

Understanding the process of reflection through Taggart's model is not easy considering it portrays reflection as a whole and includes it as a component of the step 'problem framing and reframing'. According to Taggarts' model, the nature and source of the problem initiate the reflective process. Although it specifies that a problem may initiate a cycle, it does not adequately address how reflection begins. Steps found in Taggart's model echo parts of other frameworks. For example, Taggart's second step, problem framing and reframing is obviously drawn from Schön. As well, Taggart indicates, although not as clearly nor as comprehensively as others, that knowledge is drawn on during this process. Possible solutions sets (step 3) is akin to hypothesis while experimentation (step 4) and evaluation (step 5) can be found in act/experiment.

*Outcome.* Taggart's model establishes that a selected solution leads to knowledge construction. Taggart expresses that aspect differently than others. Once a solution is

implemented and evaluated, Taggart states that accepted solutions are stored as schema. She neglects, however, to indicate what happens when solutions are rejected. Perhaps they too are stored as schema albeit schema of what not to do in a specific situation (a presence of an absence). The use of accept/reject might be too simplistic and not reflect the complexity of the process.

*Conditions.* No condition could be identified in Taggart's description of her model other than context which she includes as a component of problem framing and reframing.

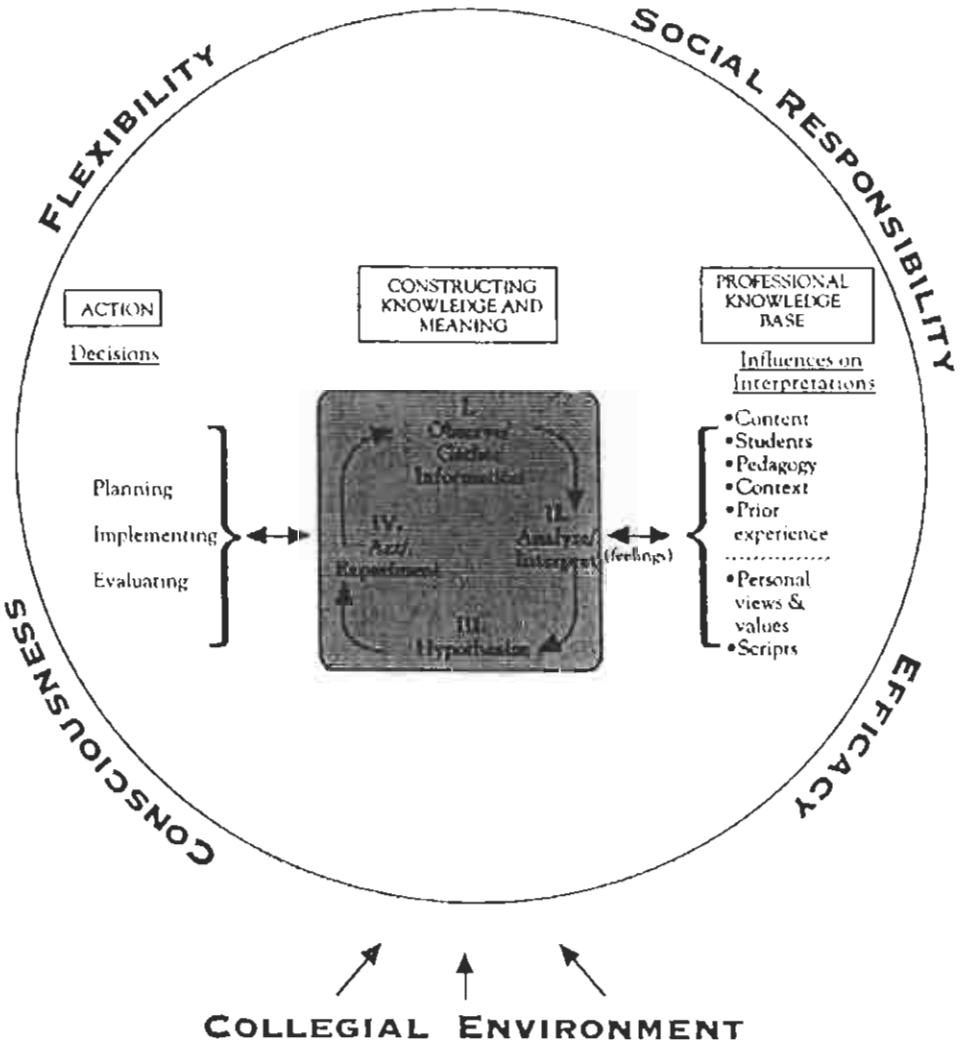
*Colton and Sparks-Langer's Framework for Teacher Reflection*

Colton and Sparks-Langer (1993) present the latest version of a conceptual framework developed to guide the design of teacher education programs. This framework drew on three areas of cognitive research literature: constructivist approaches to learning, experiential learning and novice-expert teachers' thinking. The framework is presented in Figure 4.

*Process.* In the center of the framework, there are three sections. On the right, there is Professional Knowledge Base. The knowledge base is thought to influence interpretations. The authors identified seven categories of knowledge. Four of these come out of Shulman's work (1986). They are content knowledge (subject matter being taught), knowledge of students (students' background, characteristics etc.), pedagogical knowledge and knowledge of context (knowledge of cultural background, regional politics etc.) Colton and Sparks-Langer chose to collapse two of Shulman's categories into one, namely pedagogical knowledge (knowledge of teaching applicable to any subject area) and pedagogical-content knowledge (knowledge of teaching methods specific to a particular area) into knowledge of pedagogy. Prior experiences are also a source of information to interpret present situations. Other influences on interpretations

Figure 4. Framework for teacher Reflection (The Reflective Teacher)

(Colton and Sparks-Langer, 1993)




are personal and social values, including personal ethics and caring. Finally, professional knowledge includes scripts which "allow a teacher to behave automatically while focusing on more critical issues (p. 47)" or "guide the thinking processes (p. 47)."

On the left is a section labeled Action. It is broken up into the categories of planning, implementing and evaluation. Within these three phases of teaching, decisions are made. To make decisions, mental processes are activated, linking action and professional knowledge. These processes are grouped under the heading of Constructing Knowledge/Meaning. Depicted as a cycle, with each phase feeding the next one in an iterative way, the process may be seen to initiate with a specific experience. While involved in this experience, a teacher chooses to attend to some aspect of it. She observes different facets of the situation and gathers information. This information is then interpreted and analyzed to form a mental representation of the experience. Based on this analysis, a hypothesis is generated to understand the experience and guide future actions. Prior to adopting one hypothesis, several are mentally tested for their short-term and long-term consequences. The selected hypothesis is then implemented and the cycle begins again with the observation of its consequences. Professional knowledge is drawn on at any point to inform the process. If insufficient, this knowledge is supplemented by external sources such as colleagues or readings.

Colton and Sparks-Langer provide little indications as to how reflection begins other than specifying an attention to part of an experience. Movement between action, cognitive processes (or mental processes) and knowledge is the core of their representation of process. For Colton and Sparks-Langer, action is more than behaviours. Other thought processes characteristic of teaching, such as planning, decision-making and evaluating, are included. Therefore, reflection may stem from other mental activities as well as from interaction with students.

*Outcome.* By making it one of its elements, this framework undoubtedly endorses knowledge construction as an outcome. Along with Laboskey, Colton and Sparks-

Langer identify types of knowledge constructed from reflection (e.g. values) other than Shulman's categories.

*Conditions.* In this framework, conditions influencing reflection include feelings, personal attributes and a collegial environment. Colton and Sparks-Langer's framework recognizes the potential influence of affect on reflective thoughts as does Boud and Walker's model and Laboskey's. First, affect is included as a source of knowledge in the form of personal views and values. This explicitly establishes affect as source of knowledge. Second, the framework shows how feelings may obstruct or facilitate the reflective process, particularly the construction of knowledge. Feelings may act as catalysts or inhibitors at the point of initiation too and thus should be included in the process between action and cognitive processes. The authors note that "feelings often have a huge influence on our ability to reflect, to interpret and respond to a situation (p. 48)." Intense feelings, such as frustration or anger, may obstruct consultation of the knowledge base or its construction.

Four attributes considered crucial to engage in the reflective process are incorporated into the framework. To illustrate the supportive role of the attributes, they are placed outside a circle encompassing the three elements described above. The attributes are efficacy, flexibility, social responsibility and consciousness. The last element of Colton and Sparks-Langer's framework is found at the bottom of the large circle and is labeled Collegial Environment. The authors state that a safe and nurturing environment fosters reflective practice.

*McAlpine and Weston's Model of Reflection*

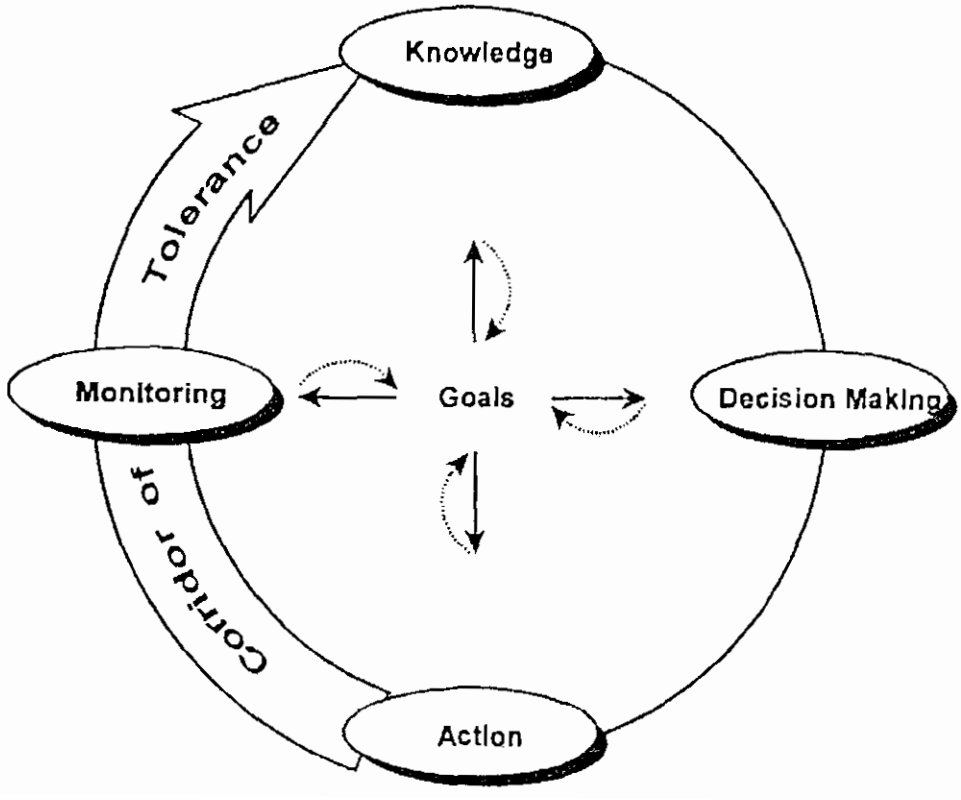
McAlpine and Weston (1999a, 1999b, 2000, 2001; Weston et al., 2001) instigated a program of research to document the ways in which exemplary professors go about improving their teaching. The concept of reflection provides the frame of reference.

These investigators identified a need for theory-based research as well as a need to operationalize the term reflection. Constructs found in the literature (e. g. metacognition, domains of knowledge, goals) are used to represent reflection (see Figure 5.)

*Process.* According to this model, reflection is a continuous interaction between action and knowledge. Action refers to the external arena where behaviours are the focus while other components of the model represent the internal arena where

Figure 5. Model of the Metacognitive Processes of Reflection

(McAlpine and Weston, 2000)



cognition is the focus. Reflection is defined as:

> a metacognitive process, a thinking about teaching (and learning) in which the relation between one's intention and the impact of actual teaching actions is evaluated, and as appropriate adjustments made to teaching. (McAlpine et al., 1999a; p. 106)

Key to the process are two mechanisms: monitoring and decision-making. These are important mechanisms because they link knowledge and action. This link is "essential for accessing and building knowledge (1999a, p. 110)."

In fact, it is the repeated use of monitoring and decision-making that builds knowledge (McAlpine & Weston, 2000). Monitoring consists of picking up cues in the external and internal environment and evaluating them to provide feedback about what is happening during enactment. Monitoring flows from action to knowledge. Decision-making, on the other hand, enables knowledge to be used to influence action. It consists of options or alternatives devised through knowledge to align outcomes with teaching and learning goals. These mechanisms are integrated to the definition of reflection as:

> A process of thinking about teaching and learning by monitoring cues for the extent to which they are within a corridor of tolerance and making decisions to adjust teaching as appropriate to better achieve teaching and learning goals. (McAlpine et al., 1999a; p. 110)

McAlpine et al., (1999b) also define reflection as both "a mechanism for turning experience into knowledge (p. 116)" and "a process of formative evaluation in which one collects and evaluates feedback to revise and improve instruction (p. 116)."

To verify this representation, McAlpine and Weston collaborated with six university professors acclaimed for their excellence in teaching. Excellence was revealed by positive course evaluations from students, teaching awards and peer recognition. The professors were interviewed ten times over the course of one semester. Professors were invited to describe their goals, instructional strategies and ways to evaluate

progress towards their goals as well as to discuss salient aspects of instruction (using videotapes to stimulate their recall). To analyze the data, a coding scheme was developed (Weston et al., 2001). It comprised four tiers, each further detailing the episodes of reflection. Both reflection-in-action ("operating during a class when one makes ongoing interactive changes to actions" (1999a, p. 109)) as well as reflection-on-action ("disconnected from teaching actions" (1999a, p. 109)) were documented.

The results of this phase of McAlpine and Weston's program of research emphasizes how central goals are to professors' reflection. It reveals professors attend both to learning (mostly students' understanding and students' participation) and teaching goals (primarily method and content). While monitoring, professors attend to and evaluate mostly cues from students (McAlpine et al., 1999b) such as verbal cues (e. g. student questions) and general cues (e. g. students' mood). Changes to method and content are found to be the most common decisions professors make following their monitoring. This study also shows that, to monitor as well as to make decisions, professors draw largely on pedagogical knowledge, on knowledge of learners and on pedagogical content knowledge. (These categorizations are pulled from Shulman's (1986) scheme.) Pedagogical knowledge is knowledge of teaching applicable to any subject area while pedagogical content knowledge refers to the ways particular subject areas are formulated to make them comprehensible to learners. Knowledge of learners refers to knowledge of specific student characteristics such as educational background.) Professors' ability to easily describe the rationale for their monitoring and decision-making is considered to indicate the considerable knowledge about teaching they have accumulated. Since there is no striking difference between professors with pedagogical training and those without any such training, the researchers conclude this knowledge is likely developed through experience.

McAlpine and Weston's model recognizes that something in particular sets off the process of reflection. This is evident in the inclusion of cues as part of monitoring, the cognitive process linking action to knowledge. Within the model, cues are evaluated. This information then allows the teacher to determine progress toward a goal. These cues potentially signal a teacher to action, in this case, reflective thinking.

A noteworthy aspect of the model is its restriction to two mechanisms acting as a link between action and knowledge. The terms monitoring and decision-making are used to describe that link. These words do not convey the inquiry or exploration associated with reflection by Dewey and Schön. As well, how monitoring and decision-making lead to knowledge construction is unclear. Although McAlpine and Weston stipulate that the ongoing use of monitoring and decision-making builds knowledge, they fail to elaborate on how this actually happens. Two specific decision-making strategies found in the lower tiers of the model, explore and unresolved, point to construction of knowledge. Perhaps this is a way to bring forth additional cognitive processes, concomitant to monitoring and decision-making or entirely different, that may capture the exploratory side of reflection. To McAlpine and Weston, reflection may be almost instantaneous as in reflection-in-action. Although their analysis has so far focused mainly on this type of reflection, they have also documented reflection-on-action. However, there is no time or duration specified to these instances of reflection.

*Outcome.* McAlpine and Weston clearly indicate that there are two possible outcomes of reflection: the improvement of practice and knowledge construction. One does not rule out the other.

*Conditions.* One condition to reflect mentioned by McAlpine and Weston is the need for prior knowledge. For example, knowing what cues to look for, how to evaluate them facilitate reflection.

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*What These Eight Conceptualizations Tell Us About Reflection*

Definitions of reflections and characteristics of reflection in terms of process, outcome and conditions for each conceptualization are summarized in Table 2.
The review of the literature focused on eight conceptualizations of reflection. Some of these were taken from the reflective learning literature (e.g. Dewey, 1933; King and Kitchener, 1994), some were taken from the professional development literature (e.g. Boud et al., 1985, 1990, 1992b; Schön, 1983, 1987) and some were taken from the teaching literature (e.g. Colton and Sparks-Langer, 1993; Laboskey, 1994; McAlpine and Weston, 1999a, 1999b, 2000, 2001; Taggart and Wilson, 1998.)

Based on this review, a few commonalities were extracted. One, reflection usually occurs in response to an uncertain, puzzling, surprising or problematic experience. Second, such an experience is processed through a series of cognitive activities. The activities performed during reflection most notably include information gathering, evaluation, analysis and synthesis. Third, knowledge construction and improvement of practice are the main outcomes of reflection. Four, personal traits, contextual factors and emotions may influence reflection. Most authors agree on the kinds of experiences that trigger reflection and the outcome of reflection. Therefore, the definition guiding this study is one that stipulates knowledge construction and improvement of practice as the outcome of reflection. Of all the definitions reviewed, one captured most succinctly this outcome. This definition states that reflection is a process for turning experience into knowledge about practice and improving it (McAlpine and Weston, 2000). This relates to the second research question about the outcomes of reflection. What remained to be explored was the kinds of knowledge constructed and the kinds of improvements made to practice. The literature on reflection emates from different professional contexts

Table 2. Summary of conceptualizations of reflection

| Framework/Authors | Definition | Process | Outcome | Conditions |
|---|---|---|---|---|
| Dewey (1933) | A state of doubt, hesitation, perplexity, mental difficulty, in which thinking originates, and an act of searching, hunting, inquiring, to find material that will resolve the doubt, settle and dispose of the perplexity | • begins with doubt, perplexity or hesitancy<br>• observe, collect, examine and analyze evidence<br>• generate, evaluate as well as test alternative views<br>• draw conclusions | Knowledge construction | • open-mindedness<br>• whole-heartedness<br>• responsibility |
| Shön (1983, 1987) | A process of inquiry | • begins with uncertain, complex, pleasing, promising or unwanted situation<br>• frame and reframe problem | New understanding of the phenomena and a change in the situation | • openness<br>• contextual factors |
| Model of Facilitating Learning from Experience<br>Boud & Walker (1985, 1990, 1992b) | An active process of exploration and discovery which often leads to very unexpected outcomes | • begins with any positive or negative experience<br>• notice<br>• intervene<br>• return to experience<br>• attend to feelings<br>• re-evaluate experience | New understandings and appreciations | • feelings |
| Reflective judgment model<br>King & Kitchener (1994) | A process to justify beliefs when faced with complex or vexing problems | • begins when faced with a complex or vexing problem<br>• collect evidence<br>• evaluate evidence<br>• interpret<br>• compare evidence and opinions from different perspectives<br>• construct and evaluate solutions | Knowledge construction | • developmental stage<br>• responsibility |

Table 2. Summary of conceptualizations of reflection (continued)

| | | | | |
|---|---|---|---|---|
| Conceptual framework for reflective teacher education Laboskey (1994) | The consideration in light of information from current theory and practice, from feedback from the particular context, and from speculation as to the moral and ethical consequences of ideas | • begins with a problem that cannot be resolved or to rethink an educational situation or conclusion<br>• define problem<br>• analyze means-ends<br>• generalize<br>• rational-intuitive | New comprehensions (skills, knowledge, values-attitudes, emotional states) | • initial orientations<br>• impetus<br>• attitudes<br>• conditions |
| Reflective thinking model Taggart (in Taggart and Wilson, 1998) | The process of making informed and logical decisions on educational matters, then assessing the consequences of those decisions | • begins with a problem<br>• identify a problem<br>• frame and reframe the problem<br>• generate solutions<br>• experiment<br>• evaluate<br>• repeat cycle until a solution is accepted | Stored schema | None mentioned |
| Framework for teacher reflection Colton & Sparks-Langer (1993) | A process of analyzing a situation, setting goals, planning and monitoring actions, and evaluating results while considering the immediate and long-term social and ethical implications of decisions | • begins when a teacher personally involved in a specific experience chooses to attend to some aspect of it<br>• observe/gather information<br>• analyze/interpret<br>• hypothesize<br>• act/experiement | Construction of knowledge and meaning | • feelings<br>• personal attributes<br>• collegial environment |
| Model of reflection McAlpine & Weston (1999a, 1999b,, 2000 2001) | A mechanism for turning experience into knowledge and a process of formative evaluation | • on-going<br>• monitor and evaluate cues<br>• compare to goals<br>• make adjustments | Improvement of practice and knowledge construction | • prior knowledge needed |

but transposing it to dietetics context is appropriate given the similarities in professional roles. Dietitians, much like teachers or social workers, are members of a helping profession. They put in place interventions to help others learn. In this case, the object of the intervention is learning about healthy food choices and adopting healthier behaviours.

Another consequence of the review of the literature was opting to focus on uncertain, puzzling, surprising experiences as points of departure for reflection. Interview questions were developed around impact on knowledge or practice as well as around the kinds of experiences identified as sources of reflection because there was a consensus on these two points among the authors reviewed.

*How Does Reflection Compare to Other Concepts Describing Thinking?*

Boud et al. (1985a) warn that reflection "is so integral to every aspect of learning that in some way it touches most of the processes of the mind (p. 21)." Consequently, it may prove difficult to differentiate it from other concepts. To complicate matters, concepts such as critical thinking are sometimes characterized using concepts that are themselves poorly defined such as reflection (Kuhn, 1999). Still, there has to be a nuance to justify the adoption of both concepts in our everyday lexicon and in the literature. This is an effort to capture the essence of the subtle difference in meaning. Therefore, this section consists of a cursory analysis to determine if distinguishing marks can be identified between concepts that describe thinking. It is a second step in attempting to set boundaries on the phenomenon of reflection.

Four of the concepts selected for comparison include: critical thinking, decision-making, problem-solving and metacognition. These concepts are common in the literature on learning, teaching and thought processes which explains their selection. This analysis rests mainly on the cognitive psychology literature because this literature offers clear descriptions of these various concepts. There are two exceptions to this rule. Critical thinking has been greatly discussed in adult education. Dietitians are adult learners, and critical thinking is also examined from this perspective. As for pedagogical reasoning, a concept distinct to the teaching literature, it is included in this analytical exercise because dietetics practice shares features of teaching practice (as was argued earlier). Critical thinking is examined more closely because it is sometimes used interchangeably with reflection. This analysis is useful in further refining the understanding of reflection and in guiding data collection.

Each concept is briefly described first. Then, a table, which was used to compare the six concepts and identify characteristics distinct to reflection, is presented at the end

of the section. Two important points emerged from this analysis. First, as will soon become evident, it is difficult to identify one characteristic that will differentiate reflection from all these concepts. Rather, one has to discriminate between reflection and one specific concept at a time. Second, each of these forms of thinking may transpire during reflection. In fact, reflection may lead us to engage in these different kinds of thinking depending on our purpose. While reflecting, one may think critically, make decisions and so on.

*Critical thinking*

Well-known in adult education circles, Brookfield (1987, 1992, 1994, 1995, 1998) has written extensively about critical thinking and critical reflection. Reading his accounts can be somewhat unsettling because there are several important similarities between his description of critical thinking and reflection. In fact, Brookfield (1987) uses alternately the terms critical thinking, reflection, reflective skepticism and critical reflection. Brookfield (1987) acknowledges that critical thinking "involves a reflective dimension (p. 14)." His writing suggests both activities revolve around examination, exploration and new understandings. Questioning assumptions, however, may be a defining characteristic of critical thinking. As he notes, "reflection is not, by definition, critical. It is quite possible to teach reflectively while focusing solely on the nuts and bolts of classroom process (Brookfield, 1995; p. 8)."

Brookfield (1987) proposes nine characteristics to facilitate recognition of critical thinking. The following ones are of particular interest. "Critical thinking is a process, not an outcome (p. 6)." Critical thinking involves continuous questioning of assumptions. There is no end to it. In a way, critical thinking seems to be as much a state of mind as a cognitive process. "Critical thinking is triggered by positive as well as

negative events (p. 6)." Critical thinking is activated in response to an event. It can be both a negative event, such as losing one's job, or a positive event, such as an unexpected success. "Critical thinking is emotive as well as rational (p. 7)." The emotional aspect of critical thinking is often ignored in favour of its rational side. Since critical thinking entails an examination of values, ideas and actions, engaging in this process can induce strong emotions. One may feel anxiety, fear, confusion, resentment and then joy, relief and exhilaration. "Identifying and challenging assumptions is central to critical thinking (p. 7)" as is "try[ing] to imagine and explore alternatives (p. 8)." To think critically, one must carefully examine any assumption underlying actions, values and ideas. These are checked for their validity and accuracy. Questioning assumptions leads to the realization that there are other ways of thinking about or of doing things. Critical thinking implies that, as well as recognizing and questioning assumptions, one can justify one's ideas, values and actions. The outcome of this examination and exploration is reflective scepticism. Awareness of alternative views, values and actions leads one to challenge, question and doubt accepted truths and ways.

In addition to these characteristics, Brookfield (1987) identifies five phases of critical thinking. It is initiated by a trigger event, something unexpected happens, followed by an appraisal or an interpretation of this event. To regain a state of equilibrium, exploration ensues. It is a search for new ways of thinking or doing and their evaluation. Alternative perspectives develop from this phase and are selected as viable options. Eventually, these new ways of thinking are integrated into actions. From this short review, the similarities between each concept are unmistakable. The best way to summarize Brookfield' view is that critical thinking is always reflective but reflection is not always critical. While engaged in critical thinking, we always question

assumptions. On the other hand, while engaged in reflection we may simply focus on what we do and how. We may not go as far as to ask why we do it.

King and Kitchener (1994) and Kitchener (1983) propose two different criteria to separate critical thinking from reflective thinking. In their view, the literature presents critical thinking either as "logic or the hypothetico-deductive method (p. 8)" or as "a process of inquiry or problem-solving (1994; p. 8)." Therefore, to them, what sets reflective thinking apart is "the epistemological assumptions on which the thinking person operates and the structure of the problem being addressed (1994; p. 8)." Accordingly, reflective thinkers recognize knowledge is not a given but is constructed in a particular context. Their judgments are grounded in relevant data and subject to re-evaluation. As well, reflective thinkers focus on ill-structured problems. In other words, they attend to problems that "cannot be described with a high degree of completeness or resolved with a high degree of certainty (1994; p. 11)." Kuhn (1999) argues exactly the opposite. According to her, critical thinking consists of the evaluation and comparison of assertions based on argument and evidence. In other words a critical thinker sees assertions as not simply opinions but judgments based on criteria and evidence. An ability to think critically thus involves understanding knowledge as uncertain and constructed as opposed to certain and coming from an external source. In addition, a critical thinker "acknowledg[es] uncertainty without forsaking evaluation (p. 22)."

*Problem-solving*

According to Lesgold (1988), problem-solving is an activity that dominates our lives. Whether it is determining what ails a patient, how to fix a car or how to coordinate schedules, we constantly solve problems. He identifies two types of problem: those with clear-cut solutions and those with no obvious solutions. Contrary to this view, Sternberg and Ben-Zeev (2001) state that problem-solving is what we do when we tackle well

defined problems such as deciding the best route to get to a location. However, both describe problem solving as a process whereby we explore ways to go from current to desired state (goal). This description of problem solving originates with authors such as Polya and Newell and Simon. To solve problem, Polya (1957) advised a series of four steps. First, one must understand the problem, then devise a plan, carry it out and, finally, look back. The latter step basically involves verifying the solutions and the strategies and manipulations used to arrive to it. Polya believed that problem solving was an art and recommended extensive practice to develop that skill. As for Newell and Simon (1972), they argued problem solving was a goal directed activity. To achieve a set goal, humans create what they referred to as problem spaces. During problem solving, one moved from problem space to problem space. Newell and Simon also described human information processing capabilities such as short-term memory and long-term memory.

Problem-solving differs from reflection on two points. First, problem-solving focuses on well-defined problems whereas reflection also relates to ill-defined problems. Second, problem-solving in itself does include knowledge construction. Once the goal is reached and the solution verified, the process stops. Where a learner to think about his or her learning about the kinds of problems just solved or problem-solving strategies, another mode of thinking would be called upon.

*Decision-making*

Decision-making is seen as a form of problem-solving and it involves making a choice under uncertain circumstances (vanLehn, 1996). While problem solving is focused on explaining how we solve well defined problems, decision making explains how we solve ill defined problems (Sternberg and Ben-Zeev, 2001). Decision-making:

> involves the evaluation of alternative courses of action whose outcomes are to some extent uncertain. One of the characteristics of a decision problem is that objective criteria to define the correct choice are rather arbitrary. The alternatives available to a decision maker are multi-attribute and involve conflict across attributes. (Ranyard, 1990, p. 285)

Ranyard goes on to add that decision-making extends over time. A decision involves formulation of the problem, evaluation of information, judgment and justification of the decision. Following a review of the literature on teachers' interactive thoughts and decisions, Clark and Peterson (1986), conclude a teacher makes a decision when he consciously chooses "between continuing to behave as before or behaving in a different way (p. 273)." On the other hand, Brubaker and Simon (1993) identify seven variables that teachers consider when teaching. Put together, these variables describe how decisions are made. Simply put, based on her knowledge of goals, resources and obstacles, a teacher considers alternative courses of action, implements one, evaluates its effect on students and consequently, alters the course of action or the goals, or generates new ones.

*Pedagogical reasoning*

Shulman (1987) proposes a model of pedagogical reasoning and action (Table 3) which describes "how [teachers] commute from the status of learner to that of teachers (p. 12-13)." In others words, it refers to the teaching activities aimed at translating one's knowledge of a subject matter into forms that are meaningful to students. Six activities characterize pedagogical reasoning and action. These are comprehension, transformation, instruction, evaluation, reflection and new comprehension.

Comprehension involves developing an understanding of what is to be taught as well as its relationship to other content areas. Understanding why it is being taught is also part of comprehension. To transform means moving from personal comprehension

to preparing materials for others' comprehension. This activity can be further divided into preparation, representation, selection and adaptation and tailoring to student characteristics. Preparation refers to the critical examination and interpretation of the material. At this point, teachers may detect and correct errors or omissions. This stage also involves structuring and segmenting material based on one's understanding. It is a way to render the material more suitable for teaching and learning. In addition to materials, goals and objectives may be examined. Representation involves identifying how key ideas might best be conveyed. Several alternatives would usually be

TABLE 3
A model of Pedagogical Reasoning and Action (Shulman, 1987)

**Comprehension**
Of purposes, subject matter structures, ideas within and outside the discipline

**Transformation**
Preparation: critical interpretation and analysis of texts; structuring and segmenting; development of a curricular repertoire; and clarification of purposes
Representation: use of a representational repertoire, which includes analogies, metaphors, examples, demonstrations, explanations, and so forth
Selection: choice from among an instructional repertoire, which includes a mode of teaching, organizing, managing, and arranging
Adaptation and Tailoring to Student Characteristics: consideration of conceptions, preconceptions, misconceptions, and difficulties; language, culture, and motivations; social class, gender, age, ability, aptitude, interests, self concepts, and attention

**Instruction**
Management, presentations, interactions, group work, discipline, humor, questionings, and other aspects of active teaching, discovery or inquiry instruction, and the observable forms of classroom teaching

**Evaluation**
Checking for student understanding during interactive teaching
Testing student understanding at the end of lessons or units
Evaluating one's own performance and adjusting for experiences

**Reflection**
Reviewing, reconstructing, reenacting and critically analyzing one's own and the class' performance, and grounding explanation in evidence

**New Comprehension**
Of purposes, subject matter, students, teaching, and self
Consolidation of new understandings and learnings from experience

considered. These representations must then be matched to appropriate teaching approaches or strategies. The last step focuses on meeting the needs of students. Materials are adapted to fit general students characteristics such as gender and age as well as being tailored to fit specific students. These activities result in a plan that will be used to guide instruction. This next activity includes all the observable aspects of teaching such as class management, interaction, explanation and discussion. While executing this plan as well as following its implementation, a teacher monitors students' understanding, both formally and informally. This activity is referred to as evaluation. It also involves the examination of one's own teaching, lessons and materials. Shulman specifies that reflection flows from evaluation. Through reflection, a teacher "looks back at the teaching and learning that has occurred, and reconstructs, reenacts, and/or recaptures the events, the emotions, and the accomplishments (Shulman, 1987; p. 19)." This review is done in reference to instructional goals. Within the model of pedagogical reasoning and action, the process of reflection is a means to learn from experience. New comprehension of the subject matter, of students or of teaching, brings the cycle to a close. Or possibly to a new beginning as this comprehension might initiate another round of transformation, instruction, evaluation and reflection.

Differentiating reflection and pedagogical reasoning and action is a challenging task. At times, even Schön (1988) seems to confound them as can be seen in the following passage:

> By reflective teaching, I mean what some teachers have called "giving the kids reason": listening to kids and responding to them, inventing and testing responses likely to help them get over their particular difficulties in understanding something, helping them build on what they already know, helping them discover what they already know but cannot say, helping them coordinate their own spontaneous knowing-in-action with the privileged knowledge of the school. (p. 19)

Using this definition, one would likely conclude that reflection and reasoning are one and the same. Undoubtedly, there is some overlap between Shulman's model of pedagogical reasoning and action and reflection other than its inclusion as an activity typical of pedagogical reasoning. However, Shulman's description of reflection is somewhat limited. There are four points of contention. One, he relegates reflection to after instruction. It does not acknowledge that reflection may arise at any point of pedagogical reasoning. Two, his view of reflection is limited in the sense that reflection is described as a reenactment. It has to be more than mere recollection. Analysis, generation of new ideas or hypothesis and their evaluation are major parts of it. Three, looking over Shulman's description, one cannot help wonder how "critically analyzing one's own performance and the class' performance" is different from the previous activity, evaluation. Four, although Shulman considers new comprehension to be a different activity, it is argued that it is integral to reflective thinking. The review of the literature on reflection suggest reflection comprises at least three activities making up pedagogical reasoning: evaluation (checking for students understanding, evaluating one's performance and adjusting for experiences), reflection and new comprehensions.

The most striking difference between Shulman's model and reflection though, lies in their purpose. The purpose of his model of pedagogical reasoning and action is to understand how teachers translate their own understanding of a subject matter into forms accessible to students. The key words here are translate and students. Hence pedagogical reasoning relates to facilitating construction of knowledge and meaning by others. Reflection, according to the interpretation of the literature, is a personal process of knowledge construction. An example might best illustrate this difference. A Grade 4 curriculum may include knowledge of Canada's Food Guide to Healthy Eating as a learning outcome. Focusing on comprehension, the first activity in the model, a teacher

would first figure out what the Food Groups were, what was the basis for classification within a group, what foods were included and if there were any exceptions. This teacher would also study how learning about Canada's Food Guide fits within the health curriculum. Next step would perhaps be to imagine what Grade 4 students' knowledge and understanding of the Food Groups might be. The teacher might anticipate student questions and difficulties and so on. The teacher is reasoning her way through how to teach the concept of food groups to Grade 4 students. If, while developing this unit, the teacher recalls a student admitting he knew which foods belonged to which food group but not why, she may reflect. It may lead her to reconsider her own comprehension of food groups or how this concept is usually taught. Reflection results in an examination of her previous knowledge and in its formation, elaboration, testing and reformulation.

*Metacognition*

Brown (1987) notes that metacognition, executive control and self-regulation share a family resemblance. The main differences among these constructs may be their roots. Executive control dates back to information processing learning theory whereas metacognition came later as part of the cognitive movement. Self-regulation emerges as an offspring of social cognitive theory (Schunk, 2000). Because of their similarities, these constructs are treated as one which is referred to as metacognition.

Flavell (1979), who introduced the term, defines metacognition as "knowledge and cognition about cognitive phenomena (p. 906)." To Kitchener (1983), metacognition includes "the processes which are invoked to monitor cognitive processes when an individual is engaged in ... cognitive tasks or goals (p. 225)." Brown (1987) defines metacognition as an "understanding of knowledge, an understanding that can be reflected in either effective use or overt description of the knowledge in question (p. 65)." She also proposes "one's knowledge and control of one's own cognitive system (p.

66)." Another author (Schraw, 1998) defines it as "people's knowledge and regulation of human cognition (p. 89)." Schoenfeld (1987) also describes it as knowledge and regulation of cognition. As for Nelson (1999), he defines metacognition as "an individual's cognition about his or her own cognitions (p. 625)." He goes on to explain that metacognition is divided into metacognitive monitoring and metacognitive control. While engaged in monitoring, we make judgments about how easy we can learn something or how well we learned it. In response to this monitoring, control is activated to regulate how we will go about learning something. It can be allowing more time to study or employing a different strategy. Finally, Schunk (2000) explains that metacognition is "the strategic application of declarative, procedural, and conditional knowledge to tasks (p. 181)." This brief look at the literature suggest metacognition is a two faceted concept: it is both knowledge of and regulation of thought processes.

The function of executive control processes is to "regulate the flow of information throughout the information processing system (Schunk, 2000; p. 122)." New information is processed in working memory while knowledge is moved in and out of it. Control processes include processes such as coding, imaging. Brown (1987), on the other hand, describes it as a "central processor, interpreter, supervisor, or executive system capable of performing an intelligent evaluation of its own operations (p. 79)." As for Gredler (1997), she explains that executive control processes "keep track of information, determine the activities to be undertaken, and monitor the allocation of resources to the processing components (p. 144)." These last two definitions sound remarkably close to that of metacognition.

The third construct, self-regulation, is a "process whereby learners systematically direct their thoughts, feelings, and actions toward the attainment of their goals (Schunk, 2000; p. 355)." Self-regulation emphasizes the active role learners play in their learning.

Schunk (2000) notes that one of its critical element is choice. A learner can choose a method, a time limit, an outcome behaviour, a teacher or even whether to participate or not. In that sense, self-regulation sounds more deliberate than either executive control and metacognition. In fact, self-regulation is very much goal-oriented.

Reflection may be differentiated from these three constructs in four ways. One, while the primary focus of these three constructs is what happens internally (cognition), reflection also attends to external happenings (events, people and resources). For example, a professor might monitor the clarity of her explanation. That would be akin to metacognition. On the other hand, when reflecting, a professor may also monitor students' understanding of her explanation. Studies (e. g. Cao, 2000; Irby, 1992; McAlpine et al., 1999b) found evidence that when reflecting, professors monitor more than their own thinking. Two, the nature of these constructs also seems to differ. Metacognition is often referred to as a form of knowledge (e. g. Alexander, Schallert and Hare, 1991; Anderson et al., 2001; Brown, 1987; Schoenfeld, 1987; and, Schraw, 1998). Reflection, on the other hand, is a process. Three, the outcome of metacognition is efficiency in thinking rather than knowledge construction.

*Summary*

Table 4 lists defining aspects of each concept. To attempt to identify a defining characteristic of reflection, these different aspects were applied to each concepts. If the literature suggested it could apply, an 'X' was marked in the appropriate column. This brief comparison of reflection with the other five concepts revealed how these concepts overlap. Not one aspect emerged as distinctly characteristic of reflection. However, reflection could be dissociated from other concepts by comparing it to one concept at a time. For example, the comparison suggests reflection is different from critical thinking in two ways.

Reflection can be about addressing practical issues or assumptions whereas critical thinking is always about identifying and challenging assumptions. Reasons to engage in reflection can vary from solving a problem, and making a decision to improving practice and constructing knowledge. On the other hand, reasons to engage in critical thinking are mainly knowledge construction and awareness of alternative views, values and actions. Reflection is different from problem-solving in that it can focus on both well defined and ill-defined problems. In the literature, problem solving refers to working out well defined problems. Reflection is different from decision making in that decision making supposes one has a repertoire of strategies or solutions from which to choose. Reflection, on the other hand, can also involve exploration and creation of new strategies or approaches to a problem. Pedagogical reasoning is a comprehensive concept which focuses on how to facilitate others' learning. Reflection is but one activity subsumed under this concept. As well, pedagogical reasoning centres on transforming one's knowledge to make it meaningful to others while reflection centres on transforming experiences in personal knowledge. Finally, reflection is different from metacognition in that one not only attends to one's own thinking but also that of others, as well as to their feelings and actions. Based on this, reflection can be recognized among critical thinking, problem solving, decision making, pedagogical reasoning and metacognition either by its attention to a wide variety of professional issues (e. g. practical problems, assumptions), its foundation in practice and its technical or creative aspect.

Table 4. Reflection compared to concepts of thought processes

| | Reflection | Critical thinking | Problem solving | Decision making | Pedagogical reasoning | Metacognition |
|---|---|---|---|---|---|---|
| Reconstruct experience | X | | | | X | |
| Examine practical aspects of practice | X | | X | X | X | |
| Identify and challenge assumptions | X | X | | | X | |
| Evaluate and compare assertions based on argument and evidence | X | X | | X | | |
| Solve well defined problems | X | | X | | X | |
| Address ill-defined problems | X | X | | X | X | |
| Select among different options, courses of actions to achieve a goal, considering resources and obstacles | X | | X | X | X | |
| Evaluate course of action (solution, one's own performance) | X | | X | X | X | X |
| Monitor and control one's thoughts (learners' understanding) | X | | | | | X |
| Examine one's and others actions, thoughts, feelings | X | | | | X | |
| Translate one's knowledge of a subject matter into forms meaningful to learners | X | | | | X | |

Table 4. Reflection compared to concepts of thought processes

| | Reflection | Critical thinking | Problem solving | Decision making | Metacognition |
|---|---|---|---|---|---|
| Construct knowledge | X | X | | | X | |
| Improve practice | X | X | | | X | |
| Solve a problem | X | | X | X | X | |
| Make a decision | X | | | X | X | |
| Implement instructional plan to facilitate others' learning | | | | X | X | |
| Control one's thoughts to achieve a learning goal | | | | | | X |
| Become aware of alternative views, values and actions | X | X | | X | X | |
| Choose from a repertoire of strategies | X | | X | X | X | |
| Create a new strategy | X | | X | X | X | |

# CHAPTER TWO

# Methodology

## Study Design

To address the research questions of this study, a qualitative research approach was warranted. Qualitative research facilitates the obtaining of details about phenomena such as thought processes, feelings and emotions (Strauss & Corbin, 1998a, 1998b). More specifically, this study was designed based on the grounded theory tradition (Creswell, 1998). The purpose of the study is to assist dietitians in their quest for continuous learning by documenting experiences of dietitians practicing in community-based prenatal nutrition programs and exploring the reflection process embedded in this data, including its outcomes and conditions influencing it. Study results led to the development of a conceptual framework which is an articulation of a theory grounded in the data. That is, it suggests a conceptualization of plausible relationships among concepts and sets of concepts found in the data (Strauss & Corbin, 1998a, 1998b). Grounded theory was well-suited for this study because it can lead to theory generation or conceptualization rather than mere description (Strauss & Corbin, 1998a) Or, as Creswell (1998) writes, the result is "an abstract analytical schema of a phenomenon." Grounded theory dictates specific methods of data collection and data analysis which are detailed in the following sections.

## Setting

Dietitians practice in varied workplaces such as in hospitals, community health centres, home care, in the community, in private practice, in industry and businesses, in government, education and research, and in foodservice. In this study, one particular setting was focused on, namely community. Within the area of community nutrition, the

study further concentrated on practice in prenatal nutrition programs. This area of practice was selected for three main reasons. First, work in this area centers on health promotion and disease prevention which are key aspects of the dietetics profession. As well, my professional interest and experience as a practitioner relate to community nutrition. Second, nutrition during pregnancy and childbearing years continues to be a priority area (Health Canada, 2002). Nutrition interventions have already been shown to improve pregnancy outcomes, particularly for at-risk pregnancies (e.g. Dubois et al., 1997; Health Canada, 2001). And third, substantial funding to community-based prenatal nutrition projects (otherwise known as Canada Prenatal Nutrition Program or CPNP) is fairly recent. It is considered an innovative way of delivering nutrition services (Health Canada, 2002). Therefore, dietitians holding positions in such projects were likely to have been confronted with situations triggering reflection. However, the prenatal nutrition scene in the Atlantic provinces is made up of another type of service delivery: provincial governments' early childhood initiatives. Consequently, participants for this study were recruited from a pool consisting of dietitians practicing in CPNP projects and governmental programs. Therefore, study participants operate within similar settings but in different contexts. Additional details are provided on these two contexts in what follows. To begin, a brief overview of CPNP projects is presented. Then, government initiatives are summarized.

CPNP projects are delivered through community agencies or coalitions or government agencies. "In Atlantic provinces, community coalitions are the main delivery agencies (Health Canada, 1998)." Although each CPNP project might operate slightly differently, all interventions "directly target those women who are most likely to have unhealthy babies because of poor health or nutrition (Health Canada, 2002)." More specifically, Health Canada (2002) describes the CPNP as follows:

> The Canada Prenatal Nutrition Program provides the resources for community-based groups to offer supports such as nutrition (food and/or vitamin and mineral supplements, nutrition counselling, food skills), knowledge and education (specialized counselling on prenatal health issues, breastfeeding and infant development), social support, and assistance with access to services (shelter, health care, specialized counselling. Projects work with participants to modify unhealthy and high risk behaviours such as smoking, alcohol and other substance abuse. The CPNP is not a universal program, but is especially designed to meet the needs of those pregnant women most at risk for poor birth outcome (women living in poverty, teens, women who use alcohol, tobacco or other harmful substances, women living in violent situations, Aboriginal women, recent immigrants, and women living in social or geographic isolation or with limited access to services.) Food supplementation, nutrition counselling and dietary assessments as well as group education sessions are four common services received by the program's participants (Health Canada, 2002).

As of September 2002, there were 26 different CPNP projects in operation in the Atlantic region. Nova Scotia had nine, Prince Edward Island seven, Newfoundland nine and New Brunswick one. Although New Brunswick only had one project, this project operated in six communities across the province. While a vast majority of projects offer the services of a dietitian, some may not (D. Gillis, personal communication, April 29, 2002). Furthermore, often times if there is a dietitian on staff, she is there on a part-time basis. A project's activities may vary depending on the needs and geography of the region it serves. Here are two examples of this variation. In one project, home visits is a core service whereas in another one weekly group sessions are favoured. Some projects offer supplements (for example, orange, milk and eggs) while others offer food baskets or a meal to group clients. Generally, however, projects offer educational activities such as home visits, group sessions and food preparation.

Although government initiatives vary as well, there are some constants. These initiatives, often referred to as early childhood initiatives, also target "expectant mothers

most at risk for health problems that may impact their own health and that of their unborn child (Health and Wellness New Brunswick, 2003)." Public health nutritionists either meet with pregnant women in their homes, in government offices or through CPNP projects. The emphasis in New Brunswick and PEI is usually on individual counselling. In Nova Scotia, although individual counselling (or home visits) has traditionally been the norm, changes in delivery approach might be coming. In most cases, the nutritionists' involvement does not continue in the postnatal period. In Newfoundland and Labrador things are done somewhat differently. There, Healthy Baby Clubs (CPNP funded) were established as the main service for mothers. A chief part of public health nutritionists' involvement with the Clubs consists of consulting with resource mothers as well as training them. Resource mothers are women from the community and part of their responsibilities includes counselling mothers-to-be on healthy eating issues. If need be, mothers may be referred to a local outpatient or clinical dietitian for more advanced nutrition counselling. At times, public health nutritionists present educational sessions. Their frequency depends on each regions' geography and needs. Overall, the nutritionists' direct involvement with mothers is limited.

## Participants

Considering that grounded theory is achieved through data saturation (Strauss & Corbin, 1990), the goal of participant recruitment was to ensure adequate numbers were achieved. Recruitment consequently occurred within community-based projects as well as within public health units. Despite inquiries made prior to the study, the number of potential participants was uncertain in community-based prenatal nutrition projects. It was feared recruiting solely among CPNP projects would yield few participants.

Criteria for participant selection included active membership with a professional association of dietitians, working in the Atlantic provinces and regular,direct contact

with the project's or health unit's main target groups, that is pregnant women and new mothers affected by difficult socio-economic conditions.

In all, there were seven dietitians participating in this study. This included a pilot study participant. Each Maritime province was represented. (There were no professionals fitting the participant selection criteria in Newfoundland.) Dietitians differed in the number of years of practice, educational background and career path. However, as mentioned above, all participants worked in the area of prenatal nutrition with women considered at risk usually because of their socio-economic conditions. All participants were women which is not surprising considering that roughlyover 90% of registered dietitians/nutritionists are women. A profile of each participant may be found in the Results chapter. Table 5 summarizes participant characteristics. Participants are listed in the order in which they were interviewed.

Table 5. Participant characteristics

| Participant | Title | Years of practice (in prenatal/overall) |
|---|---|---|
| Diane (pilot study) | Prenatal project dietitian | 1/3 |
| Annie | Prenatal project dietitian | 5/13 |
| Eve | Prenatal project dietitian | 7/21 |
| Zoe | Public health nutritionist | 8/14 |
| Sara | Public health nutritionist | 20/24 |
| Marie | Public health nutritionist | 9/12 |
| Eliza | Public health nutritionist | 9/16 |

* Names used are pseudonyms

## Development of Protocols

Three different tools were developed to collect data for this study. The first one, an interview guide, consisted of a series of questions, prompts and probes. The second one, a background questionnaire, consisted of written questions on professional background and thinking about practice. The last and third tool was a follow-up interview guide. The content of each tool is detailed next.

### *Interview Guide*

The interview guide used in the pilot study (described in the next section) consisted of three main questions and several probes and prompts. The goals of this interview were to document at least three experiences from each dietitian and her thoughts, feelings and actions during and after the experience. The three main questions were designed to elicit examples of experiences. Based on the review of the literature, particularly Dewey (1933) and Schön (1983), two questions were written to evoke incidents that resulted in learning, either expressed as a change in thinking, a change of practice, or knowledge construction. The third question aimed to evoke certain types of incidents (i.e. uncertain, puzzling, satisfying, surprising ones). Learning and such incidents emerged from the review of the literature as constants of reflection and provided a point of departure for data collection (Strauss & Corbin, 1998a). The interview questions, as well as probing and prompting questions, were planned to favour the exploration of the incident in more depth, from their beginning to their conclusion. This tracking of events, actions, thoughts and feelings would help expose the process, outcome and conditions of reflection. Specifically, the questions were worded as follows:

> Tell me about a time when you experienced an uncertain, puzzling, surprising or satisfying situation in your work as prenatal dietitian.

> Tell me about an incident/experience in which learning about prenatal nutrition care occurred for you.
>
> Tell me about an incident/experience that had an impact on your thinking about or your approach to prenatal nutrition care.

Circumstances leading up to the experience were explored as was what happened in as much detail as possible. Interview questions were open-ended in an effort to invite exploration of uncertainties, problems, surprises of concern or interest to each participant (D. Boud, personal communication, February 2, 2002). Non-routine situations such as these may invite reflection. The question "why", also believed to be crucial in reflection (e.g. Sparks-Langer & Colton., 1991), was often used to further explore incidents or to prompt discussion. Following Andresen, Barrett, Powell and Wieneke's (1985) strategy and Strauss and Corbin's (1998a) recommendation, interview questions were general to "give respondents room to answer in terms of what was important to them (p. 205)." Interview questions were taken or adapted from the work of Boud and Walker (1985a, 1985b), Carnevale (1994), Korthagen and Kessels (1999) and McAlpine and Weston (1999a; 1999b). As well, writings on the critical incident technique (Flanagan, 1954; Woolsey, 1986) influenced the wording of interview questions. This technique is designed to obtain first-hand accounts of incidents which significantly contributed to a specified outcome.

Although the main interview questions were primarily constructed to collect examples of incidents, these questions were considered provisional in keeping with the grounded theory approach. At the onset of the study, my assumption was that, in most cases, meaningful learning resulted from incidents. What Benner (1984/2001) calls paradigm cases, experiences so powerful they stand out. This initial emphasis was reinforced by the review of the literature. However, it became clear, during the course of

data collection, that the wording of the three main questions seemed to place an undue emphasis on incidents. Reactions from study participants suggested they may misinterpret the term "incident." Some interpreted incidents first and foremost as negative situations. For health professionals, especially those with experience in the hospital milieu like most study participants, this interpretation is understandable. Hospitals make use of incident reports to document unsafe situations or undesirable outcomes. Considering this negative connotation, participants might have hesitated to disclose examples of practice, particularly if they thought these examples might portray them unfavourably. Furthermore, incidents as a major source of learning did not correspond with the two first participants' accounts of reflection. Rather, their accounts suggested that learning or knowledge construction about practice could also occur from a body of experience. To be more inclusive, the wording of interview questions was adapted. This change was possible because in grounded theory, data collection and data analysis are concurrent. The word experience replaced the word incident as the term used to refer to any circumstance which involved reflection and resulted in learning.

Early data collection led to the recognition of another problematic term, learning. One participant's hesitation when invited to take part in the study was an indicator of its likely problematic use. During our initial contact, she explained that she had not really learned anything from her experiences. "If anything, it confirmed my thinking", she added. Based on this exchange, it was concluded that the term "learning" could be interpreted by some participants as an 'aha.' This interpretation might result only in the disclosure of experiences that introduced something new as opposed to also including experiences that perhaps added to or reinforced their thinking. To avoid possible misinterpretation, it was played down in subsequent interviews. Other researchers (e.g. Benner, 1984/2001; Boud & Solomon, 2003) have noted how a term may limit what

thoughts it triggers in people. These early experiences in data collection brought back advice given (D. Boud, personal communication, February 2, 2002) on how to formulate interview questions:

> The paradox is that the more you try to operationalise the questions the more you are likely to deter reflection as standard questions can readily be interpreted as being driven by an 'other' agenda.

The use of terms such as "incident" and "learning" was setting the agenda and perhaps deterring disclosure of reflective episodes instead of encouraging it. Consequently, subsequent interviews were adapted to make the interview structure more flexible. At times, it meant setting aside the study's agenda to focus instead on a participant's thoughts about practice. As it turned out, participants often described experiences and their thinking about it to illustrate a point they were making about their practice.

The final interview guide (Appendix A), which was used to collect data from the six study participants, consisted of the same core set of questions as those used in the pilot. There were two main goals to this interview. At its onset, the intent was to determine years of experience, particularly in prenatal nutrition, to understand each dietitian's particular context, and to explore her thinking and practice. This was also done to begin to overcome the formality between participant and researcher and to ease into the second part of the interview which was of a more personal nature. Once this opening part was completed, the focus was on eliciting participants' own longitudinal accounts of experiences or incidents and the reflection embedded in them (Flanagan, 1954; Woolsey, 1986). It was divided into two parts. In its introductory part, the guide consisted of background questions taken from the background questionnaire (years of practice, professional experience, context of practice and responsibilities, thinking about

prenatal nutrition.) The second part of the interview guide included the three main questions designed to elicit examples of experiences.

*Background Questionnaire*

One of the original tools developed for the pilot study was a background questionnaire. It consisted of written questions designed to familiarize myself with a participant's professional background and thinking about practice prior to the interview (refer to section 2 of the formal interview guide, Appendix A). Following the pilot study, these questions were merged with the interview guide and served as an introduction between a participant and me.

*Follow-up*

The goal of the follow-up interview was to verify with each participant interpretation of the data and to pursue themes that arose from the analysis of the formal interview. Questions for these interviews can be found in Appendix B. Overall, the questions sought to obtain more details about categories of experiences, of knowledge constructed and about the process leading to knowledge construction or improvement to practice.

*Role of the Researcher*

Several books on qualitative research design (Creswell, 1994; Denzin & Lincoln, 1998; Kvale, 1996; Marshall & Rossman, 1995; Maxwell, 1996; Merriam, 1988; Morse & Field, 1995; Rubin & Rubin, 1995) discuss the issue of the researcher as instrument. Qualitative methodologies typically use interviews and observations, hence data is obtained through the researcher. The quality of data collection is affected by the researcher's sensitivity. This sensitivity expresses itself in the way the researcher builds a relationship with study participants and maximizes opportunities to collect meaningful information.

In this study, I established a relationship with participants by recruiting them through referrals (either from gatekeepers or other participants), making personal contact with them prior to the interview, meeting them in their setting and, during the interview itself, easing into more personal questions. As well, as a dietitian, my educational and professional background (experience in community nutrition) is similar to that of the participants. This fact created shared understanding. In my communication with study participants, I positioned myself first and foremost as a dietitian. My goal was to minimize any social or professional order that might have been constructed by participant. In turn, I hoped this would help participants feel comfortable about disclosing personal professional situations and incidents. On the other hand, my student status meant I had been operating outside the participants' professional circles. This may have facilitated disclosure. As for maximizing data collection, I participated in projects, both academically and professionally, that involved conducting interviews with students and educators. These experiences contributed to the development of my interviewing skills such as asking questions, following through on leads, and listening skills.

## Pilot Study

The goal of the pilot study was to determine the usefulness of the instruments and to determine the merit of each interview question. As described in the previous section, instruments consisted of a background questionnaire and an interview guide. As well, the pilot contributed to the development of my interviewing skills and data analysis approach.

Changes related to structure and administration of study protocols were made as a result of the pilot study. The background questionnaire (originally planned to collect background information on each participant as well as information on a participant's

thoughts on practice) was folded into the formal interview. This was done by taking questions from the background questionnaire (such as years of practice, areas of practice, responsibilities in community-based prenatal nutrition in addition to thoughts about role of dietitians in this area and description of effective prenatal nutrition care) and incorporating them to the formal interview protocol. These questions became the first part of the interview and served as an ice-breaker. It became a way to help participants develop some level of comfort because it allowed them to ease into the questions about experiences. Furthermore, it was a way to keep the conversation focused on experiences. With these structural changes in place, data collection then proceeded with other dietitians.

There were no changes made to the content as a result of the pilot study. The formal interview questions, prompts and probes were retained to guide conversation with participants. This decision was made based on an analysis of the pilot interview transcript. The pilot participant recalled three incidents that surprised her and described her thoughts, feelings and actions during as well as following each incident. The information contained in her description was deemed relevant to the study questions. In addition, when asked how useful the questions were, her feedback was positive. She confirmed that the questions were effective in triggering her recall of incidents. The practice consisting of sending the interview questions to participants prior to the formal interview was also retained because it was considered helpful by the pilot participant.

## Data Collection Procedures

There were four steps involved in collecting data for this study. The first step consisted of recruiting participants, the second consisted of conducting a pilot, the third step was interviewing individual participants while the final and fourth step involved a telephone follow-up with each participant. A fifth step consisting of a roundtable

discussion with all participants was planned but its implementation failed. Individual schedules and commitments did not allow a convenient time for most participants to meet. The intent of the roundtable discussion was to validate data interpretation. Data collection began in September 2002 with the pilot and continued until June 2003 when the last follow-up was completed. The interviews took place with on average one interview per month. The last interview was done in February 2003. At that point, a redundancy in the data was noted, an indication that data saturation was reached. Participant recruitment stopped and data collection turned to the follow-up interview. In accordance with grounded theory, as data collection proceeded, data analysis was initiated.

*Participant recruitment*

The first step in data collection was recruiting participants. An early action in participant recruitment was the identification of a person knowledgeable about the area. This person served as a key informant about the area as well as about potential participants. Through personal contacts, the researcher was put in touch with such a senior, local dietitian. This dietitian, who also became a study participant, provided names and contact information of other nutrition professionals practicing in the area of prenatal nutrition. Recruitment developed through referrals made by those other contacts. This is how a dietitian working in a prenatal nutrition program was approached to participate in a pilot. In Newfoundland, a senior public health nutritionist acted as informant. She advised that CPNP projects there did not use the services of dietitians other than ones in public health. Further recruitment revealed that public health nutritionists in that province had little direct contact with project clients.

Parallel to this effort, each and every CPNP funded project in the Maritimes was approached to find out if there was a dietitian on staff and if so, to subsequently invite

her to take part in the study. First, federal program consultants for CPNP for the region were approached. As gatekeepers of the program, their collaboration was deemed advantageous. Their collaboration facilitated entry into the setting. On behalf of the researcher, consultants sent an electronic message to project coordinators to inform them of the study and request a list of dietitians. They also provided a list of projects and contact information. In addition to this, calls were made to directly reach project coordinators or dietitians. Names thus collected formed the participant pool and professionals were then contacted by electronic mail and phone.

Initial conversation with potential participants focused on explaining the research purpose, what was involved in participation (e.g. time commitment, audio-taping of interviews) as well as ethical considerations. This was done to secure their assent. If necessary, a second call was made to discuss any further questions or concerns a participant might have had. To favour participation, dietitians were offered a summary of research findings. Formal consent was obtained upon the formal interview using a consent form (Appendix C). Generally, dietitians approached were positive about participating although some expressed concerns about the contribution they could make. Two worried they had no learning or no experience to communicate.

*Pilot Study*

Prior to the interview, the pilot study participant was sent a background questionnaire and three main interview questions. The interview took place in her office and was recorded. At the end of the interview, the pilot participant was asked for feedback on the background questionnaire, the interview questions and one aspect of the procedure (i.e. having interview questions prior to the interview).

*Interview*

The interviews took place at the participants' work place. In two cases, the interviews took place in a local restaurant because the dietitians' respective supervisors did not support their participation in the study. Interviews lasted on average 1 1/2 hours. Some were slightly longer while others were slightly shorter depending on the amount of information shared by participants. Interviews were audio-taped to ensure accurate reporting of participants' discussions. Participants were given the three main interview questions several days prior to the interview so they could think about them. Woolsey (1986) notes that this procedure orients participants to the aim of the interview and facilitates their responses. Probing and prompting questions were used to help participants reconstruct the circumstances leading up to the experience and what happened, in as much detail as possible. Following the interview, participants were sent a note thanking them for their participation. Upon completion of the study, a summary of the results and discussion was sent to them.

*Follow-up*

The follow-up consisted of a brief telephone conversation, lasting on average 30 to 45 minutes. Follow-ups were audio-taped by hooking up the recorder to the phone receiver. Permission to record the conversation was obtained from participants at the beginning of the call. Participants were informed of the goal of the follow-up interview and of how long it would take when the call was scheduled. They were reminded again when the call took place.

## Data Analysis

In preparation for analysis, the formal interviews and the follow-ups were transcribed verbatim including utterances such as hesitations, pauses or missed starts. To help me learn and understand the data, I transcribed the interviews myself. An

example of part of a transcript is provided in Appendix D. Once completed, the interview transcripts were sent to each participant for verification. Changes made by participants to their particular transcript were integrated into the final version used for analysis. Participants made minimal changes. One interview was conducted in French. Excerpts used from her interview are my translation. As well, large portions of this interview were missing because of the extremely poor quality of the recording. Technical difficulties with the back-up recorder, meant that my notes were the only other record of the interview.

Both the audio-tapes and the transcripts were used in initial analysis to ensure vocal nuances were not lost as well as to verify the accuracy of the transcription. The interview transcripts were analyzed following grounded theory techniques and procedures presented by Charmaz (1990), Glaser and Strauss (1967) and Strauss and Corbin (1998a, 1998b) and described below. It should be noted that data analysis was a highly iterative process. Experiences and transcripts were analyzed repeatedly as were comparisons between experiences and transcripts. In addition, analysis of the data was approached with the assumption that reflection is a process. That is, it involved a sequence over time of evolving actions (Strauss & Corbin, 1998a). Thus the aim of this analysis was to understand the experience as a whole as recounted by a participant, what were her thoughts, feelings and actions in response to it, and what were the outcomes. How participants' accounts unfolded chronologically was also noted.

### *Analytic Procedures*

Four analytic procedures are characteristic of grounded theory. These are concurrent data collection and analysis, theoretical formulation, constant and multiple comparisons, and theoretical sampling. Written documents, or memos, were used to keep track of my thoughts and ideas about analytical issues. Strauss (1987) and Strauss

and Corbin (1998a, 1998b) recommend keeping records of analysis. In what follows, each procedure is reviewed as well as how it was implemented in the context of this study.

*Concurrent Data Collection and Analysis*

One procedure characteristic of grounded theory is concurrent data collection and analysis For example, in this study, analysis of formal interviews began as data collection proceeded. The pilot was done in September 2002 and subsequently transcribed and analyzed. More interviews followed in October, November and December with their analysis initiated immediately. Data analysis affected further data collection. The follow-up interviews were based entirely on data analysis. The section entitled Development of Protocols outlines how concurrent data analysis affected data collection, specifically how some questions were worded in the interview guide.

*Theoretical Formulation*

A second, analytical procedure characteristic of grounded theory is referred to as theoretical formulation. This meant examining how each concept fitted in relation to other concepts. The goal was to build a picture of how reflection occurred in terms of process, outcome and conditions. This was done first with concepts drawn from each participant's interview and also with categories which were drawn from concepts across participants. In other words, the examination of relationships was done within participants and between participants. The result was a conceptual framework for understanding how dietitians turn experience into knowledge about practice and improve it. In practical terms, this was done by writing on index cards concepts drawn from each interview. Similar concepts from one interview were grouped and then further grouped under one core concept. The concepts obtained as a result of that analysis were then compared. Similar concepts were grouped and subsumed under a

category. It was now referred to as a category because it was a representation across all participants. Index cards allowed for easy exploration of relationships between concepts and categories.

*Constant and Multiple Comparisons*

A third characteristic of grounded analysis is the use of constant and multiple comparisons. In this study, this translated into the coding of each experience into as many categories of analysis as possible. Then, similar experiences were compared to each other constantly to generate properties of the categories and the relationships among them. In addition, experiences from a participant from different times were compared as were experiences from different participants (Charmaz, 1990). To integrate categories and their properties, experiences were then compared with the properties highlighted in the initial comparison. This resulted in the further articulation of categories' relationships. Next, reduction occurred as the number of categories were cut down to focus the conceptualization of the phenomenon. The final analytic step consisted of writing the theory by pulling together the various pieces of the analysis.

*Theoretical Sampling*

The fourth and last analytic component characteristic of grounded theory approaches is theoretical sampling. It consists of data collection driven by concepts. The goal of theoretical sampling is to explore in more depth concepts and their properties in order to refine them. This analytic procedure necessitates sampling specific issues only (Charmaz, 2000). In this study, theoretical sampling meant returning to the same participants to gain additional information. This took the form of follow-up interviews. In these interviews, for example, participants were asked to elaborate on the impact of personal experiences which had emerged from some interviews as a source of knowledge about practice. By focusing on these types of experiences, the goal was to

better understand the importance of their contribution to professional knowledge and the kind of knowledge that was constructed from personal experiences. As well, since personal experiences were brought up by two out of six participants, it was important to check with all participants the role of personal experiences in knowledge construction about practice from experience.

### *Coding Activities*

Strauss and Corbin (1998a) break coding into a series of activities. These activities are termed open coding, coding for process, axial coding and selective coding. Open coding mainly led to the identification of concepts for each participants (a within analysis) while coding for process and axial and selective coding led to the identification of categories (a between analysis) as well as their relationship. A summary of each coding activity is provided next, as well as a description of how it was applied in this study. For the purpose of this description, coding activities are grouped under the headings *Identification of Concepts* or *Identification of Categories and their Relationship.* This description of coding addresses the formal side of data analysis. Informal analysis also took place during and following interviews as I made notes and again during transcription (since I transcribed all the interviews myself.) During transcription, I implicitly engaged in coding, interpreting data and identifying concepts.

#### *Identification of Concepts*

Open coding is defined as the identification of concepts and their properties and dimensions. In this study, this step was done by hand on a hard copy of the transcript and then by using index cards. First, a transcript was read in its entirety to gain a sense of the experiences shared by the participant. It allowed for the identification of markers which were circled upon reading. A marker is a word or group of words denoting the presence of an experience, of process (a progression in time of thoughts, emotions and

actions that ensue), and of outcome (an impact on knowledge or on practice.) What I refer to as linguistic markers, Charmaz (2000) refers to as sensitizing concepts. As she explained:

> [Sensitizing concepts] provide starting points for building analysis, not ending points for evaluating it. We may use sensitizing concepts *only* as points of departure from which to study the data. (p. 515)

Certain words, or linguistic markers, in transcripts were points of departure for my interpretation of data. Linguistic markers were part of data reduction since they focused my attention on certain parts of an interview transcript (Miles & Huberman, 1994.) Some of the words that emerged as markers during the analysis of each interview transcript are presented in the Results chapter.

Experience thus became the unit of analysis. It is defined as any encounter with actual practical situations, either noteworthy in some way or commonplace, that puzzled, perplexed, surprised or satisfied a dietitian or had an impact on her knowledge or practice. In pages that follow, noteworthy situations are referred to as incidents and commonplace situations as routine, day-to-day experiences. Both are subsets of experience.

Following this first run at open coding, a transcript was read a second time, again line by line, but this time being more mindful of the experience, process and outcome markers pulled out from the first round of reading. To guide this second part of open coding, five questions were used (Strauss & Corbin, 1998a; p. 168): 1) Generally, what is going on here?, 2) What is the experience?, 3) What is the informant doing, saying, thinking, feeling in response to situations in which she finds herself?, 4) What are the outcomes of these situations?, and 5) How does this affect what the informant does, says, thinks or feels next? Participant statements addressing each of these questions were

written down on index cards. One statement was written per card, unless a statement was reiterated somewhat differently later in the interview. The use of index cards allowed for the sequential examination of each experience. It was an effective way to link an experience, thoughts, feelings and actions and outcome. It was also useful to keep track of parts of the interview transcript pertinent to one experience as some participants would sometimes refer back to the experience later in the course of the interview.

Accordingly, each index card came to represent a concept. Concepts thus obtained from each participant were then compared within a participant to identify which ones were similar. Similar concepts were grouped together and named. Whenever possible, participants' words were preferred to name a concept. This was done to remain as grounded as possible. For example, "see it over and over again" became a concept. It is an expression used by a participant to illustrate how experiencing several interactions with clients with similar outcomes led to knowledge construction. If not, concepts were labeled using terms from the literature or researcher's own terms. As well, like Charmaz (2000), the concepts, specifically the process concepts, were kept active. This was to "give insight into what people [were] doing, what [was] happening in the setting (p. 515)." It was deemed especially important for concepts relating to the stages or the course of reflection. The last and final step involved identifying how concepts may be related to each other. Strauss and Corbin (1998a) suggest words such as "since", "due to". "because", "my reaction was to" and "what happened was" can serve as clues to the relationships. They also point out that axial coding occurs spontaneously during open coding. To search for these clues and uncover relationships, index cards were examined again as were memos. Index

cards allowed for examination of concepts in the same sequence as thoughts, actions and feelings which generated them were reported to have happened.

*Identification of Categories and their Relationship*

The identification of categories involved comparing concepts that emerged from the coding of each participant's interview transcript. This comparison was between participants. Once again, concepts that shared similar properties were grouped and named. At this point of analysis, "[concepts] represent not one individual's or group's story but rather the stories of many persons or groups reduced into, and represented by, several highly conceptual terms (Strauss & Corbin, 1998a; p. 145)." Consequently, from then on, these groupings are referred to as categories. The focus was also on identifying how these categories may be related to each other. To search for clues and uncover this, concepts and relationships identified within participants were examined again. Index cards allowed for examination of relationships and create an order which reflected the sequence of all participants' as thoughts, actions and feelings.

Selective coding, the last coding step, is used to integrate and refine categories. It involves deciding on a core category which will represent the main theme of the research (Strauss & Corbin, 1998a). To aid in identifying the core category, techniques and guiding questions can be used (Strauss and Corbin, 1998a). Review of memos, a question (What strikes me over and over?) and drawing of diagrams were techniques used in this study. As well, a table used to compare concepts between participants highlighted convergence of these concepts. A high degree of convergence suggested a core category.

## Methodological Rigour

This section deals with strategies put into place to maximize the usefulness and credibility of the description, explanation, interpretation and conclusion of phenomenon

(Maxwell, 1992), in this case reflection. This section addresses the issue of rigor, quality or validity depending on the term qualitative researchers choose to use (e.g. Creswell, 1998; Kvale, 1996; Maxwell, 1992; Morse, 1998).

Procedures were put in place to maximize the descriptive, interpretive and theoretical validity of the study (Maxwell, 1992). According to Maxwell (1992), descriptive validity refers to "the factual accuracy of the account (p. 285)", interpretive validity refers to consideration of participants' perspectives of the account and theoretical validity refers to meaning given to the account.

Some procedures to develop validity included recording interviews and follow-ups, transcribing interviews and follow-ups verbatim, asking participants to read their interview transcript to ensure its accuracy, analyzing data both from recordings and from transcripts as well as labeling concepts or categories using participant terms whenever possible. Creswell (1998) lists eight different verification procedures often discussed in the literature, irrespective of perspective and terms. These are: prolonged engagement and persistent observation, triangulation, peer review or debriefing, negative case analysis, clarifying researcher bias, member checks, rich, thick description, external audits. For any given study, he recommends that researchers engage in at least two of them. Morse (1998) suggests three additional procedures: multiple raters, verification with secondary informants and adequacy and appropriateness of data. In this study, verification procedures were especially important to the development of validity. The first verification procedure incorporated was member checks. This was done to verify description, interpretation and conclusion. Participants' views of the accuracy of accounts were solicited by inviting them to read their interview transcripts. Participants were also invited to verify preliminary analyses and credibility of interpretations during follow-up interviews. Later in course of the study, a round table

discussion was originally planned to get participants' feedback on data interpretation and on the proposed conceptual framework. This strategy had to be abandoned because participants' respective schedules were conflicting. Validation *in situ* of the researcher's understanding of accounts also took place through the paraphrasing of participants' responses. A second verification procedure used in this study involved rich, thick descriptions. The setting and participants' accounts included are as detailed as possible. This should allow readers to determine credibility and usefulness of study findings and conclusions. Procedures such as recording of interviews and their verbatim transcription were integral to the credibility of data. Peer review or debriefing was used as a third verification procedure. In practical terms, this meant periodically checking data collection and analysis with experienced investigators to ensure credibility. The fourth verification procedure was clarifying researcher's bias. This was achieved by disclosing my assumptions as well as my previous experience in research, particularly research on reflection.

## Ethical considerations

This study relied on the participation of humans. Accordingly, a Certificate of Ethical Acceptability (Appendix E) was obtained from the Faculty of Education' Ethics Review Committee and renewed as necessary. To protect participants, measures such as informed consent forms and confidential treatment of their data (for example use of pseudonyms instead of their names) were implemented.

# CHAPTER THREE

## Results

The purpose of this study is to assist dietitians in their quest for continuous learning by investigating reflection in the context of dietetics practice. It focused on one particular type of reflection discussed in the literature (e.g. McAlpine, Weston, Berthiaume & Owen, in press), that is reflection on experience that results in knowledge construction. Reflection was thus defined as a process for turning experience into knowledge about practice and improving it (McAlpine & Weston, 2000). Knowledge here is not understood as universal truths but as "an individual's personal stock of information" (Alexander, Schallert & Hare, 1991). It is what dietitians "bring to their work and their understanding of it" (Fenstermacher, 1994). By the same token, improvement to practice relates to changes made by dietitians without consideration of its merits. Still, these changes are considered improvements in that the intent of the practitioner may be assumed to be the advancement of her practice.

Specifically, this study explored 1) the process through which dietitians reflect on their practice in community-based prenatal nutrition, 2) the outcomes of dietitians' reflection and, 3) conditions conducive to dietitians' reflection. **Process**, or the first research question, referred to how a participant constructed knowledge about practice and improved it from experience. Specifically, it involved her thoughts, decisions, actions and emotions and their progression over time. **Outcome**, the second research question, referred to either an impact on practice or knowledge. As Boud (2001) pointed out, changes might not always be observable or overt. For example, a dietitian might decide not to press for nutritional behaviour change with a client who has already made other important changes to her lifestyle. Outcomes explored in this study had to do with

the kinds of knowledge constructed and the kinds of changes made to practice. **Condition**, the third and final research question, referred to any factor that may influence a participant's construction of knowledge or improvement of practice from experience.

Based on the definition of reflection and the review of the literature, interview questions invited participants to recall and relate a time when they experienced something uncertain, puzzling, surprising or satisfying, an experience in which learning about prenatal nutrition occurred or an experience that had an impact on their thinking or approach. Probing and prompting questions were then used to help participants reconstruct the circumstances leading up to the experience and what happened in as much detail as possible. The goal of data collection was to obtain a minimum of three experiences and their detailed circumstances and outcomes. In most cases, at least three experiences or instances of learning from experience could be drawn from the interview. Results are presented next according to the two main phases of data analysis: first, identification and comparison of concepts within participants and second, comparison of concepts between participants and identification of categories.

## Phase One : Results Within Participants

In phase one, data analysis focused on single participants. Therefore, results are outlined first for each individual participant: Eve, Annie, Zoe, Sara, Marie and Eliza[1]. This includes a **profile** consisting of general information on the participant's education, professional background, and work responsibilities. This information is offered only to acquaint the reader with the professionals behind the stories. As part of this profile, two **exemplars** drawn from the interview are provided. The exemplars are submitted as

[1] To facilitate reading yet protect participants' anonymity, pseudonyms are used.

glimpses into the content and range of the data collected since they represent analytical categories. In addition, examplars provide a context for data interpretation using the voice of participants. Verbatims are indispensable to appreciate the words, hesitations, reiterations and nuances which are central to the data interpretation. Participants are introduced in the order they were interviewed. Quotes and excerpts drawn from transcripts of interviews done in French are my translation.

Following this profile, **data interpretation** is presented in relation to the three research questions. Data interpretation officially began with open coding which led to the identification of **linguistic markers**. Consequently, a presentation of these markers opens the data interpretation section. These markers, either words or group of words, served as points of departure to identify an experience and concepts related to **process**, **outcome** and **condition**. For each participant, a table shows some of the markers found in the data. Each table is organized in a similar manner. Rows represent the thrust of the interview, that is, collecting examples of incidents or experiences (first row), and the research questions on process (second row), outcome (third row) and condition (fourth row.) **Experience markers** included any words indicating an encounter with actual practical situations, either noteworthy in some way or commonplace, that had an impact on a dietitian's knowledge or practice (e.g. "Another thing that really changed me..."). Any statement indicating the participant was about to illustrate a point with an example (e.g. "Like I remember...") or any general references to day-to-day practice events ("I've even been in situations where...") were considered markers of experiences. Similarly, statements indicating areas of concern to the participant (e.g. "For me that's a big problem...) or statements made in response to an interview question inviting an example of an experience were used to mark experience. **Process markers** included any statement referring to how a participant constructed knowledge from experience or

improved practice, particularly her actions, thoughts or emotions and their progression over time. Words or statements like "then I", "at that point I", "by that point I" and "all of a sudden you" indicated process. Any statement relating to what a participant did, thought, felt, does, thinks, feels and will do, that was imbedded in the description of an experience or following it, was coded as a process statement (e.g. "I didn't make a big issue of it.") In addition, statements indicating how knowledge construction from experience was achieved (e.g. "It stayed with me...") were considered process markers. **Outcome markers** were drawn from statements indicative of an impact on knowledge or an impact on practice. Statements indicating an impact on practice were usually effects on intervention (e.g. "I don't see clients anymore."), while learning statements (e.g. "I'm starting to catch on...") suggested knowledge construction. **Condition markers** included any statement alluding to factors that might influence reflection (e.g. "working with the people made the difference".) These factors either hindered or facilitated reflection, or they contributed to it in some way.

The next step in data analysis involved using these linguistic markers to derive concepts from the data. Concepts were then compared and similar concepts were grouped and labeled. Concepts from an experience and across experiences which represented reflection for a participant are presented by research question and denoted by the headings **process, outcome** and **condition**. Narratives or quotes are used to support concepts drawn from participant data. The data interpretation section for each participant closes with a table summarizing the concepts obtained. It should be noted that, whenever a term used by participants was descriptive enough, it served to label a concept. That is why labels of concepts among participants' differ despite similar definitions. These apparent differences were sorted out in the second phase of analysis.

*Eve : Profile*

Eve has been a dietitian for twenty-one years. She has worked in clinical nutrition, teaching, private practice. She moved to prenatal nutrition about seven years ago. As CPNP project dietitian, she was responsible for "provid[ing] whatever women need in terms of resources and supports and education...that will help people be better nourished (p. 2)." Her day-to-day activities included tasks as varied as home visits, group sessions, hands-on, or organizing a breastfeeding awareness week. Eve discussed day-to-day experiences and incidents that had an impact on her knowledge and practice. As well, she discussed how her approach changed over the years.

Following are two exemplars drawn from her transcripts. The first one is interesting because it begins with a broad description of her day-to-day experiences interacting with clients. This exemplar suggests the accumulation of routine experiences as an important part of her process of knowledge construction. It ends, however, with a specific experience which illustrates in more detail processes and outcomes. Changed expectations was an outcome of these experiences. The second exemplar focuses on Eve's work experience in community organizations. Through her observation and her analysis, through her contacts with colleagues, Eve realized the importance of working collaboratively with different community organizations. Her goal, doing the best for her clients, provided a framework for her thinking. This second exemplar also highlights how experiences build up over time to affect knowledge and practice.

EXEMPLAR I : 'Never knowing what to expect'

I don't really have expectations. [Laughs] That is really true! Because I...never know what to expect. I've learned that too I guess. Before I would expect that they were coming and they would want to have certain information and that they would want to hear everything that I had to say.... But I don't have those expectations anymore. If I really wanted to have expectations, then I would expect that they are coming to the program because they want to have a healthy baby. They want to be good parents. ... And that everyone has insecurities or questions about pregnancy and parenting. And what I might have thought before might not ((be)) important. For an individual, it might be the opposite of what I might have expected. ...Now when I go to meet someone, I do not have expectations because it never ceases to amaze me the situations that someone may be in... I might get a call from a girl you would think would just be average, going along smooth kind of person and you get there and you just find that everything in her life is upside down and around and sideways. Then, there may be another person ((that calls and)) you're thinking, "Wow! ((This is)) probably a really high need situation." Or, "This girl, there's no way she's ever going to make it." And they would turn out to be the best parent and the ones to do everything right during their pregnancy in terms of health related issues. Yeah, I don't have expectations anymore. [Laughs] I've seen teenagers that were 14, 15, actually turn into great little parents and you would expect that maybe they weren't. And they might be the ones who've chosen to breastfeed. They may be the best in terms of nutrition... They may be the ones who participate the most in groups and who help others the most and who get more out of the project. Whereas I may have someone else that I would think would be that way and would be completely (( )) the other way around. I'll give you an example. I had a little girl. She's probably one of the first people I ever saw. I can still remember to this day being at her place and she was there with her mother. She was just a teenager. A lot of issues...Would come to the program, be picking up things kind of slowly. You'd think, 'Gee. We didn't see a lot of change or progress for all the information we offered and all the help and everything. Lo and behold, the third pregnancy she decided to breastfeed. ... You just never know. (p. 12)[2]

[2] Excerpts were edited for ease of reading. Double parentheses indicate faint or inaudible words; ellipsis indicate a pause or omission of words immaterial to the experience; underlined words indicate emphasis put on that word by the speaker; brackets indicate words added for clarity.

EXEMPLAR II : 'Being part of the larger community'

The dietitian has to be prepared to work as part of a team to develop strategies to address the needs of the community served. So you cannot work in isolation. I think this is the one thing that again opened my eyes up about this kind of work, is recognizing how important it was to be part of the larger community as a whole so that you're able to do the best for people that you can do. So I think the team work part is really important. ... I'm sure there are incidents that have been...particularly... Yeah, particularly significant in [learning that.] But really it is, I mean part of it is over time. And it is working with the people that made the difference. Being around other people who knew more about it than I did.., If I've seen them being really effective in a certain situation, I'm thinking, 'What was in play there? How come my approach wasn't as effective?' (p. 7-8)

*Eve : Data Interpretation*

Among the linguistics markers (Table 6) that guided the interpretation of the data from Eve's interview were words that provided indication of an experience or incident. Two such markers found in Eve's interview included "I'll give you an example" and "this one situation." Words or groups of words referring to her thoughts, decisions, actions and emotions and their progression in time marked process. Such markers included "in a much different way than I would have twenty years ago", "back then I", "now I", "when I was originally hired", "when I first started here", "never really knew when I applied for this job", "before I" and "I don't...anymore." Other linguistic markers referred to outcome. For example, Eve talked about "recognizing", "have come to realize", "opened my eyes up", "learn", "starting to catch on", and "where there were learnings." Impact on practice was also evident from markers such as "I moved in a different direction", "I started involving", "what I do now", and "looking for more ways." Any words indicating a factor influencing reflection were considered as condition markers. For example, "working with people made the difference" was a condition marker.

Table 6 Linguistic markers from Eve's interview

| Category | Examples of markers |
|---|---|
| Experience, incident | "I'll give you an example"<br>"this one situation" |
| Process | "in a much different way than I would have<br>twenty years ago"<br>"back then I"<br>"now I"<br>"when I was originally hired"<br>"when I first started here"<br>"never really knew when I applied for this job"<br>"before I"<br>"I don't...anymore." |
| Outcome | "recognizing"<br>"I have come to realize"<br>"It opened my eyes up"<br>"I learn"<br>"I'm starting to catch on"<br>"where there were learnings"<br>"I moved in a different direction"<br>"I started involving"<br>"what I do now"<br>"I'm looking for more ways." |
| Condition | "CPNP itself has evolved"<br>"working with the people made the difference"<br>"I just learned from their perspective" |

*Process* This section focuses on Eve's thoughts, decisions, actions and emotions as well as how they progressed over time and culminated with knowledge construction or improvement to practice. The interpretation of Eve's interview transcripts suggested seven process concepts. First, Eve indicated a few times how her learning did not really stem from one particular experience or incident. Rather, her learning resulted from the accumulation of routine, day-to-day experiences dealing with project clients and project

issues. Using one of her expressions, this first concept was labeled **see it happen time and time again**. Although at times Eve related knowledge developed to a specific experience, it was more as one among many examples. There were a few statements that suggested this concept. When asked, at different points in the interview, if she could trace knowledge learned from experience to an incident, Eve had these replies:

> This is where it gets tricky for me because I'm sure there are incidents that have been...particularly...uh,... Yeah, particularly significant in that. But really it is, I mean part of it is over time. (p. 8)
>
> That's where you see in seven years that some things we've done or some things we've hooked them [clients] up with or over time has changed they way they think about things. (p. 12)
>
> And that's where people who haven't been in the position very long would maybe not yet have recognized some of those things because they won't have seen- (p. 19)
>
> It would go in stages. (p. 19)
>
> It was just sort of gradual. (p. 20)
>
> So there was a point there when that changed. But I don't think there was a specific incident that I could relate to that, would say, 'Wow. I have had a revelation or anything. It just happened over time. (p. 21)

Other expressions in Eve's speech indicated a lumping together of experiences. This too suggests how her learning from professional experiences resulted from an accumulation of experiences. For example, she made frequent general references to cases:

> It never ceases to amaze me the situations that someone may be in... I might get a call from a girl who... And then there might be another person... (p. 11)
>
> I've seen teenagers that...whereas I may have someone else... (p. 11)
>
> I've seen it happen time and time again... (p. 12)

> To me she was...one of the people where there were learnings about... (p. 19)

These excerpts suggested that several experiences contributed to Eve's growing knowledge about specific areas of her practice. However, each experience in itself was not as important as their accumulation. The accumulation of experiences allowed her to discover emerging patterns. Or as Eve would say, to recognize some of those things.

The second process concept was **experience something important yourself**. This concept refers to emotionally charged experiences Eve had and their contribution to knowledge construction and improvement of practice. Although she did not share a clearly emotional experience during the interview, Eve confirmed in the follow-up that she had had such experiences. In fact, she stated remembering both positive and negative experiences which had an impact on her thinking and practice.

> [Tape cut] – with her and I see that there's no food in the entire place and she's very alone and isolated and has no resources. [Clears throat] Some of those things impact on me. And I remember them. Like there're instances over the last ten years that I can say I remember specifically. Or I've walked into an apartment, that was so full of garbage and dirty diapers. And so terribly, terribly dirty. That impacts on me. I haven't forgotten those things. So that would have an impact on my work and how I think about how to work with people, how to deal with things. (p. 26)

The third process concept was **pick up cues**, again a term used by Eve herself. While discussing her learning, Eve referred several times to observations she made. She took note of colleagues' actions, clients' reactions and their comments or questions. Eve also monitored the progress made by her clients. She noted changes they had made to their lifestyles. For example, she said:

> If I've seen them [colleagues] being really effective... (p. 8)

> And just listening to people. And watching people's reactions to different things... (p. (9)

> So I guess listening to some of these people too... (p. 9-10)
>
> You have to be a good listener and be able to pick up on the strengths and the things that people might be good at or interested in... (p. 11-12)
>
> Just by talking to them you can tell. After a while you start to pick up ((new)) cues. They may ask questions or... (p. 13)
>
> For me that was like, 'Gosh, this girl wasn't even going to breastfeed seven months ago. And she's actually going to plan to breastfeed that long.' (p. 17)
>
> When you see the change happening in someone... (p. 19)

A fourth concept in Eve's reflection process was **evaluate**. Once she picked up cues, Eve often evaluated them. She made value judgments about an approach or a strategy, assessed their effectiveness. Or, she referred to assessing clients' needs, strengths, participation or progress. As well, evaluation surfaced in statements referring to her constant checking on what worked well or what did not work well for clients. This appeared to be an integral part of her practice.

> Being around people who knew more than I did... If I've seen them being really effective... (p. 8)
>
> My peer facilitator was one of my most effective vehicles... (p. 20)
>
> Gee, they seem to be getting more response and more positive feedback. (p. 9)
>
> And you'd think, '((We)) didn't see a lot of change or progress...' (p. 12)
>
> She's [a client] come such a long way... (p. 17)
>
> She [a client] was always interested and concerned, always participated but struggled a lot with her own abilities... (p. 18)
>
> But I think the change, the impetus for change is mostly recognizing what works well and what people [need]. (p. 4)

Closely linked to picking up cues and evaluation was another mental activity, **analyze**. This became the fifth process concept. Once information was collected and evaluated, Eve then proceeded to analyze an experience. It was at that point that she raised questions, considered different perspectives or examined relevant factors.

> Well, what was in play here. How come my approach wasn't as effective? (p. 8)
>
> So I think I just learned from their perspective which is on one side and then you see ((the other)), the other side... (p. 9-10)
>
> ((We)) didn't see a lot of change or progress for all the information we offered and all the help and everything. (p. 12)
>
> [Peer facilitator is effective] because she relates on an equal level to people. (p. 19-20)
>
> And really seeing that...from a dietitian's perspective, I had an opportunity to share a lot of really good information with them and answer some of their questions and address some of their concerns. (p. 22)

**Put together**, again a term used by Eve, was the sixth concept emerging from her interview transcripts. It referred to Eve's synthesis of what she listened, observed, evaluated and analyzed. It was at that point that Eve came to a conclusion about issues or made decisions. Synthesis was the culmination of reflection where knowledge construction or improvement to practice became evident. For example, Eve said:

> So I think the team work part is really important. (p. 7)
>
> I think that's the role of the community-based organization... (p. 8)
>
> ...You put them [different perspectives] together. Me I think a nice blend in the middle is going to serve the needs of everyone best. (p. 9-10)
>
> To me she was...one of the people where there were learnings about how long it takes and how important it is to

> keep hammering the messages home in a variety of different ways... (p. 19)
>
> I started involving her more. (p. 20)

Words used by Eve to describe these four concepts (pick up cues, evaluate, analyze and put together) suggested an affective as well as a cognitive response to events. Eve was aware of and attentive to cues and valued what the information they could convey to her. She was interested in others' ideas as well as in her clients' reactions. Her values guided what she chose to examine and how she approached comparing different perspectives. Finally, her synthesis included the development or confirmation of values and, ultimately, led to changes in practice.

The seventh process concept was **verify**. Eve sought the perspective of a colleague regarding a peer facilitator. In this case, the colleague's point of view served to validate her own recognition of the value of peer facilitator.

> [My colleague and I] both kind of recognized that [the peer facilitator] was exceptional. (p. 20)

*Outcome* This section focuses either on impacts on Eve's practice or on her learning (knowledge construction.) Outcome also included references to an intention to change something to her practice. These were grouped under seven main concepts. Implied in changes in Eve's approach was her growing **knowledge of clients**, the first outcome concept. Dealing with women and families facing difficult socio-economic conditions made her realize that nutrition was but one issue in their lives. An issue that at times seemed trivial compared to the other issues facing these women. As she said:

> Because I work with low-income families or high risk pregnancies or whatever it might be. So they might be at risk for various reasons. It could be an abusive situation, (( )) it could be no money or they could be...undergoing so many other problems in the family. That talking about healthy eating is really the last thing on their mind. Until you can help them with some of those issues, it's really hard

> to do a lot in terms of providing ((more)) nutrition counselling per se. (p. 3)

Eve learned to expect the unexpected in terms of the kinds of situations her clients might be in. Still, she felt clients want to be good parents. That was another indication of the construction of knowledge of clients.

> Now when I go to meet someone I don't have any expectations. Because it never ceases to amaze me the situations that someone may be in... And everyone's situation is so different. (p. 11)

Knowledge of clients involved familiarity with their situations, the issues they faced and an understanding of their needs and characteristics. This knowledge was as much about being acquainted with individuals as with the clientele.

A second concept was **affective knowledge**. Eve's growing appreciation for her clients' various situations underlied other changes in her knowledge and practice. For example, Eve's discussion of how she changed her approach to nutrition counselling as well as her criteria to determine effectiveness, suggested a change in attitude. As well, some of her experiences affected her professional satisfaction, her sense of being able to help. For example, she said:

> When you see the change happening in someone, it affirms that the work that you're doing is good and you're pulling everything that you can into play. (p. 19)

In the follow-up interview, Eve confirmed how some experiences, particularly personal experiences, had an impact on her affectively.

> It [personal experience] certainly makes me more caring and understanding, and knowing what...is involved for people to be able to make changes. (p. 27)

The third concept, best captured by Eve's words, was **knowing how to do the work**. This concept referred to changes that occurred over the years in the way Eve approached nutrition counselling and education, particularly with the clientele she now

served. It included changes to how she conducted an assessment, what she focused on and how she helped clients identify and achieve their goals. It related to her perception of her role and her goals. For example, Eve adapted her intervention to each individual case as opposed to following a more text-book approach, even if that meant not discussing nutrition.

> As the dietitian, I'm looking to do an assessment but in a much different way than I would have 20 years ago. Back then, I would begin by using the traditional methods. Collecting information, asking a lot of questions and coming up with a plan. ... I would have done all those appropriate things. ... Now, it's just pretty much the opposite. My first role is to get to know the person as a person and what's going on in their life. And to find out where they're coming from and then I'm going to decide what are the issues that are affecting, ultimately are affecting their nutrition and their family's nutrition... I'm working to indirectly try to help identify with a family or with a woman just what it is that she needs to move things forward. Because I work with low-income families or high-risk pregnancies... Talking about healthy eating is really the last thing on their mind. (p. 2-3)

> I went to see a gal the other day...she... When I went in the door, there's somebody passed out on the couch who'd been out partying all night. The girl is so worked up about a number of things to do with her boyfriend... All kinds of other issues. ... I mean there's just no way. You couldn't do, you couldn't go near any, anywhere near trying to- Years ago I would have tried to ((haul)) it out. I would have thought, 'I have to get this done.' But I sat there, I didn't even open my, I didn't even want to open my papers. Because she was just wanting to talk. (p. 13)

Knowing how to do the work also involved recognizing people's strengths and needs. It meant helping them identify what they could and wanted to achieve in terms of nutrition and assisting them along the way. Strategically, it meant repeating the message in various ways.

> [You have to] be able to pick up on the strengths and the things that people might be good at or interested in or that they might be able to access on their own. To be able to

> identify that so they can...((you can find those)) to help them move forward. (p. 11-12)
>
> I think too, as dietitians, we have to really be aware of the fact that there's so many other issues like...that may take a long while to deal with and come to the forefront ((with them)) that is all affecting how we think about care as well. (p. 11)
>
> ...How important it is to keep hammering the messages home in a variety of different ways so that it's coming to them [clients] from many different people consistently- And in many different forms. (p. 19)

The fourth outcome concept that emerged, again using Eve's words, was **doing the best you can do**. It was closely related to the first one. This concept referred to a change in the criteria used by Eve to evaluate the effectiveness of her interventions and the progress of her clients. It involved being aware of limitations on her practice due to clients' social, cultural and economic circumstances in addition to their willingness and ability to make changes. Going over her responsibilities, Eve made these remarks:

> My standards for success are much lower than what they were for that woman depending on what's going on in terms of nutrition. That may be the only thing that happens for her, that she does drink four glasses of milk. She may not want to eat spinach and- [Laughs] I don't know, all the other things that sometimes people think ((we)) try to- Or maybe if you can help them to have enough money to buy the very basic amount of food so that they're not going hungry, then you're doing the best that you can do. (p. 3)
>
> I think we have to be cognizant of the fact that, as professionals we have that obligation to do the best that we can do, at the same time realizing that we have to let go of the idea that everyone has to be or is going to fit and be perfect (( )). (p. 7)

Doing the best that you can do also involved modifying goals. As a result of her experiences, Eve modified her goals, or what she hoped to achieve with clients, as evidenced by these two excerpts:

> Sometimes it takes a while. It takes a while for people. To motivate or to assist people with making change it takes a long time. I guess that's one of my expectations...changes are going to take a long time. And it might not be with the first pregnancy. It might be the second or the third. (p. 12)

> Because this work can be discouraging at times. When things don't go well or people aren't maybe responding. Or making changes. And sometimes it's easy to give up on people because it's like...But then ((we)) remind ourselves that sometimes it takes a long time. We have to keep trying, we have to keep doing the best that ((we)) can do. (p. 19)

Consequently, Eve set her sights on long-term behaviour change. Eve illustrated that outcome with an example from her practice in which a young pregnant teenager adamantly refused to breastfeed. Finally, on her third pregnancy, this young mum finally relented. She breastfed her baby and even became an advocate on behalf of the project. Changing her criteria for success and her expectations, and being aware of clients' situations and the limitations it imposed on her work, resulted in a change of goal for Eve.

A fifth outcome concept brought up by Eve was **understanding the dynamics of community-based work**. When she came to work at the family resource centre, Eve had no previous experience in community-based organizations. Her experience there developed her understanding of community organizations and their approach. To enhance the effectiveness of her interventions, Eve learned about various organizations and to collaborate with them as needed. She also made a point to find out what resources were available in the community. As she explained:

> I think this is one thing that again opened my eyes up about this kind of work is recognizing how important it was to be a part of the larger community as a whole so that you're able to do the best for people that you can do. (p. 7)

Understanding community-based work helped Eve to better achieve her goal of helping clients make changes.

The sixth outcome concept was **effectiveness of peer facilitator**. This learning came from Eve's collaboration with a young mother. A former project client, this woman facilitated sessions along with Eve. Through this collaboration, Eve not only realized how valuable this particular person was, but also how effective a peer facilitator could be.

> I know there was a time when I kind of really came to recognize that my peer facilitator was one of my most effective vehicles for getting information across... So I guess working, you know, learning to let go and working ((through her.)) (p. 19-20)

In turn, this realization affected her practice. It led Eve to make two changes. First, Eve explained how she increased her peer facilitator's interventions. It also led her to look for learning opportunities for the peer facilitator herself.

> So then I moved in a different direction. I started involving her more and more as a facilitator. ...So what I do now is provide a lot of training for her. In a lot of ways. ... (p. 20)

Second, Eve reported looking for opportunities for clients. Two experiences contributed to Eve's determination to involve more clients in project initiatives as learning opportunities. One was the experience working with a former client who acted as a peer facilitator. Another experience was hiring young clients to work on a summer project. These two experiences had positive outcomes because, according to Eve, it developed these clients' understanding of nutrition and child care.

> Like that would be an incident too, this summer. Working with those students and really seeing that...from a dietitian's perspective I had an opportunity to share a lot of really good information with them and answer some of their questions and address some of their concerns that'll help them be better parents and nourish their family. ... I'll certainly be looking for more ways to involve [people]. (p. 22)

Other types of changes made to practice included decisions to just talk to a mother about her concerns instead of trying to go through a nutritional assessment, persevering in

giving information on breastfeeding or in answering a client's questions. These changes were more minor than changes described above and which involved a change of direction. Overall, Eve's expereriences led to two types of changes to practice which were best captured by a seventh concept labelled **adjust strategy/change practice**. Adjust strategy referred to minor changes while change practice referred to major changes.

*Condition* This section focuses on factors that influenced Eve's reflection. There were three such factors. A first factor that emerged was **colleagues**. During the course of the interview Eve referred to colleagues in relation to what she had learned. In one particular reference, she spoke of learning from observing experienced colleagues. In another reference, Eve mentioned learning about the dynamics of community-based work. Colleagues' actions and discourse contributed to her thinking. Colleagues offered different perspectives or different ways of doing things which, data suggested, fostered reflection. Here are two examples:

> And it is working with the people that made the difference. I'm sure being around other people who knew more about it than I did is what made the difference for me. Because I'm probably starting to catch on to how they're doing things. (p. 8)

> To be quite honest with you, there are a lot of people who really feel that professionals don't have any place in family resource...because the real grassroots people sometimes feel that we're too clinical still and we're too teachy and we're not going to...be able to understand the needs. ... So I guess listening to those people too, kind of- ... I think I just learned from their perspective... (p. 9-10)

A second factor influencing Eve's reflection was **context**. Program evaluation was one contextual factor. A mandatory requirement for funding of community-based projects by Health Canada is to carry out regular evaluations. As well, the project in which Eve operates collected information for its own benefit. These evaluations were a

source of information on what project clients needed, on what they liked and disliked. As she explored what was the impetus for change in her work, Eve referred to these evaluations. Another contextual factor was the evolution of the milieu. Issues about prenatal nutrition or community work arose and contributed to Eve's reflection. Similarly, changes in the organization, the community or CPNP itself occurred. For example, Eve's data suggested changes in CPNP contributed her thinking about practice.

> And I think CPNP itself has evolved from the beginning to what it is now. ... Which CPNP has and has grown with over two sets of evaluations. The evaluation tools that we use now ((look)) completely different than they did seven years ago because they're looking now to...evaluate what we have come to realize is actually the most important thing. (p. 3-4)

A third and last factor that influenced Eve's reflection related to becoming full time in her position. This third condition concept was **spending time actually at the centre**. More time involved in the work meant Eve was exposed to more experiences, more varying perspectives and focused more time to consider issues.

> And then I would say, two years ago, when I became full-time, I really started to see the whole picture. And up to that point, I had not really spent a lot of time actually here at the centre I was more on the road because, I only had two days a week, two and a half days or something. And all my time was spent just, doing the group. Yeah, doing the group every week and doing the home visits and doing the paperwork. And I really- I didn't really have as much time to get involved in the centre. So there was a point when I realized then, okay this is what this is all about and, the teamwork and, knowing that it wasn't just about going out and doing the assessment. (p. 21)

> That [negative experiences] would have an impact on my work and how I think about how to work with people, how to deal with things. But there's a lot of other positive things that also impact in the same way. ... There's a lot of positive experiences that I've experienced and it may have just been a letter from a participant, or it may have just been...a special moment that I spent with one of them, visiting them, that they've said something that might have made me realize the impact. ...So

> that influences how I do things. I think for me both of those drive what I do. ...And how I handle things. (Eve, p. 27)

To close interpretation of Eve's data, Table 7 summarizes the concepts drawn from her interviews.

Table 7. Concepts for Eve

| Process | Outcome | Condition |
|---|---|---|
| •see it happen time and time again<br>•experience something important<br>•pick up cues<br>•evaluate<br>•analyze<br>•put together<br>•verify | •knowledge of clients<br>•affective knowledge<br>•knowing how to do the work<br>•doing the best you can do<br>•understanding the dynamics of community-based work<br>•effectiveness of peer facilitator<br>•adjust strategy / change practice | •emotions<br>•colleagues<br>•context<br>•spending time actually at the centre |

*Annie : Profile*

At the time of the interview, Annie had twelve years of professional experience. She worked as a clinical dietitian and as a community nutritionist. Annie also held a masters degree in community nutrition. Five years ago, she joined a CPNP project. Her work responsibilities included facilitating two weekly group meetings, program planning and evaluation.

When contacted to participate in the study, Annie initially expressed reservations. She worried that she could not contribute much because, as she explained, she had learned nothing from her experiences. If anything, she added, her experiences only reinforced her thinking. Still, she agreed to meet to discuss her thinking about prenatal nutrition. The first exemplar drawn from Annie's interview transcripts features a client interaction. It shows Annie monitoring her actions in relation to a key project goal.

EXEMPLAR I : 'Bad, bad, bad thing to say.'

Now I can remember saying to one girl one time - She was pregnant and not a terrific student, not liking school very much to begin with. And she said: 'I'm not going back next September.' 'Oh, really? Why?' 'Well, the halls are awfully crowded and I'm sure somebody's going to elbow me in the belly.' And I - ... I could kill my - [Laughs] I could kick myself for saying it! But I said: 'Oh! Come on!' And then I thought: 'Oh! Bad, bad, bad thing to say.' There would have been a hundred better ways to say something that was supportive of her, maybe had her rethink her thoughts about school while she's pregnant. I did that one wrong. ... I felt pretty crummy about it. ... And it's something we kind of pride ourselves on in this program being able to...talk with parents about the things they want to talk about. ... Since it's something that is pretty central to the way we figure we do things, it would have hit me pretty hard that that was not well done. ... I would think I watched my comments. Try to remember to be positive, strength based after that. (p. 15-18)

The second exemplar drawn from Annie's transcripts features another client interaction. However, this is not an experience Annie had first hand. Rather, it is an anecdote told to her by a resource mother. Interestingly, Annie chose it as an illustration of an experience that had an impact on her thinking. In this case, it reinforced her commitment to incorporating skill building into project activities.

EXEMPLAR II: 'I know it a whole lot more now'

Like one ((little)) anecdote that I noted down after reading one of those big questions. ... But it's so illustrative that- The resource mum took the same girl... to the grocery store. Her iron was low. And [the resource mum] said, "Let's go down to the grocery store and pick up a couple of things." The girl looked around and she said, "We should go to the soup aisle." [The resource mum] said, 'You want to go to the soup aisle? Sure. Why?" "The dietitian told me I should have more cream of wheat." She had no idea that cream of wheat wasn't a soup like cream of, everything else. It's cereal. So I think we make assumptions when we sit and say, "Here are some iron containing foods blah, blah, blah." If people don't have the ability to buy those things or cook those things or know what they are or put them into their pattern of eating, then we are no more doing a favour than giving a blind person a book. ... So that's why I think it's so important to me to try to get the doing stuff into the program more. ... [That occurred to me] a long time ago. Probably when I was on internship ((probably.)) [Silence] But I know it a whole lot more now than I ever did then.
(p. 28-30)

*Annie : Data interpretation*

Among the linguistics markers (Table 8) that guided the interpretation of the data from Annie's interview were words indicating the introduction of a specific experience or situation. Several such markers were found in Annie's interview: "I remember", "I sometimes wonder", "One little anecdote that I noted down", and "I can remember saying to one girl one time." Process markers, or words or groups of words referring to a progression in time of her thoughts, decisions, actions and feelings, included such examples as "after four years I", "since I started this job", "afterwards I", "as soon as I", "then I",

Table 8. Linguistic markers from Annie's interview

| Category | Examples of markers |
|---|---|
| Experience, incident | "I sometimes wonder"<br>"One little anecdote that I noted down"<br>"I can remember saying to one girl one time" |
| Process | "after four years I"<br>"since I started this job I"<br>"afterwards I"<br>"as soon as I"<br>"then I"<br>"after that I"<br>"more now…than" |
| Outcome | "knowing"<br>"learned"<br>"it teaches you"<br>"it reminds you"<br>"I watched my words"<br>"I slip the message"<br>"Id really like to see" |
| Condition | "When I do the [evaluation] with people"<br>"Maybe I wasn't ready to look at…in that way"<br>"Another good thing it to have students come to you…Or to have people…" |

"after that I", and "more now...than." Other linguistic markers referred to outcome, learning or knowledge construction. For example, Annie talked about "knowing", "learned", "it teaches you", and "it reminds you." Impact on practice was also evident from markers such as "I watched my words", "I ask", "I slip the message", and "I'd really like to see." Finally, condition markers included words that pointed to factors influencing reflection as seen in the table below.

*Process* When it comes to process, nine concepts emerged from Annie's interview. The first concept was **gain a body of experience**, as Annie referred to it. Annie generally related the impact on her knowledge and practice to vague experiences. These experiences tended to be routine. It involved professional acts, such as facilitating weekly group sessions and interacting with project clients, which she performed one day to the next. For example, when discussing her group sessions and what she learned from them she said:

> And having done this job for over four years, I've heard those sessions a lot. (p. 12)
>
> I've heard other people say... (p. 13)
>
> I remember saying some things and afterwards just shaking my head thinking... (p. 17)
>
> I can remember times when I said things... (p. 17)

In the follow-up interview, Annie suggested:

> But maybe the less obvious things or less impactful things, maybe there does need to be sort of a whole body of experiences before you really start to see the...the pattern... (p. 1)

Seeing a pattern may be a mechanism through which she constructed knowledge about practice from these routine experiences.

The second process concept was **experience something important yourself**. This concept refers to emotionally charged experiences Annie had and their contribution to knowledge construction and improvement of practice. Annie confirmed in the follow-up that she had had such experiences.

Third, Annie's reconstruction of experiences included references to observations she had made, to things she had heard or said. Annie's examples also implied she regularly monitored project clients' actions, participation or their progress. Using one of Annie's terms, this second concept was labeled **come into contact**. For example, while discussing the facilitation of weekly group sessions or clients interactions, Annie mentioned the following:

> And I've heard other people say... (p. 13)
>
> I do try to look around and check and see, are people falling asleep, are there little side discussions happening... If I see furrowed brows...if she's not asking the question... (p. 13-14)
>
> Reading the comfort level of people... shifting in their seats, paying attention or not...side conversations... (p. 15)
>
> I remember saying some things and afterwards just shaking my head thinking... (p. 17)
>
> She was pregnant, not having, not a terrific student, not liking school very much to begin with. And she said, 'I'm not going to...' (p. 17)
>
> When I do the ICQs with people, there are questions in it about, 'Have you changed your...' And people will say, ... So I hear it from them. (p. 22)
>
> The programs I came into contact with probably started the wheels turning. (p. 29)

Another aspect of Annie's process of reflection, and the fourth concept, was **evaluate**. Several evaluative statements could be found in her description of experiences leading to learning. Annie took notice of what project clients said or did;

she assessed her own actions; she made value judgments about educational strategies and messages. These evaluations were often done in relation to her goal.

> I can remember times when I said things that I think, 'That's just not a strength at all.' (p. 17)
>
> I could kick myself for saying it. But I said, 'Oh, come on!' And then I thought, ' Oh, bad, bad thing to say.' (p. 17)
>
> People like the way we do things. They feel valued. That's pretty big stuff. (p. 23)
>
> I think we make assumptions when we sit and say... (p. 28)

These evaluations led Annie to **analyze** the elements of an experience or issues arising from it. This was the fifth concept obtained from the data. During her analysis, Annie raised questions, went over what happened and compared personal experiences to what her clients might be experiencing. Part of Annie's analysis involved drawing on her knowledge of clients or of project goals. Annie pointed out how she often related some of her own personal experiences to what her clients experienced. For example, Annie linked her desire to be more physically active, and difficulties she encountered in doing so, to her clients' difficulties in trying to change their eating behaviours. Examples of analysis from experience recounted during the interview include:

> I have to really think, 'Is this going to be worthwhile? Or what tack can I take on this to make it relevant?'' (p. 15)
>
> Why did I ever say that? There would have been a hundred better ways to say something that was supportive of <u>her</u>... I just probably sounded like one more person saying the same things. (p. 17)
>
> And it's something we kind of pride ourselves on in this program... (p. 18)
>
> I sometimes wonder- I wonder, there are so many things going on in a person's life when they're pregnant... (p. 23)

> I just think so much of what we do in nutrition is telling people, educating and giving information. ... That's great except if you don't have the tools to put it into action, you just cram people's mind full of information. And frustrating them. ...Like me with my physical activity... (p. 27)

Following analysis, data suggest Annie put together information to reach a conclusion. It was also at that point that she committed to an action plan or generated solutions or plans to improve a situation or that she investigated a new approach. This sixth concept was labeled **synthesize**. For example:

> I know just how much learning can come out of some topics. (p. 12)
>
> I watched my comments...try to remember to be positive, strength based after that. (p. 18)
>
> I don't think it's unreasonable to think that in this mix of all the ways that people get information and support during their pregnancy, we are an important one. (p. 23)
>
> So that's why I think that it's so important to try to get the doing stuff into the program more. ... But it takes money...It's not just money resources either... (p. 28)

As well, this concept included affective learning which was manifested by adjusting attitudes, values and greater understanding for clients' situations.

Annie noted referring to colleagues to check her understanding of particular situations or to validate her emerging learning. Checking in with colleagues increased her confidence in her perceptions of an experience. It was both reassuring and encouraging. This seventh concept was labeled **verify**. She explained the role of colleagues in these ways:

> [Another project] coordinator in [town]...she's a dietitian as well...so we're both dietitians working in not completely-Well, quite untraditional dietitian kind of position. ... We confer on a lot of things. ... Just makes me feel more...confident in holding a particular belief or feeling a particular way about something. ... And it's very reassuring to be able to share those [frustrations] with

> someone. And have them say, 'I know what you mean' Or, 'I felt that way too.' Or even to tell you a whole other situation where she experienced similar feelings. (p. 8)

The eighth concept drawn from conversation with Annie was **revisit**. She brought up this point in the follow-up interview. She explained how she sometimes went back to an experience to re-examine it. As an example, she related an interaction she had with a cancer patient. For Annie, revisiting an experience could lead to knowledge construction because she saw the experience in light of subsequent experiences she had and the impact that they had on her.

> I didn't just re-look and re-look and re-look at that situation. But I re-looked at it as a slightly different person every time. With a whole other set of experiences that I was gaining too. (p. 2-3)

> But over time, I think it [an experience] comes back and you compare it to other things that have happened and you think about it- Maybe you've had experiences and then it fades away. And then it comes back again. (p. 7)

The last and ninth concept was **hang in my mind**. Following the description of an incident with a young girl, Annie stated how this incident stayed with her. Her reflection began with coming into contact with the client and continued past the next time she saw her again. In the follow-up interview, she elaborated on this. She explained that understanding gained from experience could be a lengthy process.

> You are describing a process here but I think understand is a...is a length- Or can be a lengthy process. So you understand to some degree during- Or maybe you don't [Chuckles] very well during the actual experience. But over time it comes back... And then it fades away. And then it comes back again. (p. 7)

*Outcome* In general terms, one outcome of Annie's experiences was the reinforcement of her prior knowledge. More specifically, outcome on Annie's knowledge and practice were grouped under six concepts. The first concept was **affective knowledge**. This

kind of knowledge included attitudes such as empathy, appreciations and values. This impact on her knowledge came through the initial interview and was later confirmed in the follow-up interview. Annie concurred that experiences, including personal experiences, had an impact on her affective knowledge. She felt this knowledge was key to her practice. Affective knowledge included her increased awareness, sensitivity and understanding of people.

> I had a greater understanding to draw on after I had been pregnant and could speak from my own experience. ... I think [a personal experience] certainly broadens your understanding of someone's...what they're going through.(p. 4)

> The bulk of what I've learned had far more to do with the affective learning. ... A good proportion of the knowledge that I gained working in the CPNP program would have to be in my attitudes towards the program participants and understanding what it must be like for them... It was far more important to be effective in this job to understand participants than it was to have the most absolutely up-to-date information regarding prenatal and postnatal nutrition and infant feeding. (p. 6)

A second concept refers to **facilitating and communication skills**. Annie stated having developed skills to facilitate group meetings and to interact with clients since taking up her position at the prenatal project. Among those skills were how to bring forth topics of discussion for project clients, how to change a plan on a moment's notice and how to answer questions and get a point across while maintaining a person's dignity and autonomy. Annie developed those skills partly by facilitating weekly group sessions, partly through her many interactions with individual clients.

> I learned a lot of skills... I learned to change [my] plan on a moment's notice. ... How to answer a question and get your point across even if that's not what the person wanted to know. ... Somehow saying it in a way that maintains their dignity and maintains their autonomy. (p. 15-16)

A third concept was labeled **knowledge of clients**. Annie got to know her clients, both individually and as a group. She gained a better understanding of their characteristics, their needs and their challenges. This was evident in the following excerpts:

> I know just how much learning can come out of some topics. (p. 12)
>
> I might say, 'What about...' knowing that there might be people in the room... (p. 13)
>
> Because in our group- we have a lot of very young people...probably not their usual thing to sit...when they're tired...they're new parents...when I know people are looking to me for cues about how to behave... (p. 13)
>
> I may know a little more about their lives... I know also that these people... (p. 14)
>
> [A good proportion of the knowledge that I gained] would have to be... understanding what they [clients] responded to and appreciated in our program. (p. 6)

**Skill building as an important strategy** was the fourth outcome concept to emerge from Annie's data interpretation. Annie reported having always felt strongly about the importance of integrating skill building into nutrition initiatives. She traced the emergence of this knowledge back to her graduate studies. During her studies, she came into contact with different programs and analyzed their content. This led her to recognize the value of skill building. Her experiences at the prenatal project reinforced the value of this approach. Here is how she expressed it:

> So that's why I think that's so important to me to try to get the doing stuff into the program. ... But I know it a whole lot more <u>now</u> than I ever did then. (p. 29)

The fifth outcome concept was **partnership approach**. Again, this knowledge was reinforced through her experiences with clients of the prenatal nutrition project. Annie's approach consisted of dealing as equals with project clients. In her words:

> [Working at the project really reinforced] The partnership kind of approach to supporting people. Instead of I'm the expert and I'm going to pass this on to you... Instead if we can come along side someone... (p. 30)

Sixth was a concept accounting for minor changes Annie made to her practice. It was labelled **adjust strategy**. For example, Annie described how she adjust her weekly group presentations to adapt to the groups' composition (which could change from week to week) or the clients' concerns.

*Condition* In Annie's case, data suggested four factors that influenced reflection. First, **program evaluations** stood out as a condition. Like other funded prenatal projects, the project in which Annie worked collected information from clients. The project also completed its own evaluation to find out what clients liked or did not like about the project. These evaluations provided a constant source of information which sometimes triggered Annie's reflection. For example:

> I sometimes wonder- [Silence] I wonder, there's so many things going on in a person's life... I try not to get too excited and take <u>all</u> the credit. For seeing some change. But I think it's... I don't think it's unreasonable to think that... ICQ is one type of evaluation but we also do evaluations that we initiate ourselves... And when we had...focus groups or interviews with people, they've told us things that really lead us to believe that... (p. 23)

A second factor that influenced her reflection was **colleagues**, including students. Through her contact with colleagues, Annie was confronted with different perspectives or ways of doing things. These contacts led her to question her practice. As well, she participated in the education of dietetics students. Students' presence fostered her reflection through the questions they asked. As she explained:

> Another good thing is to have students come to you because they're always asking, 'Why do you do that?' Well, [Laughs], 'Yeah, why do I? I don't know. [Laughs] Let me check that.' (p. 30)

Similarly, Annie's colleagues, particularly colleagues interested in improving their practice and doing their best for project clients, were a factor influencing her reflection. Colleagues motivated her to reflect. In her words:

> Or to have people that you work with that are like minded, that are also wanting to improve what they do, and do it better. And that encourages you to do the same thing. ... Actually, a lot of people [here] are like that. Very good at being a sounding board or- ((You know that they've got a)) commitment to doing things right for our clientele. So, just sort of create a little bit of a culture. Maybe of always trying to do it better, always learning...((always trying to improve what you do.)) (p. 30)

> And [it] makes me think of a staff member here... He's got a real interest in helping us as an organization [to] celebrate our success. ... He's going to ask us to share success stories. Because he, I think he's very concerned about this kind of thing... (p. 3)

The third condition concept was **emotions**. Emotions came through an incident recounted by Annie. Following an interaction with a client, Annie felt bad because of a comment she made. As a result of this emotion, Annie gave much thought to this experience.

> I felt crummy about it. And that would kind of hang in my mind next time we ran into each other. (p. 18)

> And really saying something not very respectful and kind of dumb! ((Really.)) Quite out of characteristic with, or out of character with the way we normally...work with people in the program. And maybe it's just because that one has just- ...stayed with me a long time. ... Emotion, for me at least, really helps sear something into my brain. (p. 1-2)

In the follow-up interview, Annie provided another example of the influence of emotions on her learning. As she recounted an intervention with a cancer patient, she stated:

> But when a real person that is grappling with her own mortality and is in pain and is missing her family and- All the emotions that go along with that. It's certainly much more of a- I learned a whole lot more there... (p. 2)

> I just don't think I'm in that mode of examining things that go well and kind of gleaning out the learnings from that. Tend to get stuck on the, 'That didn't work. What can I do better next time.' (Annie, p. 3)

The last and fourth concept was labeled **readiness**. While attempting to trace how she came to value skill building as an approach to client education, Annie noted that she might have been introduced to this idea early on in her career. But, she then added:

> I was probably getting this information but I wasn't in a place to understand it in that way. ... Maybe I just wasn't in the place. Maybe I wasn't ready to look at...nutrition and nutrition education in that way then. (p. 32)

Readiness would then refer to developmental constraints on her learning. Table 9 closes the interpretation of Annie's interview data by summarizing the concepts drawn from her interviews.

Table 9. Concepts for Annie

| Process | Outcome | Condition |
|---|---|---|
| •gain a body of experience<br>•experience something important yourself<br>•come into contact<br>•evaluate<br>•analyze<br>•synthesize<br>•verify<br>•revisit<br>•hang in my mind | •affective knowledge<br>•facilitating and communication skills<br>•knowledge of clients<br>•skill building as an important strategy<br>•partnership approach<br>•adjust strategy | •program evaluations<br>•colleagues<br>•emotions<br>•readiness |

*Zoe : Profile*

Zoe is a public health nutritionist with fourteen years of experience. She began her career in the hospital sector, working as both an administrative and clinical dietitian.

She also worked as a community dietitian. This work involved educating client groups such as teachers and consumers about healthy eating. After three years, Zoe decided to go back to university to obtain a master's degree in health sciences. She chose public health as her specialization. More specifically, she focused on issues related to family, early childhood and breastfeeding. As part of her program, she completed a practicum with a focus on breastfeeding promotion. She finally joined the public health unit in its family program. She has held this position for the past eight years. Her responsibilities have included counselling mums and facilitating group sessions. These responsibilities, however, are now in transition.

During the formal interview, Zoe spontaneously brought up examples of experiences that have had an impact on her thinking and practice. Two exemplars were selected from her interview transcripts. The first one relates to the premature birth of her daughter and its impact on her knowledge and practice. It brings up a personal experience and the role it played in her construction of knowledge about practice and her changes to practice. As well, it illustrates how two seemingly different experiences combined to impact on a specific area of knowledge and practice.

EXEMPLAR I : 'Experience something really important yourself'

I've trained in NCAST [an assessment tool of early feeding relationship and early teaching relationship.] ... And the reason I got interested in it is because I had a daughter who was born 12 weeks premature. So in the hospital they were using NCAST for trying to give parents guidance around feeding ((of preemies.)) I got interested in it and then when I came back, a couple of nurses and myself went to get trained ((about it)). So I've used that in my practice quite a bit. ... And it goes along with other things. So sort of you bring it all together. So Ellyn Satter's materials have been a big influence on the way I look at clients and in terms of counselling or providing them guidance. The NCAST in terms of observing feeding and giving parents cues around - Are they picking up on the child's cues? Are they giving good cues themselves? Are they doing other things besides just the feeding in terms of socialization, growth, fostering? Those kinds of things. So I use it, I use it every day. I use it on phone, I use it when I see clients, I use it when I talk to people, I use it when I give group presentations. It's been a big influence. ((NCAST has.)) It's stuff you already, always knew. But I guess at a point - I guess it's timing or whatever. You learn all these kinds of things in bits and pieces. And it sort of really comes about when you also, I think, experience something really important yourself. So having my eldest daughter be so premature and having all her experiences be not normal ... having it from the perspective of, 'Hey!, I have to think of this in terms of the outside as opposed to the norm.' It really gives you more sensitivity to wanting to really understand and to really help parents. Because then you start thinking, 'What really is normal.' [Chuckles] ... And at that point I was having kids. So it kind of all came together. I think that uh, facing some of the challenges personally as well as professionally ((helps you)) to help parents. I think adds a little broadness to the way you approach things. (p. 2-5)

The second exemplar drawn from Zoe's interview transcripts relates to a client interaction. It is an interesting instance of a noteworthy experience or an incident. In her account of the incident, Zoe vividly outlined her thoughts, feelings and actions over a period of time. It highlights the strong impact an experience can have on thinking and practice.

EXEMPLAR II : 'What is my job here?'

There's this one client that I had. She was young, a mother. She had one four year old son and she had just had a new baby. In between the new baby and the four year old son, she had given up two others for adoption. So basically she's had a baby every year. On social assistance, high ((need)), low education - All the determinants [of health] I just talked about. One of the things you're going into is knowing that you can't help her with a lot of this stuff. I remember I had mistakenly said 'Ok - ' Trying to connect her with community, social support. Our local grocery stores now offer community cooking sessions and that kind of stuff. I actually got it together, we arranged baby-sitting, organized all - And it was a total disaster. ... She was a black woman with white middle class people who didn't - It was just a bad connection. Instead of helping her, I probably hurt her. ... It made her feel worse about herself. ... She told me, ... I was self-blaming. That I was supposed to help and ... I was trying to help her and didn't have those skills; ... I thought I let her down." ... For me, what I observed, was again one more knock to her ability. I was sending her there to build capacity. ...But then what it did was just keep her down. - I felt inept at my professional judgment. I felt that things that I was trying to work at, wasn't going to work. And then, you also, 'Okay what do I do?' And I can remember thinking, 'Okay.' And you're always thinking, 'What is my job here? What is my job? I'm a nutritionist. What's my job?' [Laughs] 'I'm not a social worker. I'm not a case care worker. I'm not any of those things. And what is my job here with her?' And I'm thinking, 'Okay. Is my job here with her then? I have cooking skills. 'Do I cook with her?' I don't know. So you're always wondering. And you know that, what would help her, again, would be to get some education, get a job. Those are the kinds of things that are going to help her. In the long run. These are band aids. ... I felt I didn't want to work with this clientele anymore, because I didn't have the skills to help the mum. I thought, 'Okay. Now what's the best way to help? Is it to teach social workers about nutrition so that when they go in they have other skills and they can help?' Like I'm not sure as a front end person, you know. Who's the best person to ... interface with high need clients. And I don't have clients anymore. ... [My colleague has] developed all kinds of strategies ((around herself.)) But we don't have an organization structure to help me grow in that. So I'm not going to get that. So then, therefore where can I be beneficial and not cause any harm. That's what I felt. I caused some harm. And then, you also have to take in your own personal capacities. People have their different niches. Like for instance, I am more drawn to the questions around ... the research end or the policy end. So I'd rather use my skill set to build structures around policies and programming that will actually help the clienteles as opposed to being the implementer and actually working at that level. So then I learn something about myself too. Where are my skills and my attributes best suited. And I think that they're best suited not working directly with clients in that way, but more building capacities and building efficacy around policies that will help. So you learn about yourself. ... And I [realized] that I was going to burn out and I was going to get frustrated. And I soon recognized that the organization wasn't going to support me and help me in growing to learn those things. I see it with the nurses around. I had the autonomy to say, 'Okay. Where am I going to put my time?' (( And that's where I'm going to put my time.)) (p. 7-12)

*Zoe : Data interpretation*

Among the linguistic markers (Table 10) found in Zoe's interview some indicated an experience or an incident. These included "the reason I got interested in it is because", "have been a big influence", "one of the biggest learnings", "another experience, another 'aha' for me", "I'll give you an example", "I remember going" and "My other big experience and always struggle." Process was revealed through linguistic markers such as "then when I", "actually work with", "until you can view", "it makes you think", "I felt" and "I see it in." Outcome markers included "do you really get it", "I use it", "I talk about", "I don't have clients anymore", "I realized" and "on the way I look at." Condition was found, for example, in words like "you tend to dwell on."

*Process* There were eleven process concepts. The first one found in Zoe's interview transcripts was **learn in bits and pieces**. During the interview, she explained that she had to let go of her expectations. For example, she stopped thinking that she could make big differences with clients. Or, she did not think anymore that doing an in-service with nurses would be enough to affect how they give nutrition advice. When asked how she came to those conclusions, she said:

> So I think of my career- You learn all these kinds of things in bits and pieces. (p. 4)
>
> So you have those kinds of experiences, you make those kinds of mistakes. (p. 8)
>
> I guess with experience. Just doing different groups, working with different clients. When you go in and do something and you- I guess it's that, what worked well, what didn't work well. (p. 21)

Table 10. Linguistic markers from Zoe's interview

| Category | Examples of markers |
|---|---|
| Experience, incident | "the reason I got interested in it is becau<br>"have been a big influence"<br>"another experience, another 'aha' for n<br>"I'll give you an example"<br>"I remember going"<br>"My other big experience and always struggle" |
| Process | "then when I"<br>"actually work with"<br>"until you can view"<br>"it makes you think"<br>"I felt"<br>"I seen it in" |
| Outcome | "do you really get it"<br>"I use it"<br>"I don't have clients anymore"<br>"I realized"<br>"on the way I look at" |
| Condition | "We tend to doubt, dwell on those thing<br>make us guilty or make us feel bad"<br>"I probably thought about her more tha<br>client I've ever had" |

This suggested Zoe's knowledge partly developed by experiencing similar situations over and over again. Her knowledge construction was a cumulative process.

During the interview, Zoe recalled experiences that were very emotional for her, particularly her experience having a daughter born premature and her experience with a young black mother. She expressed this as **experience something important yourself** which became the second process concept. This concept referred to emotionally charged experiences or incidents.

In a similar vein, Zoe shared experiences that occurred in both her professional and her personal life. These experiences either took place somewhat simultaneously or at intervals. Interestingly, these experiences converged and resulted in one general impact on knowledge or practice. One experience added to another, even if these experiences were seemingly different. This concept was labeled, using Zoe's words, **bring experiences together**. Evidence of this aspect of the process was found in Zoe's data. Zoe shared a personal experience, having a baby born premature and then followed with a professional one, reading a book on feeding children. She concluded how both shaped her approach to counselling parents.

> And the reason I got interested in it [NCAST] is because I had a daughter who was born 12 weeks premature. So in the hospital they were using NCAST for trying to give parents guidance around feeding of preemies. ... So I've used that in my practice quite a bit. ... I would use the principles of it in terms of - And it goes along with other things. You know. So sort of you bring it all together. So Ellyn Satter's materials have been a big influence on the way I look at clients in terms of counselling or providing them guidance. The NCAST in terms of observing feeding and giving parents cues around (p. 3)

The fourth concept was **observe and listen**. Zoe, in describing her experiences, brought up information or evidence she collected. This information served to monitor clients' progress and actions. As well, information she gathered related to her own thinking, emotions and actions or to how colleagues managed. For example:

> So do you really then walk into a situation or client's home when they really don't have any abilities to cook... (p. 6)

> She [a client] told me. [that it made her feel worse about herself.] (p. 7)

> [My colleague] has developed all kinds of strategies ((around herself)). (p. 10)

> And I ((realized)) that I was going to burn out and I was going to get frustrated. ... I see it with the nurses around. (p. 11)
>
> And they told me that basically by the fact that they were chatting. ... they just cut me right off and took over the whole things. (p. 12)
>
> Like for instance, I had three calls last week...[clients] heard from they nurses... So the clients are hearing tons of different messages. (p. 25)

The fifth concept was **evaluate**. Many statements made by Zoe when reconstructing her experiences were evaluative in nature. In these statements, Zoe made value judgments about educational tools or strategies. She assessed her interventions, actions as well as her knowledge. For example:

> All those nice cliché things we say in terms of you get the nutrition ((on pamphlets.)) ...you see how ineffective those messages will and always will be... (p. 6)
>
> I had mistakenly said- (p. 7)
>
> And it was a total disaster. (p. 7)
>
> So instead of helping her I probably hurt her. (p. 7)
> I didn't have those skills. (p. 8)

The sixth process concept was **analyze**. Closely related to evaluation, Zoe's analysis involved going over what happened, sifting through relevant information as well as raising questions about aspects of her practice. Zoe's analysis conveyed inquiry and exploration. She said:

> Because you start thinking, 'What really is normal.' (p. 4)
> And then it really makes you think about what can you actually do to help them [clients]. (p. 6)
>
> And I can remember thinking. And you're always thinking, 'What is my job here? What is my job?' (p. 9)
>
> [And you're thinking], 'I'm a nutritionist. I'm not a social worker. I'm not a case worker. I'm not any of those

> things... Is my job here- I have cooking skills. Do I cook with her?' I don't know. (p. 9)
>
> I'm trying to think of how effective nutrition education is for them [nurses]. Because what I've known, you can in-service them, you can tell them the messages, and we can do all that but then you hear from clients they're just doing their own thing anyway. (p. 24)
>
> I'm not convinced yet we have good strategies to do that or if we ever can. (p. 24)
>
> Now maybe it's because we haven't really had a good message...maybe it's been confusing... The other thing that's happened... (p. 26)

A seventh process concept was **put together**. At this stage that Zoe reached a conclusion or made a decision. Or, she adopted a new approach. For example:

> I'd rather use my skill sets to build structures around policies and programming that will actually help the clienteles as opposed to being the implementer and actually working at that level. (p. 11)
>
> And I soon recognized that the organization wasn't going to support me... (p. 11)
>
> NCAST [has been an influence] in terms of observing feeding and giving parents cues. ... Ellyn Satter's materials have been a bog influence on the way I look at clients in terms of counselling or providing them guidance. (p. 3)
>
> It's not about how much calcium they drink... It's all about parenting, relationships and interactions. It's not about nutrition. (p. 13)

In addition, putting together included references to a growing empathy for clients or a desire to understand clients.

> It really kind gives you more sensitivity to wanting to really understand and to really help parents. (p. 4)

Generally, words used by Zoe to describe how she processed experiences suggested an affective as well as a cognitive response to events. Zoe responded to cues and valued the information they could convey to her. As well, she showed interest in others' ideas as

well as in her clients' reactions. For example, she mentionned how she "got interested in" an assessment tool on parent-child relationship. Zoe's values and professional efficacy also guided her analysis and synthesis of experiences.

One other concept relating to process was drawn from Zoe's interview and follow-up interview transcripts. It was **verify**. When she described how she decided to get trained to use a tool to assess parenting relationships, Zoe mentioned going there with nurses. This suggested she discussed the tool and its value with colleagues. She later confirmed that in the follow-up. Zoe stated that conferring with colleagues, or even with family members, allowed her to validate her experience and her thinking about it.

> [You talk to others] to reaffirm your perspective. (p. 39)

The ninth process concept was **dwell on**. Zoe used this expression to explain how some experiences stayed with her. Reflection on an experience in particular, an incident with a young black mum, turned out to be a long-term process. Years after the fact, Zoe reported still trying to resolve issues raised by this experience.

> [I'm] still grappling [with those questions.] (p. 11)
> I think as humans we tend to doubt, dwell on those things that make us guilty or make us feel bad. I probably thought about her [young mum] than any client I've ever had. (p. 20)

The tenth process concept was **reflect back**. Zoe used this term which suggested a return to past experiences. For example, she reported how she re-evaluated the incident with the black mother. Her take then was somewhat different than her reflection closer to the time of the experience.

> When I reflect back on our interactions, there was lots of things I helped her out with. ... But it could be that the minute I walked out the door, everything (( )). Like if for instance, even if the mother couldn't cook, it turns out I think we talked a little bit about role modelling... I think we made a little bit of in-roads around that. (p. 20)

**Play back** was the last and eleventh concept. This was a term used by Zoe to describe how she learned from her experiences. She said:

> You play back in your mind all your failures. Your good things too in terms of what worked. (p. 20)

This concept referred to her recall or reconstruction of experiences. It was basically what every participant was asked to do during the interview. However, since Zoe specifically mentioned it as an activity in which she engaged, it was included as a process concept.

*Outcome* Zoe's experiences clearly impacted her knowledge and practice. Nine concepts of knowledge outcome emerged from her interview transcripts. First, through both personal and professional experiences, Zoe developed her nutrition education approach which centered now on **feeding relationships**. This new knowledge became so central to her practice, it permeated her work daily.

> So I use it. I use it everyday. I use it on the phone, I use it when I see clients, I use it when I talk to people, I use it when I give group presentations. (p. 3)

> And so (( )) I always talk about feeding relationships. It's not about how much calcium they [children] drink...It's all about parenting, relationships and interactions. It's not about nutrition. (p. 13)

Second, Zoe's experiences allowed her to learn about herself as a professional. **Self-knowledge** was the second outcome concept drawn from her interviews. It involved determining her strengths as well as her interests.

> And you also have to take in your own personal capacities. People have different niches. For instance, I'm more drawn to research, policy. ... So then I learn something about myself too. Where are my skills and my attributes best suited. (p. 11)

Due to her experiences and her ensuing evaluation and analysis of the effectiveness of her interventions as well as her growing self-knowledge, Zoe redefined her **role**, a third outcome concept. It led her to reconsider her direct involvement with

clients. It changed what she perceived to be the most appropriate way for her to help her clientele.

> So I'd rather use my skill set to build structures around policies and programming that will actually help the clienteles as opposed to being the implementer and actually working at that level. (p. 11)

> What I kind of see, I would be the interface between the community and the scientific or the research end. (p. 17)

Fourth, Zoe's experiences had an impact on her **affective knowledge**. Affective knowledge referred to her attitudes, appreciations, interests, and ethical stance. For example, she gained sensitivity and empathy for her clients through her own experience as a mother.

> It [having a premature baby] really kind of gives you more sensitivity to wanting to really understand and to really help parents. (p. 4)

Affective knowledge was also embedded in other areas of her knowledge. For example, the way she redefined her role entailed the reinforcement, or a change, in her interests. During the follow-up interview, Zoe pointed out that her experiences had an impact on her ethical knowledge. Ethics was understood as her rules of professional conduct, her responsibilities and her conception of right and wrong. How this knowledge might have been affected by Zoe experience was revealed in the following excerpt:

> I was supposed to help. ... I thought I let her down. ... I felt inept at my professional judgment. (p. 8-9)

A fifth outcome concept was **goals**. Goals referred to what Zoe hoped to accomplish, either with an individual client, a group (e.g. nurses) or with the program. It also referred to areas of knowledge she aspired to develop as a professional. Goals were re-evaluated and modified. Data suggesting goals being modified included:

> I was sending her there to build capacity. ... I felt that things that I was trying to work at wasn't going to work. And then you also, 'Okay, what do I do?' (p. 9)
>
> The hard thing is that you think you'll have, you think you're going to make huge differences. And you should accept all little changes as good. (p. 19)
>
> We have to be role modelling... (p. 14)
>
> I think it's okay to say, 'I know nothing about clinical nutrition anymore. And I don't want to. But I really want to understand about feeding relationships... (p. 14)

Goals is another example of knowledge in which affect was embedded.

Sixth is a concept which was labeled as **knowledge of clients**. It referred to Zoe's growing knowledge about clients' characteristics, their living conditions, their attitudes. Her experience in a community affected by determinants of health such as poverty and low level of education contributed to this knowledge area. This was evident in her comparison of previous work environments with her current one. She said:

> If you work in clinical setting or you work even in the community. You're working with a middle class population. They're educated. You're coming in as a peer sort of thing. (p. 5)
>
> But I don't think until you actually work with a community that truly is influenced by those kinds of determinants, that (( )) do you really get it. So do you really then walk into a situation or client's home when they really don't have any abilities to cook, ...to understand food...So I think another experience, another 'aha' for me is to actually work with communities and work with people who are experiencing these kinds of challenges. (p. 6)

This knowledge was also evident in Zoe's changed expectations about clients as testified by this excerpt:

> The biggest expectation you have in your beginning of your career, is that you expect that they [clients] are going to be interested in what you have to say. And they're coming and

> sitting for a nutrition session because they want to understand about nutrition. But you'll soon find you have to let those expectations go. But you have to tell yourself all the time that you have to take people where they are. (p. 19)

Three outcomes of Zoe's experiences related to how her experiences impacted on her practice. Seventh, Zoe **stopped seeing clients** following her experiences, particularly the incident with the young black mum. Other experiences, such as an example involving the facilitation of a CPNP class, reinforced her determination to implement this change. That session led Zoe to conclude that her direct involvement with clients was a waste of time. These experiences contributed in part to the transformation of her practice. She stopped seeing clients and redefined her responsibilities. As Zoe said:

> I don't have clients anymore. I had the autonomy to say, "Okay. Where am I going to put my time?" And that's where I'm going to put my time. (p. 10,12)

The eighth outcome was **advising**. It referred to how Zoe adjusted the advice she gave mothers, dietetics students or nurses. The knowledge developed through her experiences resulted in observable changes in the way she approached these different groups or in what she told them. Her adoption of the principle of feeding relationship as a cornerstone meant it was incorporated in her everyday contacts with mothers and nurses. Experiences facilitating group sessions led her to strongly advise dietetics students to prepare a variety of strategies and topics.

> I would use the principles of it [NCAST.] I use it everyday. I use it on the phone, I use it when I see clients, I use it when I talk to people, I use it when I give group presentation. (p. 3)

> I always talk about feeding relationships. Mothers phone me and they'll say, "My child won't eat any vegetables. What am I going to do?" Well, I don't then talk about the nutrients that they're losing 'cause they're not eating vegetables. No, I'm talking about, what' happening in the

> home, what's happening around mealtime, what responsibilities do you think you have as a parent providing the food... (p. 13)
>
> These are the kinds of heads up I give them [students]. 'Don't go in with one agenda. Go in with...' (p. 12)

Finally, a ninth outcome concept relates to minor changes Zoe made to her practice in the course of an experience. This concept was labelled **adjust strategy**. For example, Zoe recalled how she had to adjust her plan while facilitating a prenatal project session.

*Condition* This section focuses on factors that influenced Zoe's reflection. There was one such factor in her case, **emotions**. While sharing examples of incidents, Zoe often disclosed emotions. For example, as she described her counselling of a pregnant woman, she referred to self-blaming, feeling professionally inept and feeling bad. Later in the interviews, Zoe noted:

> I think as humans we tend to doubt, dwell on those things that make us guilty or make us feel bad. I probably thought about that client more than any client I've ever had, (p. 20)

In the follow-up interview, Zoe later added:

> If you have a negative experience, you really have to sit back and reflect on it and analyze and try not to repeat it. So I think that I would spend a lot more of my time analyzing and thinking about those. (p. 36-37)

Zoe's data suggest negative incidents were conducive to her reflection. As well, affect came out when Zoe recounted her experience of having a premature baby. In the hospital, Zoe was exposed to a tool used to assess parent-child relationships. She explained how she "got interested in it." This suggested an affective component to her process of reflection. That in order for reflection to proceed, there needed to be interest or motivation.

> I think the negative ones have more of an impact. If you have a negative experience, you have to really sit back and reflect on it and analyze and try not to repeat it. So I think that you spend a lot, or I would spend a lot more of my time analyzing and thinking about those. Then the good experiences, or the positive ones, you go, 'Yeah, great!' And it might just go in the back of your mind. Like you're on the right track and you don't really need to analyze it further. ... When you have a negative one you have to stop. (Zoe, p. 37)

Table 11 summarizes the concepts drawn from Zoe's interviews.

Table 11. Concepts for Zoe

| Process | Outcome | Condition |
|---|---|---|
| •learn in bits and pieces<br>•experience something important<br>•bring together<br>•observe and listen<br>•evaluate<br>•analyze<br>•synthesize<br>•verify<br>•dwell on<br>•reflect back<br>•play back | •feeding relationships<br>•self-knowledge<br>•role<br>•affective knowledge<br>•goals<br>•knowledge of clients<br>• stopped seeing clients<br>• advising (students/ nurses)<br>• adjust strategy | •emotions |

*Sara : Profile*

Sara, a dietitian with a masters' degree in applied human nutrition, began her career about twenty years ago. Contrary to other study participants,most of her professional practice has been in the area of community nutrition, more specifically prenatal nutrition. However, she also has had experience in teaching and in international work. As public health nutritionist, her main responsibility consisted of client counselling. Although in the past, her intervention focused on home visits, she now facilitated group sessions as well.

At the time of the interview, Sara anticipated changes to the program and consequently to her responsibilities.

Sara shared several experiences during the course of the interview. Although she alluded to specific incidents, she could not provide much detail. As she explained, many of her formative experiences occurred quite a few years back, making it more difficult to remember and recall the particulars of the events. She did, however, contrast her experiences in two different prenatal programs. Sara also often referred to her interactions with clients. Since she spent years doing home visits, this was predictable. As well, Sara spoke of some of her personal experiences such as traveling and living overseas, having children and consulting medical professionals herself. The interview concluded with an experience developing prenatal classes for teens. Two exemplars were drawn from her interviews. The first one features a client interaction. It suggests how several similar experiences combined to fashion Sara's approach.

EXEMPLAR I : 'How did I come to know that?'

You can't deal with low-income, marginalized people in sort of a hit and miss way. You have to really give them something that they want and need in a way that is easy and useful and (( )) and all those good words. How did I come to know that? Oh, I probably got knocked down a few times. [Laughs] I was a little bit know-it-all [Laughs] in my early days. I do remember one woman saying to me, "Do you eat all that stuff in Canada's Food Guide? Do you eat all that stuff everyday?" And I said, "Yes." And she said, "Yeah! Look at you! You're fat." [Chuckles] It's like, "Oh my God!", you know. [Laughs] ...You can't just go in and say, "Oh, I think you should do this." Because they'll turn around and they'll say, "Well, where's the money. How do I get there and how do I do it. I don't have a stove and I don't have this and-" It makes you very practical about things. (p. 8)

The second exemplar obtained from Sara's transcripts features a personal experience. It shows how Sara attended to her emotions during that experience and related it to what

her clients might be experiencing. It illustrates the impact of a personal experience on a dietitian's affective knowledge.

EXEMPLAR II : 'How easy it is to intimidate people'

It's hard for people to have a professional come in and give them ideas. … And I've even been in situations where I've gone- Well actually what happened was I broke my wrist. And so was going to the orthopedic clinic. And all of a sudden, I go from this in-control professional person to this disabled person who knew nothing. And I tell you, having someone sitting across a desk from me, telling me stuff, it's like, "Yes, yes." [Laughs] So you can see how these poor women who have been- Maybe don't have much education or are trying to understand the system. It's not always very understandable (( )). How easy it is to intimidate people. I mean it happened to me in about a week or so. … I really did [relate this experience to my work] because I couldn't believe how intimidating an institution like a hospital is. Or any kind of office. I mean we don't think it is necessarily when we work here. But it is. I mean it really is. It's your surroundings, your stuff up on the walls. It's not neutral at all. It's your space. ((And someone else is coming into it.)) So, I think that was an advantage, a huge advantage of doing these visits in homes. (p. 15)

*Sara : Data interpretation*

Among the linguistics markers (Table 12) that guided the interpretation of the data from Sara's interview were words or groups of words referring to process by their reference to what she did, thought or felt and how it progressed over time. Examples of such markers include "it makes you sit back and think", "it makes me", "every time I go away", "you think", "the first few years I", "I just thought", "I said to myself", "a few times", "in some cases", "you would go and they would say things like", "I do remember it", "at the beginning I" and "when I went off I." Other linguistic markers referred to learning or knowledge construction. For example, Sara said "it gave me", "it helps", "it took me longer to realize", "it made me", "I learned", "I was probably more…when I started" and "I found." Impact on practice was also evident from markers such as "I actually have only picked up a couple of clients" and "now I've been doing." Finally, certain markers provided indication of the experience that contributed to learning or the introduction of a specific situation. Examples of such markers found

Table 12. Linguistic markers from Sara's interview

| Category | Examples of markers |
|---|---|
| Experience, incident | "an amazing experience"<br>"I've had wonderful experiences with"<br>"a great learning experience"<br>"I remember early on"<br>"I do remember one woman saying"<br>"another thing that really changed me" |
| Process | "it makes you sit back and think"<br>"it makes me challenge"<br>"every time I go away I come back disillusioned"<br>"you think"<br>"the first few years I"<br>"I just thought"<br>"I said to myself"<br>"a few times"<br>"in some cases"<br>"you would go and they would say thing<br>"I do remember it"<br>"at the beginning I"<br>"when I went off I |
| Outcome | "it gave me"<br>"it helps"<br>"it took me longer to realize"<br>"it made me"<br>"I was probably more...when I started"<br>"I found"<br>"I actually have only picked up"<br>"now I've been doing" |
| Condition | "I suspect that my clients have had quite of an effect on me"<br>"Part of it was living overseas"<br>"My supervisor and various people have |

in Sara's interview include, " an amazing experience", "I've had wonderful experiences with", "a great learning experience", "I remember early on", "another thing that really changed me" and "I do remember one woman saying." Words suggesting factors that

influence reflection, or condition markers, included "my clients have had an effect", "my supervisor and other people have said", and "part of it was living overseas."

*Process* Six different process concepts stood out from Sara's interviews. A first concept was **see it happen again and again**, an expression used by Sara. Although Sara could easily discuss what she learned in the course of her practice in the prenatal area, she had difficulty linking it to specific experiences or incidents. That might be explained in part by the time that had elapsed since she began practicing. Another explanation might be that Sara's knowledge generally developed from her multiple experiences rather than one single one. Interpretation of her interview data suggested as much. When asked on different occasions during the interview how she came to know something, Sara made general references to experiences. Here are several examples of what she would say:

> I probably got knocked down a few times. (p. 8)
>
> Although in some cases, I've had wonderful experiences with women. (p. 8)
>
> I think it's something that came with time. (p. 11)
>
> I think I probably got burned a few times with things like that. (p. 12)
>
> Sometimes I would remember going out saying, 'We better say...' (p. 13)
>
> I probably had some clients who told me I was full of it. I probably did. (p. 17)
>
> I can't remember any one specific time. But I do remember it happening sort of again and again during meetings. (p. 26)

Data pointed to a second process concept that was important to Sara to turn her experiences into knowledge. Using words often used by Sara in her descriptions, this concept was labeled **observe and listen**. She paid attention to clients' behaviours and

thoughts. Through her observations, Sara also monitored the effectiveness of interventions and programs.

> They [clients] would say things like, 'Oh, I was going to ask you this.' (p. 9)
>
> Because I've had people read exactly the same book, and one person's reaction was...and other people read it and say... (p. 22)
>
> You get that I think from listening to what other people, other women have asked you. And what their comments have been. (p. 22)
>
> One of the problems that I run into a lot with low income women is the attitudes around foods... (p. 23)
>
> That she'd [a mother] just be, not quite- She wouldn't be rolling her eyes in the meeting but- I gave her a ride and she said, ... (p. 26)

At times, words used by Sara to describe how she processed experiences suggested an affective as well as a cognitive response to events. For example, she mentionned how something "struck a chord" with her.

Third, in describing her thinking, Sara used language that suggested **evaluate** as a concept. She made value statements regarding programs. As well, she assessed her interventions or clients' behaviours and abilities. For example, she said:

> And it was a very progressive department to work in. And really great support. And really into working in the community with different partners. But then, when I was with [another program]... Sort of a really watered down version of... (p. 1-2)
>
> It was really a struggle...We didn't have a lot to offer them. (p. 4)
>
> It probably wasn't the best use of my time...(p. 6)
>
> They're really a remarkable group of women with remarkable capabilities. (p. 4)

> Maybe I didn't learn that lesson as well as I thought I had. (p. 8)

> One of the problems that I run into a lot with low income women is the attitudes around foods are really bizarre. (p. 23)

A fourth concept was **analyze**. Analytical statements could also be found in the data. During analysis, Sara attended to relevant factors, raised questions, related personal experiences to professional ones and contrasted situations. For example:

> Plus a lot of the mums were second time mums. They didn't want, they didn't feel like they needed anymore information. They'd been through it once. And it's quite possible they did but, we didn't always have a chance to do a really good selling job of it. (p. 4)

> While I was gone there wasn't a consistent nutritionist working and doing visits with the mums. And I'm not sure it made a whole lot of difference. (p. 7)

> So it really makes you sit back and think, 'Why am I doing this. What's important. What really matters.' (p. 18)

> I remember after my daughter was born thinking, 'I knew this was hard.' I had no idea it was as hard as it was. ... I just thought, 'How do single women do this? How do they do it?' You need to have someone that you can count on for support. It certainly gave me new respect for all the mums who were doing it on their own. (p. 16)

> It makes you realize that maybe you need to look at the way you're thinking about the group you're trying to come up with useful for it. (p. 25)

The next process concept, the fifth, was **synthesize**. Synthesis was the point at which Sara reached conclusions, explored alternatives, made decisions. It is also at that point that she expressed her understanding of, her empathy for clients. For example:

> So when I came back, I said to myself, 'Well, I don't think I'll get into that right away. And I'll do some other things. Maybe I can reach more people more effectively by doing ((it)) a slightly different way.' (p. 7)

> And then, as time went on, I realized, 'You just can't be-' People aren't impressed when they look at you and think, 'She's going to tell me I'm doing something wrong.' What I would do is to really emphasize any little bit that was positive. And kind of reward them. (p. 10)
>
> Sometimes I would remember going out saying, 'We better say the word food once.' Because we talked about everything but food. You have to deal with that other stuff before you can talk about food. (p.13)
>
> It certainly gave me new respect for all the mums who were doing it on their own. (p.16)

It was also at this stage that Sara's growing appreciation for her clients' situations and her attitudes would be formed.

The sixth process concept, **share it**, involved discussing Sara's thoughts with others. This step allowed her to clarify and refine her thinking.

> I do tend to mull things over in my own mind. Up to a pretty good point. And then I share it. So I like to sort of hash around in my own head and it's only at the latest stages that I will probably discuss it. ... That's sort of putting it all together. But it's more likely to happen in my own head ((first, to some point)) and then kind of refine it talking to others. ... If I've had time to process it and think about it a little bit, then I will bring it forward for more discussion. ... Just getting a different perspective on things and- Sometimes even when you say things out loud, they become clearer. (p. 68)

*Outcome* This section focuses on either observable impacts on Sara's practice or her learning (knowledge construction.) Impact on practice or learning were grouped under five main concepts. Without a doubt, over her many years of practice, Sara has developed a clear approach to client counseling, and particularly counseling targeted to marginalized groups such as women with low income or on social assistance. For one thing, her attitudes changed over the years. She mentioned being less judgmental and more open. As well, she provided evidence that her empathy and respect for the women she worked with grew over the years. The development of her **affective knowledge**, the

first outcome concept, helped Sara relate to her clients. In the follow-up interview, she asserted that "it is something really important that [she's] learned (p. 67)." For example, evidence of construction of affective knowledge was found in these statements:

> I was more careful about what I might expect other people to do with what they may or may not have. (p. 8)
>
> I was probably more...judgmental when I started. And then, as time went on, I realized you just can't be- People aren't impressed when they look at you and think, 'She's going to tell me I'm doing something wrong.' (p. 10)
>
> It certainly gave me new respect for all the mums who were doing it on their own. (p. 15)
>
> But it's hard for people to have a professional come in and give them ideas. ... So you can see how these poor women who have been- Maybe don't have much education or are trying to understand the system. It's not always very understandable. How easy it is to intimidate people. (p. 15)

Second, Sara shared many strategies she developed over time to effectively counsel pregnant women. These strategies were embodied in her statement that an intervention "has to be more of a partnership (p. 4)." This **partnership approach** involved seeing herself as an equal to her clients, where each brings in knowledge and skills which should be used to help a woman change what she wants to or needs to change. It also meant taking a positive approach to counselling. Three examples illustrating her approach follow:

> You have to have something that people want. And it can't just be information that maybe they already know exist. There has to be something to really draw them in and make them want to get more information. Not just somebody going in and telling them how to eat, what they should do, what people are doing wrong. You won't get any kind of response from that sort of an attitude. (p. 4)
>
> My thing is always to try to work things out with what you have. And not just be the source of knowledge. So you can sit and work things out and come up with some ideas and working with their assets. ... Because I didn't have to have

> all the answers. And they could feel that they had a way to actually...solving some of their own difficulties or answer some of their questions. (p. 9)

> What I would do is to really emphasize any little bit that was positive. And kind of reward them. Just to really encourage any little thing that they were doing that was healthy. And really down play the other stuff. People feel guilty enough about how they eat without having someone else make them feel that way too. (p. 10-11)

Third, through her experiences, Sara learned about the challenges and needs of her clients. Thus the next concept is **knowledge of clients**. In turn, this knowledge contributed to her developing approach to nutrition counseling. Here is an example of a statement illustrating this knowledge:

> Working with the poor women, it's like a different culture. (p. 18)

Sara's practice was affected by her experiences. Specifically, it has led her to reconsider the best way to reach her target group. Therefore, **change in service delivery** is another concept. Over time, she noticed a decrease in the number of women she could reach through home visits. As a result, she made the following change:

> When I went off, I was still doing the [prenatal program]. And since I've come back, I actually have only picked up a couple of clients. I think we all kind of- Well, it took me longer to realize that it probably wasn't the best use of my time to be spending a lot of time to chase people down to do the one-on-one stuff. So now I've been doing a lot more group work since coming back. (p. 6)

Finally, during the course of an experience, Sara sometimes made minor changes to her practice. For example, she recalled a time when she went with a client to a grocery store to instruct her on what to buy. At one point, as she explained, she became uncomfortable with this strategy because she felt it was an invasion of her client's privacy. As a result, Sara adjusted her approach by simply giving the client advice

about nutritious and affordable foods. These types of changes were grouped under the concept **adjust strategy**.

*Condition* Conditions or factors influencing reflection emerged from Sara's interview data. Some of her statements suggested four factors to consider. First, **personality** such as her openness seemed to favour reflection in Sara. At different points in the interview she said:

> But you certainly have to keep an open mind. You have to be willing to challenge yourself and look at new ideas and new ways of doing things. (p. 5)
>
> I never set myself up as an expert so I suspect that my clients have had quite a bit of an effect on me. (p. 17)

For Sara, learning from her clients, from her experiences interacting with them, was made possible by the fact that she did not position herself as an expert. This statement suggested an openness to learning from others and from situations encountered.

Second, and closely related to the first concept, data suggested that **exposure to other perspectives** favoured Sara's construction of knowledge about her practice as well as its improvement. For example, Sara pointed to her traveling as a source of learning. Living in different countries exposed her to different ways of doing things and different perspectives. Clients and colleagues offered another perspective which also favoured Sara's reflection. Following are two excerpts to support this point:

> How did I get to that point? ... I don't know. I think part of it was living overseas where everything is different. When I lived [there]. When I lived there, everything is different. Everything. You can't take anything for granted. It's almost like learning how to live again, and how to deal with situations. You have to start from scratch. So it really makes you sit back and think why am I doing this, what's important, what doesn't really matter. So it sort of helps you sort things out a bit. (p. 18)
>
> And certainly I learned so much from the women that I visited. (p. 4)

> My supervisor and various people have said for quite a while that we need to think about how the [prenatal program] is running. (p. 6-7)
>
> There was a lot of other people around me who were doing similar things. (p. 10)

Third, **emotions** engendered by experiences seemed to influence Sara's reflection as well. While comparing two different prenatal programs she worked in, Sara explained her growing frustration with the current one. The frustration Sara felt was a contributing factor to her reconsideration of how to best serve the pregnant women.

> Here, in the [prenatal program], we didn't have anything to encourage people to participate and be home. So people would make appointments and they wouldn't be there. So you might have six visits booked and you might see two or three in a day. And that was pretty consistent. That people would not be home for whatever reason. So it all wasted a lot of time. ... It made me frustrated with the program as a whole. Because I didn't really think it was doing enough to sell itself. (p. 6)

The last and fourth factor that influenced Sara's reflection on experiences was **readiness**. She brought up this point in the follow-up interview when describing how she learned. She said:

> It may not be right for me the first time. (p. 62)

This suggested that Sara did not learn from every single experience. She had to be at a stage in her personal and professional development where she was inclined or willing to learn from it. Table 13 summarizes the concepts drawn from Sara's interviews.

Table 13. Concepts for Sara

| Process | Outcome | Condition |
|---|---|---|
| •see it happen again and again<br>•observe and listen<br>•evaluate<br>•analyze<br>•synthesize<br>•share it | •affective knowledge<br>•partnership approach<br>•knowledge of clients<br>•change in service delivery<br>•adjust strategy | • personality<br>•exposure to other perspectives<br>•emotions<br>•readiness |

*Marie : Profile*

Marie is a public health nutritionist. She had about twelve years of professional practice behind her at the time of the interview. Most of her experience had been in community nutrition. For the past nine years, she had been involved in prenatal nutrition. Her main responsibilities were one-on-one counselling, either done as home visits or office visits. Other professional experience included teaching.

Due to technical difficulties, a large portion of Marie's interview could not be transcribed. Therefore, information on her experiences was partly based on notes made during and following the interview. Marie shared one incident which is presented here as the first exemplar. This incident focuses on a client interaction. Its interest lies in its emotional charge. This exemplar also illustrates how an experience, even an incident, can be part of a larger body of experience. Combined, these experiences affected Marie's thinking about prenatal nutrition with a high risk clientele.

EXEMPLAR I : 'Witnessing the extent of clients' poverty.'

I think for nutritionists it's always a shock. Now, obviously it's difficult, but I've been doing this for a while. [Laughs] It's not a shock anymore. But when I think of my first years in this job- I used to wake up at night. I don't wake up anymore, but I used to wake up at night. When I'd witness the extent of my clients' poverty. When you're just starting, you want to change the world... You do a nutrition assessment and you think, 'You have to eat well.' Then, you open the refrigerator and it's empty... It's empty. It totally changes you. ... When I read this question, it reminded me of one client in particular. Well, several. She had nothing to eat. ... I did that once. I went out to buy her a sandwich. I jumped in my car and I said, 'I'll be back.' I couldn't- I couldn't do the assessment. ... It really got to me. ... Because many clients are single mums. Those are the worst situations, single mums. At one point, I remember [Laughs], at one point, I wanted to change the system...human resources. The income assistance [program]. Because you think, 'It doesn't make sense. They can't manage.' Some have a hard time... It's not always- Some are in that situation because they don't try but some really struggle. To live, to eat...and the system isn't made to help them. Working with that clientele, it heightens your awareness of that. You think, 'Gee, It doesn't make sense. It's terrible. What am I going to do? What can I do.' ... ((That's why I'm exploring how to be more effective and feel better about my interventions.)) (p. 7-8)

During the interview and the follow-up interview, Marie referred to routine interactions with clients and their combined impact on her thinking. One of these references is the second exemplar. As with the first exemplar, interest in this one lies in how experiences combined to impact Marie's knowledge about practice.

EXEMPLAR II : 'Seeing the clients come back.'

In a practical sense, it's seeing the clients come back. Based on my experience, clients come back. How often will you say the same thing, the same way. Years of doing it and then there's a click. (p. 49)

*Marie : Data interpretation*

Other than the interview questions, several linguistic markers (Table 14) guided the interpretation of Marie's interview transcripts. Experiences and incidents were revealed by words such as "it reminded me of", "one that really affected me" and "for the pregnant mums, for the families I visited". Process markers included "it makes you think", "I related it", "I would need", "I think back", "so…", "because…", "I used to", "I would see", "when you're beginning", "you do", "you say", "it got to me", "at one point I" and "after so many years you." Words that indicated outcome included "it changes you", "I realized", "a major realization", "it heightens your awareness", "it was an eye-opener", "it affects you" and "I don't assume anymore." Condition was revealed by markers such as "it used to wake me up."

*Process* Six process concepts emerged from the interpretation of Marie's interview transcripts. The first category was **see so many**. This concept related to Marie's learning from repeated interactions with clients. More specifically, Marie mentioned the impact on her counselling of recurrent types of cases, or of repeated interactions with women on their second, third pregnancy. These interactions, although routine, led Marie to see a pattern. This was the 'click' Marie referred to in the second exemplar. For instance, she concluded that the prenatal program could be more effective by targeting women on their first pregnancy and young (teen) mothers. Following are comments Marie made related to how seeing multiple similar cases affected her thinking:

> I've had cases of… I've been in court for such cases… (p. 9)
>
> When I read this question, it reminded me of a particular client. Well, several. … It happened often. (p. 7-8)
>
> I think when you see so many [clients with similar problems]…at one point there's repetition. That's what

made me think that perhaps I should approach things differently. (p. 48)

Table 14. Linguistic markers from Marie's interview

| Category | Examples of markers |
|---|---|
| Experience, incident | "it reminded me of"<br>"one that really affected me"<br>"for the pregnant mums, for the familie I visited" |
| Process | "it makes you think"<br>"I related it"<br>"I think back"<br>"I used to"<br>"I would see"<br>"when you're beginning"<br>"you say"<br>"it got to me"<br>"at one point I"<br>"after so many years you." |
| Outcome | "it changes you"<br>"a major realization"<br>"it heightens your awareness"<br>"it was an eye-opener"<br>"it affects you" |
| Condition | "I used to wake up at night" |

The accumulation of experiences was an important process in Marie's construction of knowledge and improvement of practice. It allowed her to see a pattern.

A second process concept for Marie was **experience something important yourself.** As the first exemplar attests, Marie had emotionally charged experiences. Their contribution to her construction of knowledge about practice was captured by this concept.

**Observe and listen** was the third concept to emerge from analysis of Marie's interview transcripts. During and following her experiences, Marie collected information or evidence from her practice. This evidence generally centered on clients and included verbal and non-verbal information. She monitored their progress, their conditions. As well, she monitored her own practice. For example, Marie said:

> When I would see the extent of my clients' poverty. (p. 7)
>
> She [the client] had nothing to eat. She had nothing to eat by the end of the month. ... She hadn't had anything to eat since the morning. (p. 7-8)
>
> The other day, I did a session and there was a question I couldn't answer. (p. 52)

The fourth process concept was **evaluate**. This category included making value judgments and assessing client's progress in addition to her own actions. Evaluation was seen in the following excerpt:

> Because you think, 'It doesn't make sense. They can't manage.' (p. 8)
>
> I didn't do that often. It wasn't even professional to do it. (p. 8)
>
> You think, 'God! It doesn't make sense. It's terrible.' (p. 9)
>
> It's missing. We stop too abruptly. (p. 11)

A fifth concept drawn from Marie's interview transcripts was **analyze**. For Marie, analysis involved relating personal experiences to professional experiences, attending to her feelings and raising questions about her practice. For example:

> I think things like the 'Stages of change', I think even on a personal basis you think, 'It makes sense.' ... I want to be more physically active and it seems that I'm always stuck at that stage. I can't seem to move to the next stage. ... I think it would work with clients. ... I related it to me and to my clients. There was a link. (p. 6)

> At first, it used to bother me a lot. To realize the magnitude of [client's poverty]. (p. 7)

> You think, 'God. It doesn't make sense. It's terrible. What am I going to do? What can I do about it?' (p. 9)

Borrowing a term used by Marie, the sixth concept was **put together**. In Marie's case, put together meant reaching conclusions based on the information collected and its analysis. It was at this stage that she also made decisions or generated solutions, ideas to improve her practice. Here are few examples of this concept:

> At one point, I remember [laughs], at one point last year, I wanted to change the system...human resources. The income assistance [program]. ... After so many years, I think you say, 'That's the way it is.' (p. 8, 10)

> My role really is now. What will happen after, will happen. (p. 9)

> A positive change would be for us to be more involved in breastfeeding. It would be so interesting. ... If our efforts were directed more to new mums, we could be more positive. (p. 11)

*Outcome* Marie's experiences had an impact on her thinking about prenatal nutrition as well as her practice. Five outcomes emerged from her interviews. For example, seeing clients return on their third or fourth pregnancy with the same nutritional issues led her to conclude that, to be more efficient, nutritionists should focus their efforts on first time mothers. She also felt there needed to be more continuity between the pre-natal and post-natal periods. Similarly, she concluded that more time should be spent counsellling young mothers or pregnant teenagers. This outcome was labeled **investigating new interventions**. However, this change in her thinking had not translated to her practice yet since she had to go through various channels in an effort to change policies.

> We have several ideas. We'll develop units. And we'll maybe get two, three clients at once and do a session on iron. (p. 11)

> When you see cases,... There's repetition. And that makes me think I should approach it differently. (p. 48)

Another outcome of Marie's experiences was her increased appreciation for her clients' situations. This one particularly related to an incident she described about a pregnant woman with little or no food to eat. Such experiences fostered Marie's empathy. This outcome was labeled as **affective knowledge**.

> I'd say certainly that realizing how- The food insecurity in our community is real. For the pregnant mums, for the families I visited. (p. 8)

> Working with this clientele, it opens you to that, it sensitizes you to that. (p. 9)

Marie's better understanding of the living conditions of her clients and the extent of their poverty was also related to a third outcome, this one labeled **knowledge of clients**. Through her many interactions with clients, Marie came to know more about them, both as individuals and as a group.

> She had nothing to eat by the end of the month. (p. 8)

> Some have a hard time...It's not always. Some it's their- Some are in that situation because they didn't try but some really struggle. To live, to eat... (p. 8-9)

Marie's experiences also had an impact on her **goals**, the fourth outcome concept. Marie reported feeling discouraged, that she could not affect change the way she had hoped to when she started working in this position. As a result, she adjusted her ambition as to what was to be achieved.

> When you're beginning, you want to change the world... You do a diet history and you say, 'You have to eat well.' And so on. (p. 7)

> So I think, 'I have to help this mum to eat better for her baby.' My role is now. What will happen after will happen. (p. 9)

The last and fifth outcome concept was **knowledge of pregnancy and breastfeeding**. It referred to knowledge related to her area of practice, that is prenatal nutrition. In the follow-up interview, Marie reported having learned a lot about nutrition in pregnancy and breastfeeding as well as about those conditions. Both personal experiences (i.e. being a mother) and professional experiences contributed to the development of this knowledge base.

> [I learned about] breastfeeding, pregnancy. Knowledge in those areas. (p. 56)

*Condition* Two factors that influenced reflection for Marie were **emotions** and **colleagues**. Specific experiences, such as the incident of the woman with an empty refrigerator, stirred strong emotions in Marie. As a result, she reported having thought more about these kinds of experiences. Marie also explained that she learned more or retained more from emotionally charged experiences. Experiences that provoked negative emotions pushed her to analyze her practice and make changes because of her desire to avoid the emotions associated with it. On the other hand, experiences in which she felt positive encouraged her. They pushed her to reproduce the circumstances leading to it.

> I used to wake up at night. I don't wake up anymore but I used to wake up at night. (p. 7)

> If I think of situations that I didn't like... Then you try to avoid them. To avoid repeating them perhaps you work harder. (p. 52)

> If I think of situations I found myself in, and didn't like it...after that you try to avoid those kinds of situations. To avoid them, to make sure it doesn't happen again, maybe you work harder. (Marie, p. 51)

The second condition concept was **colleagues**. Like most dietitians, Marie participated in the education of dietetics students. She noted that having a student

fostered her learning because she had to talk about her practice. These discussions made explicit some of her thinking. It also drove her to look up things.

> We just had an intern. So I spent some time with her taking about what I do. I think it makes things explicit. Teaching an intern helps me learn. It helps me improve, to stay up-to-date. It pushes me to look up stuff. (p. 57)

In addition, Marie alluded to a close relationship with her colleagues. In discussions with colleagues, data suggest Marie contemplated perspectives on clients, the program and practice in general brought forth by them.

> We have several ideas. We'll develop units. (p. 11)

According to the data, Marie's reflection on her experiences might have paralleled and combined to that of her colleagues. Table 15 summarizes the concepts drawn from Marie's interviews.

Table 15. Concepts for Marie

| Process | Outcome | Condition |
|---|---|---|
| •see so many<br>•experience something important yourself<br>•observe and listen<br>•evaluate<br>•analyze<br>•put together | •investigating new interventions<br>•affective knowledge<br>•knowledge of clients<br>•goals<br>•knowledge of pregnancy and breastfeeding | •emotions<br>•people |

*Eliza : Profile*

The final participant interviewed, Eliza, is a public health nutritionist. She had been practicing for sixteen years at the time of the interview. Previous work experiences included stints in clinical nutrition, teaching and community nutrition. For the past nine years, she had been working almost exclusively in prenatal nutrition. Based on the Higgins method, her work focused on one-on-one counselling and combined

home visits with office visits.

Two exemplars were drawn from Eliza's interview transcripts. In both cases, the focus is on the dietitian's helping relationship. The first exemplar features a client interaction which had a positive impact on Eliza's affect. It increased her confidence. This exemplar is also interesting because it brings up the issue of opportunity and how it might influence knowledge construction about practice and improvement of practice.

EXEMPLAR I : 'To be able to say that I helped'

I had a mum who was pregnant and very sick. She was throwing up all the time and just feeling very sick. And I actually figured out that she probably had a lactose intolerance. ((We got her off the milk.)) And that was of course very satisfying because she just felt so much better. [I figured it out] just through the diet history and also because of my own experience. Although- I've never experienced nausea or vomiting from milk products. ... She'd been going to the doctor ((with stomach pains)) but they hadn't done any diet analysis. So, through her diet history and looking at what she was eating when it was happening- I mean lactose intolerance is an easy one to diagnose because it happens quite quickly after ((the food products are eaten.)) I suggested that she try a few days without ((milk)) and see if it helped. And sure enough it did. ... That was very satisfying for me. ... It gave me a lot of satisfaction to be able to say that I helped. Because it really did make a big difference in her life. Because she went from throwing up everyday to being able to get through life ((and work.)) So I could see that I had made a big difference. And that was nice. ... It would have [had an impact on my practice] if I had more opportunity to do more of that kind of

EXEMPLAR I : 'To be able to say that I helped' (continued)

thing. ... It gave me more confidence. Because I had to talk to the doctor at that point and get things clarified with the doctor. So it was helpful in that way. To reinforce my confidence in dealing with the other health professionals on the team. But that happens so rarely right now in our practice that ((that's kind of gone)) again. Certainly it stayed with me for a while. It gave me more confidence in approaching other problems with my clients. To know that I had done that and worked through that with that client and ended up resolving a problem for her. ... If a similar situation arose, I could, I would probably draw on that experience and ((maybe recognize it.)) (p. 9-11)

In contrast to the first exemplar, the second one illustrates the negative impact of an experience on affect. It relates to Eliza's broader experience of working in the area of prenatal nutrition with high risk clients. This experience left her feeling discouraged.

The second exemplar provides further confirmation of the role repetition, or the encounter of similar experiences, in constructing knowledge from experiences.

> EXEMPLAR II : 'The same kinds of problems. Over and over again too.'
>
> At the beginning, when the program first started, I was very positive and we're going to really, you know, we're helping. ((Whereas people with public health go out)) and do health promotion and you end up talking to the people that are really interested. The idea of this program was to help people that really need the help. Because the people who are already interested are going to get the information anyway. So I was very...gung-ho, very...positive and wanted to give the program a really good chance. Now, nine years later, [Chuckles], I'm more discouraged and more...not as energetic in what I'm putting into the program. Because I don't see that it's making a lot of difference. We see mothers coming back with their third or fourth or,...at least fourth pregnancy now. And we're just still doing the same thing. There's nothing built into the program to help...for how to deal with mothers who have been there four times already. [Chuckles] I don't have anything new to tell them. ((In a lot of cases)), the ones that are coming back, we haven't seen...ch-, you know, big changes in their lifestyle or in how they're eating. The ones that were motivated the first time, to make changes, have usually made them. But the ones that weren't motivated, I don't find that the third or fourth time makes a big difference. [Chuckles] So I find I'm more,..resigned, more...discouraged about what I'm doing. And that makes it difficult. ... ((We're seeing)) the same kinds of problems. Over and over again too. (p. 15)

*Eliza : Data interpretation*

Eliza methodically answered interview questions. Therefore, those questions were one indicator in focusing the analysis. Linguistic markers (table 16) drawn from the interview for experience, incident and issues included "for me that's a big problem", "When I started with this clientele", "When the program first started", "Like a client who", "Two of the ones I can think of" and "One other one was where I had a mum". Process was evident from words such as "now nine years later I", "I don't see", "We're still doing", "I don't find" "I feel", "I think", "You start hearing", and "I didn't want." As for outcome, it was revealed by words such as "It gave me", "It was helpful in that

way", "One thing that became clear", "starting to appreciate" and "something I did gain." There were no condition markers.

Table 16. Linguistic markers from Eliza's interview

| Category | Examples of markers |
|---|---|
| Experience, incident, issue | "for me that's a big problem"<br>"When I started with this clientele"<br>"Like a client who"<br>"Two of the ones I can think of"<br>"One other one was where I had a mum |
| Process | "When the program first started I"<br>"now nine years later I"<br>"I don't see"<br>"We're still doing"<br>"I don't find"<br>"I feel"<br>"I think"<br>"You start hearing"<br>"I didn't want" |
| Outcome | "It gave me"<br>"It was helpful in that way"<br>"One thing that became clear"<br>"starting to appreciate"<br>"something I did gain" |

*Process* Seven process concepts emerged from the interpretation of Eliza's transcripts. Part of the process through which Eliza constructed knowledge was repetition of similar experiences. The accumulation of these experiences and Eliza's analysis allowed her to see patterns. This first concept was labeled **see the same kinds of problems,** a term drawn from the transcripts. Two examples of this included when Eliza explained:

> Because when you start hearing the same kinds of stories over and over again. (p. 14)

> We see mothers coming back with their third or fourth or,... at least fourth pregnancy now. And we're still doing the

> same thing. ... We're seeing the same kinds of problems. Over and over again too. (p. 15)

This concept was particularly important to learn from day-to-day experiences, those that were somewhat routine and not noteworthy.

A second process concept was **experience something important**. Eliza shared experiences that had strong emotional tones. In one, she experienced great satisfaction for hving helped a mother figure out she was lactose intolerant. Another emotionally charged experience for her was working in a prenatal nutrition program. After so many years working in the program, Eliza grew frustrated and discontent because she was not seeing the kinds of changes in clients that she had hoped the program would produce. These two experiences contributed to her knowledge and affected her practice.

The third concept was **notice**. Throughout her description of her experiences, Eliza referred to seeing or noticing information such as client statements or behaviour. She also monitored client behaviour, progress as well as her own thinking, actions or emotions. This evidence formed the basis of her reflection. For example, she said:

> She [a client] went from throwing up everyday to being able to get through her life ((and work)). (p. 10)

> She [a client] had made so many huge changes in her life already. She had stopped taking other, more dangerous drugs. And she had stopped drinking large amounts of alcohol. (p. 12)

> So I guess I noticed it myself changing [her behaviour]. (p. 13)

> So I find I'm more resigned, more discouraged about what I'm doing. (p. 15)

Data suggest noticing this information was a first step in turning an experience into knowledge about practice or in improving practice.

The fourth category was **evaluate**. Eliza used several evaluative statements in her descriptions. In these statements, Eliza assessed the progress of clients, their relationship or her own actions. In addition, she made value judgments. Following are three examples to illustrate this.

> But for me, that's a big mistake in the way the program was designed. (p. 5)
>
> So I could see that I had made a big difference. (p. 10)
>
> We had, we were developing a good rapport and she was trusting me to tell me these things. (p. 12)
>
> Because I don't see that it's [the program] making a lot of difference. (p. 15)

Fifth, data suggest a concept labeled **go over what happened**. Eliza used this term to describe another activity in which she engaged. She explained that following an experience she examined the events in detail. Eliza went over what happened and attended to factors relevant to a situation including her own feelings. Going over what happened also allowed her to see patterns, particularly from repetitive, similar experiences. For example, she said:

> We're doing a lot of breastfeeding promotion during the pregnancy but we're not there. They [the mothers] have to make a new contact with a person after the pregnancy, after the baby is born. We don't have any closure. We never see the baby, we never see the mother afterwards. We get the information that she had a baby and it weighed this much but, there's not a lot of- It's difficult for me as a health professional because I feel I'm just leaving them in mid-stream. (p. 5-6)
>
> Because there was a connection there, they called me rather than calling somebody new that they were supposed to call. (p. 9)
>
> There's nothing built into the program to help...or to, for how to deal with mothers that have been there four times already. I don't have anything new to tell them. And they haven't really made- ((In most cases)), the ones that are

> coming back, we haven't seen...ch- You know, big changes in their lifestyles or in how they're eating... (p. 15)

Eliza' data suggest a sixth concept, **synthesize**. Synthesis meant putting together information from a variety of sources into one and reaching a conclusion. It also meant generating solutions, plans, options to achieve her goals, or to resolve a problem or improve a situation. It is also at that point that Eliza made decisions. It is at that stage that knowledge construction and improvement to practice materialized. For example:

> Like I mentioned earlier that we stop at 36 weeks but for it to be effective, I think it really has to be continued into the postnatal period. And ((to have)) a relationship with the client that continues past birth. (p. 7)

> And I just kind of didn't make an issue of the amount of marijuana. ... I didn't make a big issue of it. ... And I didn't want to lose her. (p. 12)

> One thing that became clear as we were going along was...the fact that these clients are dealing on a very basic level. (p. 14)

> I can see lots of ways that we might be able to do the same program but in a more effective way or in a more satisfying way for the health professionals. (p. 16)

This concept also included references made by Eliza to her growing appreciation for clients' situations or needs. As well, it included her adjustment of her attitudes.

A seventh category was **talk it over**, again a label that came from an expression used by Eliza. When discussing her experience working in the area of prenatal nutrition with high needs clients, Eliza stated that she discussed issues with colleagues. She further confirmed this step in the process in the follow-up interview. When asked how it contributed to her reflection, she explained:

> I think it's helpful to do that [discussing issues with colleagues] because you find out whether you're out in left field somewhere, or whether your thinking resonates with

> the other people on staff. And if we're all experiencing similar problems. (p. 17)

> Talking to somebody helps me to sort out the feelings and the ideas that came up... Maybe after the session you have some vague ideas in your mind of what happened. But sometimes, when you're talking it over with somebody else...because you have to verbalize it, it brings the feelings together and makes it concrete. (p. 26)

Therefore, talking it over was a way for Eliza to clarify an experience, her thinking as well as her feelings. It also validated her emerging knowledge or her changes to practice.

*Outcome* Over her years of practice, Eliza has developed knowledge in different areas, eight of these stand out in the transcripts. First, according to Eliza's accounts, her experiences have had an impact on her **affective knowledge**. That is, her experiences developed her caring attitude and her professional confidence. As well, her broader experience in prenatal nutrition with high needs clients has taken an emotional toll on her. This knowledge and this emotional toll are evident when she reported a great sense of satisfaction, increased confidence, an appreciation for where clients are and being discouraged. One experience gave her confidence in dealing with other health professionals as well as tackling difficult nutrition problems. Confidence also in the sense that she could make a difference in a client's life.

> It gave me a lot of satisfaction to be able to say that I helped. ... I could see that I had made a big difference. And that was nice. ... It gave me more confidence in term of- ... To reinforce my confidence in dealing with the other health professionals on the team. ... It gave me more confidence in approaching other problems with my clients. (p. 10-11)

Interestingly, Eliza noted that these feelings eventually faded. Mostly because, as she noted, satisfying experiences were few and far between. Therefore, there was no experience to reinforce that outcome. In fact, her practice consisted more of cases where

clients return for the same kind of problem time and time again. In contrast to the satisfaction experienced following a few cases, the outcome of these more numerous stagnant cases was discouragement and lowered energy.

> At the beginning,, when the program first started, I was very positive and we're really going to really, we're helping. ...The idea of this program was to help people that really need help. Because people who are already interested are going to get the information anyway. And so I was very...gung-ho, very positive and wanted to give the program a really good chance. Now, nine years later [Chuckles], I'm more discouraged and more...not as energetic in what I'm putting into the program. (p. 15)

Deepened empathy for her clients can also be seen in the transcripts. As Eliza got to know her clients, she also developed a better understanding for the challenges they were facing in their lives.

> Certainly one thing that...became clear as we were going along was ... the fact that these clients really are dealing on a very basic level. And just starting to appreciate where they're at and understand where they're at. ...That part, I think, came with time. (p. 14)

A second outcome discussed by Eliza was adjusting her **goals**. In the past, she had been used to helping clients that were not facing situations as challenging as the ones faced by her current clients. As a result, she had to adjust her thinking in terms of what could be achieved. As she explained:

> As a dietitian, I had always been working with clients and teaching them...at a higher level kind of. And when I started working with this clientele, I had to kind of adjust my thinking downwards a little bit. And think, 'Well, hot dogs really aren't that bad. At least they have some protein in them.' [Chuckles] I found...I had to adjust what I was telling clients to do. (p. 13)

Eliza not only changed her goals but also her **counselling approach**. This was the third outcome concept. As the excerpts above suggest, she modified the advice she

was giving clients. As well, Eliza mentioned how she had developed her counselling skills.

> [My experiences have thought me] how to get the information across and make it practical and make it manageable instead of being didactic and just saying this is right and this is wrong. (p. 25)

Another indication of her construction of knowledge related to counselling was found in this excerpt:

> We stop at 36 weeks but for it to be effective I think it really has to be continued into the postnatal period. And ((to have)) a relationship with the client that continues past birth. (p. 7)

Eliza also mentioned how she had developed her communication skills.

A fourth and related outcome is **knowledge of clients**. Through her experiences with her clientele, Eliza had come to know them better as well as the challenges they faced.

> One thing that became clear as we were going along was ... the fact that these clients are really dealing on a very basic level. (p. 14)

Eliza mentioned how her work experience has helped her realize what aspects of her profession she liked. Basically, her experiences developed her **self knowledge**, the fifth outcome concept. For example, she stated:

> For me, as an individual, I need something more, more creative. Something more to get my brain around. (p. 15-16)

The final knowledge concept relates to her **knowledge about pregnancy and breastfeeding**. Eliza reported how her experiences had allowed her to develop this knowledge, the sixth outcome concept.

Eliza also made changes in her practice. One of these changes was major and involved **investigating new interventions**. Eliza's experiences, particularly those

involving repeated interactions with mothers she had already counselled, led her to reconsider how best to serve the program's clientele. Other changes made by Eliza were more minor in nature and involved **adjusting her strategy**. During an interaction with a client, Eliza would often adjust her strategy to meet her goals. For example, with one client, she decided not to press for nutritional behaviour change because the woman had already made significant changes to her lifestyle.

*Condition* Examination of Eliza's interview transcripts suggested four factors that influenced reflection: **emotions, personality, colleagues** and **opportunity**. First, Eliza's descriptions of experiences contain several words that suggest emotions. She talked about being frustrated, being discourage or of being satisfied. Second, Eliza described herself as an analytical person. She explained that this trait pushed her to review events. Third, Eliza referred to discussions with her colleagues in relation to changes she felt were necessary to the program.

> We've been talking about it, with different levels of the hierarchy. (p. 16)

Fourth, when describing an interaction with a client and its impact on her practice, Eliza noted that it would have had more of an impact if she had more opportunity to encounter similar situations. In such a case, opportunity was a barrier to improvement of practice from reflection.

> It [experience] would have [change my practice] if I had more opportunity to do more of that kind of thing. ... But it happens so rarely right now in our practice that ((is kind of gone)) again. (p. 10-11)

> When you feel you've had a really good interaction with a client, and you really feel like you've helped somebody, that, I think, stays with you. I really don't enjoy negative [Chuckles] so I'm very motivated to try and avoid that problem again the next time. So try not to repeat it, analyze it and try to think what went wrong and how can I avoid it happening again. (Eliza, p. 23)

The table below summarizes the concepts drawn from Eliza's interviews.

Table 17. Concepts for Eliza

| Process | Outcome | Condition |
|---|---|---|
| •see the same kinds of problem<br>•experience something important<br>•notice<br>•evaluate<br>•go over what happened<br>•synthesize<br>•talk it over | •affective knowledge<br>•goals<br>•counselling approach<br>•knowledge of clients<br>•self-knowledge<br>•knowledge about pregnanc breastfeeding<br>•investigating new interventions<br>•adjust strategy | • emotions<br>•personality<br>•colleagues<br>•opportunity |

## Phase Two : Results Between Participants

In this second phase, data analysis focused on the comparison of concepts between participants and the identification of convergence among concepts. This analysis led to the further grouping of similar concepts to form categories. (Since this grouping represented reflection across participants, it was now referred to as a category.) Although some concepts were unique to one or two participants, they were maintained to ensure final conceptualization accounted for everyone's reality. Results from this second analytical phase are reported in this last section of the chapter and are also introduced by research questions, or process, outcome and condition. In the next chapter, relationship among categories arising from this interpretation will be discussed as a way to understand reflection. First, a synopsis of participants' experiences and their characteristics is presented.

### *Experiences synopsis*

Through their everyday work activities, participating dietitians experienced a variety of situations. Experiences repertoried in this study include professional day-to-day experiences and incidents. Day to day experiences included encounters with practical situations that were commonplace. Daily interactions with program clients are examples of routine experiences. Incidents, on the other hand, were characterized by the emotional words and tone with which a participant described it. The majority of experiences and incidents were situations involving dietitians' interactions with pregnant women, either one-on-one or in group situations. This was to be expected considering that a major part of the participants' work centered on assisting or counselling women. Three dietitians discussed their experience working in prenatal nutrition or in community-based project in more general terms. In a few instances (four), participants brought up personal experiences. One participant answered one of

the interview questions by referring to an anecdote shared by a resource mother. She used that vicarious experience as an example of a client interaction which reinforced her thinking.

Day-to-day experiences had a variety of outcomes which will be discussed in more detail in the next section. What was striking about these kinds of experiences was the way study participants would usually refer back to a few of them to account for their learning. Or, participants would refer to them as a whole, group them. Incidents, on the other hand, were characterized by their emotional charge. The outcomes of these kinds of experiences were varied and at times important. Incidents were characterized by how they often led participants to question fundamentals of their practice such as their role, their goals and the effectiveness of prenatal nutrition programs. For example, Zoe and Sara both changed, or were in the process of changing their approach. One stopped seeing clients and was moving away from being a service deliverer to be involved more at a policy level. The other was re-evaluating how best to serve clients, and for now, had stopped seeing clients in favour of group work. Marie and Eliza talked of being discouraged and dissatisfied with the effectiveness of their respective prenatal nutrition program. Each was working to make changes to the way they served their clientele. For these professionals, a main concern was how best to help pregnant women and mothers while being aware of the limitations on their ability to affect nutritional change. Limitations included constraints on the program (e.g. budget, staffing) and the various challenges faced by their clients (e.g. limited education, income or social supports).

As for personal experiences, their greatest impact was on dietitians' affect. They made participants more empathetic, more sensitive to the needs and experiences of their clients. Personal experience also amplified their connection with clients. In follow-up interviews, all participants confirmed the impact of personal experiences on their

practice, particularly the experience of motherhood. It is not entirely surprising that professionals, all of them women and mothers, working in the area of pre and postnatal nutrition would construct knowledge useful to their practice from personal experiences. Of the personal experiences that had an impact on participants' knowledge and practice, one was clearly an incident. This example came from Zoe who explained how the premature birth of her daughter enhanced her empathy for parents and increased her desire to help them. This experience also led to her introduction to a feeding assessment tool which, along with other things, became central to her counselling practice. Annie, Sara and Marie referred to personal experiences to support a point they were making about prenatal nutrition practice. In both Annie's and Sara's case, a personal experience affected their understanding of and empathy for clients. Both related their thoughts and feelings during those experiences to what their program participants might think and feel. Annie, for example, talked of trying to increase her physical activity level. Sara, on the other hand, gave an account of consulting a medical professional. They explained how facing challenges similar to those faced by their clients impacted their thinking about practice. As for Marie, she associated her experience trying to be more physically active to a model of individual health behaviour she heard about. This juxtaposition resulted in her trying to incorporate this model into her practice.

To summarize, experiences that had an impact on study participants' knowledge and practice occurred in both their professional and personal spheres. These experiences can be categorized as day-to-day experiences or incidents. Day-to-day experiences impacted on knowledge and practice as a whole whereas an incident in itself was usually enough to result in knowledge construction and impact practice. Incidents sometimes led study participants to question their role, goals and program effectiveness. Incidents were emotionally charged experiences.

*Research Question One : Process through which Dietitians Reflect on their Practice in Community-based Prenatal Nutrition*

**Process** referred to the thoughts, feelings and actions that described how study participants achieved knowledge construction and improved practice. Based on concepts drawn from participants, this study points to a few process categories. In this part of the analysis, the process concepts that emerged across participants were examined first to identify where the concepts converged. Similar process concepts were then grouped to form a category. Each category was labeled and a description was prepared. I will consider how knowledge construction and improvement of practice was achieved through these categories in the next chapter. Participants terms or terms from the education literature, (particularly on learning taxonomies, e.g. Anderson, Krathwohl et al., 2001; Cranton, 1989; Hauenstein, 1998) influenced how I identified and described the categories. As was explained in the third chapter on methodolody, I used participants' words, whenever possible, to name a concept (within participants). This was done to remain as grounded as possible. For example, "see the same problems" became a concept for Eliza as did "gain a body of experience" for Annie. Both expressions illustrate how experiencing several interactions with clients with similar outcomes led to knowledge construction for each participant. In naming categories (between participants), some of those expressions were retained. If not, concepts were labeled using terms from the literature or my own terms.

First, several process concepts emerged consistently across participants. To facilitate their grouping, table 18 was used. Its first six columns represent concepts drawn from each participant's interviews while the last one represents the categories that emerged from their comparison. Categories are introduced from most common to least common among participants. The first category was **see it happen time and time**

Table 18. Process concepts across participants and resulting process categories

| Eve | Annie | Zoe | Sara | Marie | Eliza | Process categories |
|---|---|---|---|---|---|---|
| See it happen time and time again | Gain a body of experience | Learn in bits and pieces | See happen again and again | See so many | See the same problems | See it happen time and time again |
| Experience something important | Experience something important | Experience something important | | Experience something important | Experience something important | Experience something important |
| Pick up cues | Come into contact | Observe and listen | Observe and listen | Observe and listen | Notice | Notice/pick up cues |
| Evaluate | Evaluate; revisit | Evaluate; reflect back | Evaluate | Evaluate | Evaluate | Evaluate |
| Analyze | Analyze; revisit | Analyze; reflect back; bring together | Analyze | Analyze | Go over what happened | Analyze |
| Put together | Synthesize; revisit | Synthesize; reflect back | Synthesize | Put together | Synthesize | Synthesize |
| Verify | Verify | Verify | Share it | | Talk it over | Verify |
| | Hang in my mind | Dwell on | | | | Dwell on |

**again**. Data from all participants suggested a pooling of similar experiences (cases and counter cases) often took place and prompted knowledge construction. Eve and Sara both mentioned seeing a situation again and again. Similarly, Marie and Eliza referred to seeing, over time, so many, or the same kinds of cases. Annie suggested gaining a body of experience paved the way to knowledge construction. As for Zoe, she mentioned that her learning occurred in bits and pieces, suggesting that each experience added knowledge. Overall, this suggested that an important aspect of reflection was the cumulative nature of the process.

A second category of the reflection process was **experience something important**. This category refers to when a participant had an emotionally charged experience or what was referred to as an incident. Annie, Zoe, Marie and Eliza each described experiences that brought up strong emotions. Generally, knowledge was constructed immediately following such experience. Examples of incidents included Zoe's interactions with a young black mum, Annie's interactions with a cancer patient, Marie's encounter with a mother who had no food left at the end of the month and Eliza's general experience in the prenatal nutrition program. Data suggested each participant experienced these kinds of situations. Eve and Sara concurred that incidents had significant impacts on practice but could not, or would not provide a specific example.

Other concepts for process emerged consistently across participants. These were grouped into the following five categories. One category was **notice/pick up cues**. It referred to an unintentional (notice) or intentional (pick up cues) collection of information from a participant's environment. A distinction is made here between intentionality and receptiveness. Obviously, for dietitians to notice or pick up cues, their "senses [had to be] responsive to stimuli and [their] mind receptive to information

(Hauenstein, 1998, p. 113)." And at times, they purposefully looked for cues such as a client's reaction or question. For example, while facilitating her weekly group session, Annie picked up cues from her clients to determine their level of engagement in the topic and their understanding. These cues included facial expressions, body language and questions asked (or not) or comments made. However, dietitians did not always know what information to look for or anticipate it. For example, Marie and Eliza both noted how at on point they noticed they were counselling the same women again and again.

Another category was **evaluate**. Study participants generally assessed the information collected, for example a client's progress or their own behaviour. They also made value judgments about programs, interventions, strategies or goals driving their actions.

The next category was labeled **analyze**. Analysis involved selectively going over what happened, sorting things out or sifting through information, attending to factors relevant to a situation including one's own feelings, seeing patterns, raising questions, identifying relationships among ideas or issues and comparing and contrasting ideas or situations. In the case of incidents, data suggested raising questions as an important activity. In essence, raising questions provided direction as to a factor or an issue to explore and inquire about. While engaged in information collection, evaluation or analysis, participants often drew on knowledge. Their knowledge provided guidance for which information to collect and how to interpret it. As well, it supported, or at times challenged, analysis. Two concepts, each unique to a different participant, were grouped with 'analyze'. These were: revisit and bring experiences together. Annie brought up 'revisit' and described it as going back to an experience and re-examining it in light of other, more recent experiences. Ultimately, this was seen as similar to when a

participant reported comparing other situations to a current experience. Similarly, 'bring experiences together' was seen as a form of analysis since it consisted of relating two seemingly unrelated experiences to construct knowledge in one particular area. For example, Zoe related knowledge gained from readings she had done on feeding children with knowledge gained from a personal experience (having a baby born prematurely.) It is important to note that in such a case, experiences varied in their essentials. In contrast, experiences classed in the first category, 'see it happen time and time again', were similar situations only with different clients.

Analysis led participants to **synthesize**, which was the next category. Synthesis involved putting together information from a variety of sources into one and reaching a conclusion. In addition, it meant generating solutions, plans, options to achieve goals, resolve a problem or improve a situation. Decisions as to what to do, either at the time, the next time around or in the eventuality of another similar experience were made at this point. In synthesis, participants narrowed down options, investigated an idea or contemplated a new approach. In the case of day-to-day experiences, synthesis entailed pattern recognition. When a participant discovered a pattern, she became aware of links among experiences. She saw similar characteristics, similar issues and similar outcomes at different times or in different situations. Finally, synthesis involved forming or adjusting attitudes, appreciations, interests and values. In general, synthesis was the culmination of the process, and as such it was at that point that clear evidence of knowledge construction or impact on practice could be found.

These activities were not independent as they dealt with the same things. Therefore, there was some overlap. In addition, several participants' words suggested that these activities were both cognitive and affective. For example, Zoe explained how she "got interested" in NCAST and Sara how something "struck a chord" with her.

Their interest and values directed what cues they noticed/picked up, how they evaluated them and so on. Inherent to each activity also was 'play back' or the bringing back to memory of parts of an experience. To play back signifies remembering, re-viewing, looking back on an experience. It is what many would refer to as reflection. Zoe overtly brought up the notion of going over an experience, or parts of it, in one's mind. While Zoe was the only one to directly refer to this process in the interview, other participants agreed that remembering described part of their thinking process following an experience. However, three points justify positioning 'play back' as one of several activities occurring in analysis. One, reflection, as it is defined in this study, had to be more substantial to result in knowledge construction. Second, reflection should not be limited to a time after an experience. As data from this study suggest, reflection begins from the moment one interacts with one's environment. Third, it was partly an artefact of the data collection methodology. Therefore in the end, 'play back' was not included as a category. Nevertheless, it may be considered an important part of the process but subsumed under the other mental activities.

The order in which the above categories (notive/pick up cues, evaluate, analyze, synthesize) are introduced in the table turn out to represents the order in which they generally surfaced during participants' descriptions. However, data also suggested that when participants reflected, they often went back and forth between each activity. For example, analysis led to more gathering of information which was evaluated. Another point to note about these categories is that each had a strong affective component to it. That is, data suggest participants responded both intellectually and emotionally to experiences. At times, it was difficult, if not impossible or desirable, to separate the two. That is taken into account in the description of each category as can be seen in Table 21 which can be found at the end of this chapter.

Another common category was **verify**. Verification entailed sharing an experience or analysis with others. It allowed participants to validate and clarify their thinking and feelings. In addition, it allowed them to get a different perspective. Talking with colleagues, or sometimes family, helped refine or gel a participant's thinking. All but one participant touched upon this activity in the interview or confirmed it in the follow-up interview.

The final process category was **dwell on**. In essence, this category addresses the issue of time. It refers to how participants' think through an experience, from 'notice/pick up cues' to 'synthesize', spanned a period of time. It also suggests the iterativeness of the process with participants going back and forth between mental activities. Annie and Zoe referred to this in somewhat different terms. Annie noted how she thought about an experience for a long time after it happened. As she said, it 'stayed with her', it 'hung in her mind'. Zoe, on the other hand, mentioned how she was inclined to dwell on some experiences, mostly negative ones. This too suggested that a substantial amount of time was spent reflecting on an experience. The fact that a great part of these dietitians' knowledge was constructed from a series of similar experiences also indicates that time was an important aspect of the process of reflection. Participants needed time, as Dewey (1933) put it, to incubate and to see a pattern emerge.

*Research Question Two : Outcome of Dietitians' Reflection*

Outcome referred to types of knowledge constructed by study participants from practice as well as changes made to practice by them. Based on concepts drawn from participants (Table 19), this study points to a few outcome categories. Not surprisingly with experience spanning years of professional practice, dietitians in this study constructed knowledge in several areas of practice. Still, similarities emerged among participants allowing the categorization of the outcomes of reflection, or impacts on

knowledge or practice, into nine categories. Table 19 displays the outcome concepts for each participant. This table was used to compare and contrast concepts and form categories. To introduce outcome categories, the focus is first on knowledge constructed and then on improvements to practice. As this phase of data analysis proceeded, it became clear that the grouping of categories would be represented best by knowledge labels drawn from the literature. A major component of study participants' professional practice was educating clients. Of the taxonomies explored, Shulman's description of teacher's knowledge base (1986, 1987) seemed best suited to sort this important aspect of their practice. From a practical point, adopting Shulman's knowledge categories facilitated grouping of concepts and kept study categories to a manageable number. Other category labels came from Bloom's taxonomy for learning, Alexander, Shallert and Hare (1991) and Boud et al.'s (1985a, 1992b) model of reflection.

The first knowledge category was **affective knowledge**. It included such things as attitudes (e.g. empathy, confidence), interests and appreciations for clients' situations. In the follow-up interview, some study participants noted that to be successful in their work, affective knowledge was more important than knowledge about pregnancy or breastfeeding. Personal experiences seemed to particularly contribute to the development of this knowledge.

The second outcome category was **knowledge of clients**. Other than Sara, study participants came to prenatal nutrition programs and projects after practicing in other contexts such as teaching and hospitals. Therefore, they had little practical knowledge of their clientele. Once in their respective positions, they came into contact with women facing challenging social and economic situations. Knowledge of clients included awareness of those challenges and situations. It also meant knowing about their clients' attitudes, needs, abilities and characteristics, both as individuals and as a group.

Table 19. Outcome concepts across participants and resulting outcome categories

| Eve | Annie | Zoe | Sara | Marie | Eliza | Outcome categories |
|---|---|---|---|---|---|---|
| Affective knowledge | Affective knowledge | Affective knowledge | Affective knowledge | Affective knowledge | Affective knowledge | **Affective knowledge** |
| Knowledge of clients | Knowledge of clients | Knowledge of clients | Knowledge of clients | Knowledge of clients | Knowledge of clients | **Knowledge of clients** |
| Knowing how to do the work | Partnership approach | | Partnership approach | | Counselling approach | **Pedagogical content knowledge** |
| Doing the best you can do | | Role; goals; self-knowledge | | Goals | Goals; self-knowledge | **Metacognitive knowledge** |
| | | Feeding relationships | | Knowledge about pregnancy and breastfeeding | Knowledge about pregnancy and breastfeeding | **Content Knowledge** |
| Effectiveness of peer facilitator | Facilitation and communication skills; importance of skill building | | | | | **Pedagogical knowledge** |
| Understanding the dynamics of community-work | | | | | | **Knowledge of professional context** |
| Adjust strategy/ change practice | Adjust strategy | Adjust strategy; stopped seeing clients;advising | Adjust strategy; change delivery | Investigate new interventions | Adjust strategy; investigate interventions | **Adjust strategy/change practice** |

The third category was **pedagogical/content knowledge**. For Shulman, this knowledge is exclusive to teachers. Similarly, dietitians have a knowledge base that is exclusive to them. It included knowledge applicable to assisting clients change their health behaviours. In addition, it was knowledge that applied specifically to women (pregnant, breastfeeding, mothers) with high needs. It referred to ways of representing nutrition and fostering behaviour change to clients in manageable, attainable terms. For example, it included the partnership approach that Annie and Sara mentioned, or the new interventions developed by Annie and Eliza. It also included Eve's and Sara's approach to counselling whereby they focus on the need of the woman, even at the expense of nutrition. Overall, it consisted of all the strategies, the approaches that study participants mentioned in relation to their clientele.

The fourth category was **metacognitive knowledge**. This category was taken from Alexander, Schallert and Hare (1991). This category includes knowledge of self (one's perceptions of oneself as a learner and a professional) and knowledge of plans and goals. Zoe and Eliza both recounted how their respective experiences taught them about their strengths. Eve, Zoe, Marie and Eliza all talked about adjusting their goals and their criteria for judging the effectiveness of their interventions.

A fifth category was **content knowledge**. Another category stemming from Shulman, this refers to the knowledge of the discipline such as participants knowledge of nutrition in pregnancy and breastfeeding, nutrition in infancy and childhood, pregnancy and breastfeeding, food composition, utilization and availability and so on. It was primarily knowledge that potentially could be shared or communicated to clients. For example, Eliza noted learning about the nutritional needs of pregnant drugs users. Zoe learned how parents' attitudes toward food as well as their behaviours influence

children's nutrition. Although only Zoe, Marie and Eliza brought it up, it is safe to say that all participants developed this knowledge. As Annie suggested though, it might not be considered by most as crucial to be effective.

The sixth outcome category was **pedagogical knowledge**. It referred to general principles and strategies of counselling, group facilitation, learning, behaviour change and communication skills. It was knowledge that the dietitians could have used with clienteles other than pregnant and breastfeeding women with high needs. For example, Annie's learning about counselling and group facilitation would fit here, as well as, skill building, a strategy Annie hoped to incorporate more into her project. It fits here as opposed to the pedagogical/content knowledge category because she referred to it as applicable to any population.

Another category inspired by Shulman's writing was **knowledge of professional context**. This seventh category of knowledge referred to dietitians' knowledge of their organization, or agency (their structure, program, services, goals etc.) and their community (its demographic, health, social, cultural and economic details, trends affecting it, its resources etc.). This knowledge was evident in Eve's interview. She emphasized how much she had learned about community-based work and how important it was to be knowledgeable about the community.

The last outcome category is qualitatively different from the other categories which all relate to knowledge. It relates to the kinds of changes participants made to improve their practice. Dietitians made minor and major changes following their interactions with clients. In favour of simplicity, minor changes and major changes study participants reported having made to their practice were grouped under one general category: **adjust strategy/change practice**. Examples of minor changes included adjusting a strategy when

counselling or teaching clients and integrating a new technology into one's practice. Although minor, their importance to practice and to dietitians' reflection and learning was noted and taken into account in the description of this category. Two major changes to practice emerged in several participants. One was changing service delivery. For example, Zoe stopped seeing clients, Sara moved toward doing more group work. Marie and Eliza, although they were still at the planning stage due to organizational restrictions, were hoping to implement more targeted interventions (e.g. focus on first time mothers) and group work. Another one was a change made by Eve. She noted how she now looked for opportunities for clients and initiated projects to involve clients. Therefore, the category **adjust strategy/change practice** reveals minor or major changes mentioned by participants. Dietitians sometimes made changes that would enhance their professional satisfaction. However, whatever the impact on practice, the intent was first and foremost to improve practice.

*Research Question Three : Conditions Conducive to Dietitians' Reflection*

Conditions referred to the factors that influence reflection. These factors either favoured reflection or hindered it. Based on concepts drawn from participants (summarized in Table 20), this study points to a few such factors. A first factor was **emotions**. Experiences recalled by dietitians were either qualified as positive, negative or neutral. Positive experiences were characterized by words such "pleased", "comfortable" whereas negative experiences by words such as "crummy", "inept". Neutral experiences were experiences in which there were no obvious emotions or feelings. That is, neutral experiences were not clearly polarized. Neutral experiences were also characterized by vague references to experiences ("I've seen teenagers" or "I remember times") and the participants did not provide indication as to what emotions

Table 20. Condition concepts across participants and resulting condition categories

| Eve | Annie | Zoe | Sara | Marie | Eliza | Condition categories |
|---|---|---|---|---|---|---|
| Emotions | Emotions | Emotions | Emotions | Emotions | Emotions | **Emotions** |
| Colleagues | Colleagues | | Exposure to other perspectives | People | Colleagues | **Colleagues** |
| Conext; spending time actually at the centre | Program evaluations | | | | Opportunity | **Context** |
| | Readiness | | Personality; readiness | | Personality | **Personal characteristics** |

these experiences generated. In some cases, neutral experiences did not present much human interaction. For example, Eliza talked of learning to use a new formula to do diet calculations. Though these experiences were not particularly memorable, study participants linked some of their learning to it. Generally, study participants felt they learned just as much from positive experiences as negative ones although they seemed to recall negative experiences more easily than positive ones. Eliza was an exception. According to her, it was easier to recall positive experiences because there were so few in this kind of practice. Experiences that evoked strong feelings or emotions stayed with participants longer and were easier to recall. Some participants noted that they reflected more on negative experiences because they were motivated to alleviate the emotions stirred up and to prevent their reoccurrence. On the other hand, some participants reported not reflecting as much on positive experiences. They did not spend much time examining it. Instead, they simply enjoyed it. Others countered that they learnt as much from positive experiences, again because of their motivation to repeat what worked well.

**Colleagues** was the next condition category. Dietitians in this study worked closely with their colleagues, either other dietitians, nurses or managers. They shared responsibility for the direction a program or a project took. Participants' reflection was thus greatly affected by the different perspectives of their colleagues. This category is different from verify. Verify was an activity whereby study participants actively sought others to share an experience, validate, clarify and refine their thinking and feelings. Colleagues as a factor influencing reflection, or condition, conveyed how other perspectives presented themselves to study participants. It was more passive than

verify. It brings up an interesting issue, that of reflection of individuals versus reflection of groups.

A third factor influencing reflection was **context**. Context referred to any aspect of the physical, social, cultural or professional environment of a participant. For example, evaluations were generally integral to projects or programs. Two participants talked about doing evaluations to collect information on the effectiveness and impact of interventions. Both dietitians worked in community-based prenatal nutrition projects. This might be explained by the fact that each project, as part of its renewal application for funding, had to submit evaluations. These evaluations required that the dietitian ask project clients about changes made due to the project as well as their thoughts about the project. Through this task, dietitians were sometimes confronted with information that triggered reflection or contributed to an on-going reflection. Another aspect of context was the organizational culture. Two participants, Annie and Zoe, addressed this issue indirectly. Both felt the organization's stance toward professional learning and improvement of practice influenced them. If the organization was supportive, they were more motivated to reflect on their experiences. Context also included such factors as changes in the area of prenatal nutrition, in an organization or in a project's structure. Opportunity, a chance or an opening offered by circumstances to experience something or more of it, or to implement a change, was also considered a contextual factor.

A final condition category was **personal characteristics** which included personal traits, such as openness and inquisitiveness, and readiness. Emotions and colleagues were the most common conditions, or factors influencing reflection, emerging from this study.

*Summary*

To summarize this second analytical phase, Table 21 displays process, outcome and condition categories of reflection obtained from concepts between participants. Participants' words, terms from the literature as well as my own were used as labels to identify a category. For each category, a description of what it entails is provided. In all, eight process categories emerged, eight outcome categories and four condition categories. The table indicates the distribution of categories between participants. Each time evidence of a category can be found in the interviews of a participant, an "x" mark was made. In the first column, research questions are represented: process, outcome and condition. The other six columns represent participants. The table starts with categories that were most common across participants and ends with those that were unique to one or two participants. This display of convergence provides indication of the strength of each category.

Table 21. Description of process, outcome and condition categories and their distribution across participants (continued)

| Category and description | Eve | Annie | Zoe | Sara | Marie | Eliza |
|---|---|---|---|---|---|---|
| Process: | | | | | | |
| **See it happen time and time again**: when a participant experiences similar situations over time and constructs knowledge from this body of experience | X | X | X | X | X | X |
| **Experience something important**: when a participant has an emotionally charged experience (an incident) | X | X | X | X | X | X |
| **Notice/pick up cues**: when a participant unintentionally (notice) or intentionally (pick up cues) collects information from her environment (e.g. client statements or behaviour); monitors client behaviour, progress, participation; monitors her thinking or actions | X | X | X | X | X | X |
| **Evaluate**: when a participant determines progress in relation to a goal (e.g. client made a lot of changes); makes a value judgment; assess her actions, behaviours | X | X | X | X | X | X |
| **Analyze**: when a participant selectively goes over what happened; sorts things out/sifts through information; attends to factors relevant to a situation including her own feelings; raises/asks questions; identifies relationships among ideas or issues; compares and contrasts ideas or situations; relates personal experiences to professional ones or past experiences to current one; bring together different experiences | X | X | X | X | X | X |
| **Synthesize**: when a participant puts together information from a variety of sources into one and reaches a conclusion; generates solutions, plans, options to achieve goals, resolve a problem or improve a situation; makes a decision; sees a pattern; investigates an idea | X | X | X | X | X | X |

Table 21. Description of process, outcome and condition categories and their distribution across participants (continued)

| Category and description | Eve | Annie | Zoe | Sara | Marie | Eliza |
|---|---|---|---|---|---|---|
| Process (continued) | | | | | | |
| **Verify**: when a participant seeks feedback from colleagues or other people; seeks alternative perspectives; sorts out feelings, conclusions, solutions, options or plans through discussion; validates experience with others; shares experience and thinking about it to clarify and refine it | X | X | | X | X | X |
| **Dwell on**: when a participant thinks through an experience or incident (notice/pick up cues, evaluate, analyze and synthesize) over time and at times iteratively | | X | X | | | |
| Outcome: | | | | | | |
| **Affective knowledge**: refers to attitudes, interests, values, appreciations | X | X | X | X | X | X |
| **Knowledge of clients**: knowledge of clients' situations and challenges, of their characteristics, needs, abilities and attitudes, both as individuals or as a group | X | X | X | X | X | X |
| **Pedagogical/content knowledge:** knowledge to assist women with high needs (pregnant, breastfeeding, mothers) change health behaviours; ways of representing nutrition information to clients and fostering behaviour change in them in manageable, attainable terms | X | X | | X | | X |
| **Metacognitive knowledge:** refers to knowledge of self as a learner and a professional; knowledge of plans and goals | X | | X | | X | X |
| **Content knowledge**: knowledge about nutrition in pregnancy and breastfeeding, pregnancy, breastfeeding, food utilization, availability etc. | | | X | | X | X |

Table 21. Description of process, outcome and condition categories and their distribution across participants (continued)

| Category and description | Eve | Annie | Zoe | Sara | Marie | Eliza |
|---|---|---|---|---|---|---|
| Outcome (continued) | | | | | | |
| **Pedagogical knowledge**: refers to general principles and strategies of counselling, group facilitation, learning, behaviour change and communication skills (refering to any population) | X | X | | | | |
| **Knowledge of professional context:** knowledge of organization, agency (its structure, services, goals); knowledge of the community (demographic, health, social, cultural and economic facts) | X | | | | | |
| **Adjust strategy/change practice** : refers to minor and major changes made or planned by a participants (e.g. how dietitians interact with clients, integrating clients in project initiatives) | X | X | X | X | X | X |
| Conditions: | | | | | | |
| **Emotions**: refers to any emotions and feelings (e.g. satisfaction, feeling crummy, discouraged) a participant had during or following an experience | X | X | X | X | X | X |
| **Colleagues**: refers to exposure to different perspectives or questions about practice, generally from colleagues; | X | X | | X | X | X |
| **Context**: refers to any aspect of a participant's physical, social, cultural and professional environment (e.g. organizational culture, evolution of a program, program evaluations); refers to a chance or an opening offered by circumstances to experience something or more of it | X | X | | | | X |
| **Personal characteristics**: refers to personal traits, qualities of a participant, attitudes, motivation | | X | | X | | X |

# CHAPTER FOUR

## Discussion and Conclusion

The purpose of this study is to assist dietitians in their quest for continuous learning and improved practice by documenting experiences of dietitians and exploring the reflection process embedded in this data. This exploration was guided by three research questions; 1) What is the process through which dietitians reflect on their practice in community-based prenatal nutrition?, 2) What are the outcomes of dietitians' reflection? and 3) What conditions influence dietitians' reflection? **Process** referred to how a participant constructed knowledge about practice and improved it from experience. Specifically, it involved her thoughts, decisions, actions and emotions and their progression over time. **Outcome** referred to either an impact on practice or learning (knowledge construction.) **Condition** referred to any factor that may influence a participant's construction of knowledge or improvement of practice from experience. Through the review of the literature, knowledge construction and changes to practice were identified as the two main outcomes of reflection. Therefore, the focus of the second research question became an exploration of the types of knowledge constructed and the types of changes made to practice. To address these questions, six dietitians working in community-based prenatal nutrition projects or in prenatal initiatives within public health units were interviewed. Interview questions were based on the literature on reflection and the critical incident research methodology. Dietitians were invited to share examples of experiences or incidents that were puzzling, satisfying or surprising, or that had an impact on their knowledge about practice or on their practice, or that led to learning.

In this chapter, the results of the study are interpreted and related to the existing literature. A conceptual framework is first put forward as a representation of the categories that emerged from this study and the relationships among them. The intent of this framework is to depict how study participants constructed knowledge and improved practice. In the second part of this discussion, the framework, particularly as it relates to process, outcome and conditions, is comapred and contrasted with the literature on reflection. Initially, the focus is on the eight conceptualizations of reflection found in the review of the literature and then it expands to include other empirical studies on reflection. The eight conceptualizations of reflection were those of Dewey (1933), Schön (1983, 1987), Boud and Walker (1985a, 1992b), King and Kitchener (1994), Laboskey (1994), Taggart (1998), Colton and Sparks-Langer (1994), and McAlpine and Weston (1999a, 1999b, 2000). The third part of the discussion explores four key results in relation to the literature. The literature used to explain study results come from three different areas of research. The literature on reflection provides a first point of comparison. Interpretation then draws on the education literature, particularly on learning, and finally, interpretation also draws on non-education literature such as the management literature and the literature on emotions. The chapter closes with a discussion of the strengths and limitations of the study and directions for future research in the area of reflection as well as implications for professional development in dietetics.

Before going into interpretation, it might be useful to review some of the assumptions I had going into this study and how they were challenged. These assumptions were based on my involvement in a research program on reflection, on my interpretation of the literature and on my own experience as a professional dietitian and

a learner. Unwittingly, I went into the pilot and data collection looking for instances of new knowledge being constructed. I was looking for 'aha' moments, for epiphanies. This bias might have led me to neglect experiences that simply confirmed or elaborated previous knowledge. Fortunately, an exchange with the second study participant (Annie) reminded me that knowledge construction could be the refinement or reinforcement of prior knowledge. Second, my review of the literature and my own experiences, both professional and personal, led me to think that meaningful learning primarily came out of certain kinds of experiences. An experience had to be noteworthy in some way, either because it was uncertain, puzzling, surprising, problematic or emotional. Although such experiences were documented in the course of data collection, that assumption was quickly challenged, again by a study participant (Eve). She clearly indicated that her knowledge about practice was not only constructed from incidents. Rather it often developed from multiple experiences over time.

This brings me to the results of this study, particularly four which strike me as key results. The first result relates to the kinds of experiences documented. Day-to-day, routine experiences largely contributed to knowledge construction and improvement of practice. The contribution of routine experiences was a function of their repetition over time. Although incidents also impacted strongly on knowledge and practice, their incidence in data was less. In addition, experiences contributing to knowledge construction could be personal or professional. The second result of interest relates to the role of affect in turning experience into knowledge about practice and improving it. The word affect is meant here in a broad sense to include emotions, feeling, attitudes, values and appreciations that may lead to action. Many concepts and categories grouped either under process, outcome and condition, had strong affective connotations. The third result relates to the outcomes of reflection, specifically to types

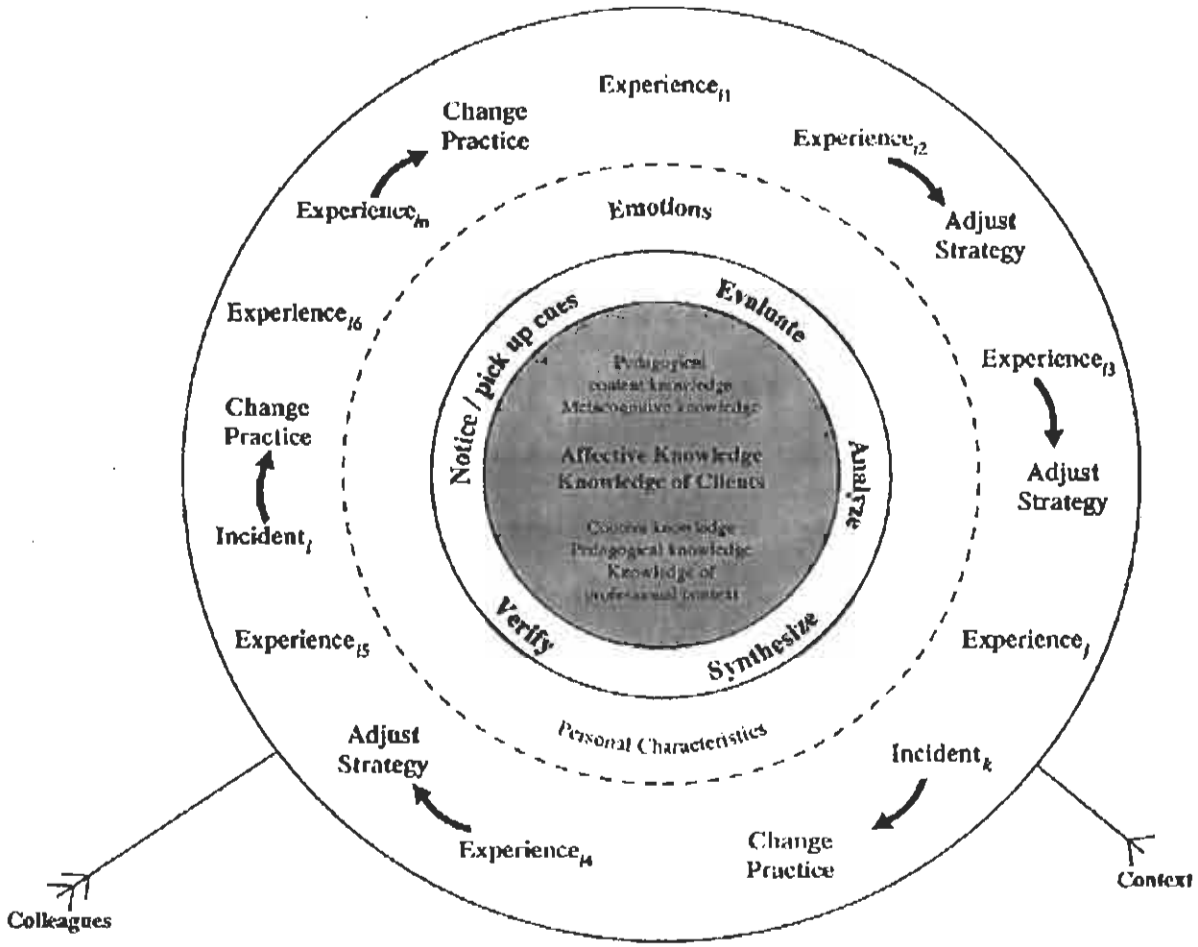
of knowledge. Interestingly, affective knowledge and knowledge of clients consistently emerged as constructed from experience. Furthermore, some participants identified these knowledge categories as essential to effective practice in prenatal nutrition. The last and fourth result revealed a social aspect to reflection. For example, one mental activity which contributed to knowledge construction and improvement of practice was **verify**. Furthermore, study results suggested colleagues as a factor influencing reflection. These results will be compared and contrasted to the literature following a description of the conceptual framework.

## The Conceptual Framework

The conceptual framework (Figure 6) represents instances of knowledge construction and improvement of practice as found in the data. A first and centre circle represents knowledge. As noted in the previous chapter, knowledge here is understood as dietitians' stock of information as opposed to universal truths. Knowledge is positioned at the centre because it guides thinking and actions. The knowledge outcome categories resulting from data analysis are listed in this circle. At the centre of this list and in **bold letters** are **affective knowledge** and **knowledge of clients** as these were most common types of knowledge across study participants. In addition, some participants noted it was an important knowledge base for their particular area of practice. 'Affective knowledge' is also important because it denotes how practice and our understanding of it are guided by both affective and cognitive knowledge. Other outcome categories are listed, from top to bottom, in order of appearance in Table 19. The last outcome category, **adjust strategy/change practice**, which represents changes in practice will be discussed later.

Around this knowledge circle is a ring. This ring represents mental activities used to construct knowledge and improve practice as suggested by the data. These five

Figure 6. Conceptual framework of Reflection



internal process categories are: **notice/pick up cues, evaluate, analyze, synthesize and verify**. These activities have a cognitive and an affective side. Generally speaking, these activities are activated in some order starting with notice/pick up cues then evaluate and analyze, moving ultimately towards synthesize. Verify seemed to take place at different points in the process depending on if the participant hoped to share an experience, validate feelings or a conclusion reached. Since data suggest there is movement back and forth between mental activities, order or an entry point is not represented graphically. Rather, categories are evenly distributed in the ring to represent fluidity. The placement of the ring is inspired by the work of Alexander, Schallert and Hare (1991) who created a framework to organize knowledge constructs. These authors suggest that knowledge construction occurs at the interface between prior knowledge and external conditions. In their own words:

> There is the point, of course, when the individual's existing knowledge base must come into contact with the immediate and sometimes unpredictable world in which that individual operates. (p. 330)

They also stress the dynamic nature of knowledge, partly due to "its confrontation to the world external to it." The framework presented here incorporates these notions by positioning mental activities (ring) between knowledge (core circle) and experiences (outer circle). Mental activities mediate between knowledge and experience and, generally, result in knowledge construction.

Separating the participants' internal from their external environment is another ring. This ring represents two internal factors influencing reflection, **emotions** and **personal characteristics**. These factors act like a selective membrane, affecting how experiences are interpreted and whether or not the process proceeds Like affective

knowledge and knowledge of clients, emotions is emphasized more than personal characteristics to indicate its constant emergence across participants.

Drawing and describing a graphic representation of study categories raised questions, especially as it regards four categories. These categories were qualitatively different from other categories grouped under the same heading. Three of these four ended up being placed in a final and outer circle. Two are process categories and one is an outcome category which suggest that there might be ways of thinking about them other than process and outcome. First, the process category **see it happen time and time again** can be seen in the labels experience with the subscripts *i* and number 1, 2, 3 and so on to *n*. This is to symbolize that, according to study data, some day-to-day, routine experiences were repeated so many times (*n*). For examples, Marie shared how seeing so many women return for nutritional counselling on their second, third and even fourth pregnancy impacted her thinking about her practice. These experiences accumulated (the exact number of times was not revealed in data) and contributed to Marie's knowledge as well as affected her practice. Second, the process category **experience something important** is denoted by the label incident. There are two incident labels in the circle, one with the subscript *k*. The greater amount of representations of experiences versus incidents found in the circle communicates how routine experiences dominated in study data. Study data did not suggest a sequence to experiences and incidents which is why the labels symbolizing them are placed somewhat randomly in the outer circle. Ideally, the diagram would have depicted the never-ending string of experiences that make up one's professional and personal lives. Unfortunately, that was graphically difficult to represent.

After much debate, the outcome category, **adjust strategy/change practice**, was positioned in the same circle as experiences and incidents. This is an important

category because it suggests the impact of experiences on practice. Different graphic representations were considered including putting the category as part of experiences and incidents to indicate that changes were made either during the experience or following it as well as that changes affected the course of an experience. In a sense, it resulted in a new experience. An example might make this point easier to picture. Annie, for one, talked about changes she would make in her instructional strategies during group sessions she facilitated. These changes might have been minor but they were part of her effort to improve practice and as such originated from her reflection. Still, they changed the course of the experience. On the other hand, Zoe, Sara, Marie and Eliza all shared how their couselling experiences with clients led them to reconsider their interventions. Sara did fewer and fewer home visits in favour of group sessions. Her action stemmed from her reflection and led to a new series of experiences. In the end, a better way to represent the continuity between experiences and changes proved to be an arrow flowing out of an experience to adjust strategy or change practice. Adjust strategy refers to minor changes practitioners made during or following an experience while change practice refers to major changes. These latter types of changes generally followed an incident or so many similar, routine experiences ($i_n$).

Another category that proved too difficult to represent graphically was **dwell on**. This process category alluded to when a study participant thought through (notice/pick up cues, evaluate, analyze, synthesize and verify) experiences or an incident over a period of time and often iteratively. It also hints at pauses in reflection which were apparent in study data. The on/off characteristic of the process was revealed in two concepts found in Annie and Zoe's data. These were 'hang in my mind' and 'dwell on.' The fact that some knowledge construction proceeded from an accumulation of experiences also suggested these variations in movement. In addition, it confirmed that

reflection sometimes spanned a considerable period of time. As it is, the diagram regrettably implies continuity in the process of reflection.

One last component of the diagram symbolizes the external conditions or factors influencing the reflection process. Lines and arrows pointing to the circle were selected to graphically depict these conditions. Two condition categories which resulted from data analysis were included here: **colleagues** and **context**. Colleagues was emphasized on the diagram to show its importance. Its strength is denoted by the thickness of the line and the double arrows. In contrast, context was depicted as using a shorter, thinner line and a single-arrowed line.

At first glance, this conceptual framework might seem to imply that everyone learns from their experiences. However, some of the framework's components suggest otherwise. First, as the definition indicates, conditions might facilitate, hinder or stop reflection altogether. Therefore, factors such as emotions or personal characteristics might come into play and prevent learning from an experience. Second, as mentioned earlier, reflection has a rhythm. As one participant explained, "you think about it, then it fades away, then it comes back and you think about it some more." It follows that if the process can be paused it can be aborted. In the latter case, there would be no learning from an experience. Third and last, learning at times resulted from the accumulation of experiences. Therefore, learning was not immediately evident, not until one had lived through enough experiences to discover a pattern.

### The Conceptual Framework and Other Conceptualizations of Reflection

In this second part of the discussion, the conceptual framework drawn from study data is compared to eight authors' conceptualizations of reflection. These conceptualizations were reviewed prior to data collection and are reviewed again in light of study results. The authors include Dewey (1916/1944; 1933), Schön (1983, 1987,

1988, 1995, 1996), Boud and Walker (1985a, 1985b, 1990, 1992b, 1994, 1996, 1998, 2001), King and Kitchener (1994), Laboskey (1994), Taggart (1998), Sparks and Colton-Langer (1994) and McAlpine and Weston (1999a, 1999b, 2000, 2001). Additional writings by some authors (e.g. Dewey, McAlpine & Weston) were also added. This literature emates from different professional contexts. However, transposing it to dietetics is appropriate given the similarities in professional roles. Dietitians, much like teachers or social workers, are members of a helping profession. They put in place interventions to help others learn. In this case, the object of the intervention is learning about healthy food choices and adopting healthier behaviours.This comparison proceeds by research questions and therefore begins with an examination of process and moves on to outcome and condition.

*Process of Reflection*

Analysis of study data resulted in seven categories related to process, or how knowledge construction and improvement of practice were achieved by dietitians. Comparison of these study categories with the eight authors' conceptualizations of reflection can be found in Table 22. The first two categories, **see it happen time and time again** and **experience something important**, provided a glimpse into the kinds of experiences that contributed to the process as well as their relationship. According to study data, any experience, be it positive or negative, routine or emotionally charged, professional or personal could initiate reflection. The authors' views vary on this point. For Dewey, reflection arises from doubt, perplexity or hesitancy. King and Kitchener, Taggart, and Laboskey see problematic situations as the thrust for reflective activity. These kinds of situations could be equated to emotionally charged experiences although the degree of emotions may vary. That point will be explored in the following part of the discussion. What this study's results also suggest is that perplexing, doubtful or

Table 22. Process of Reflection and Eight Conceptualizations of Reflection

| This study | Dewey | Schön | Boud et al. | King and Kitchener | Laboskey | Taggart | Colton and Sparks-Langer | McAlpine and Weston |
|---|---|---|---|---|---|---|---|---|
| See it happen time and time again | Multiple trials/ cumulative growth | Multiple practice situations | | Solutions re-evaluated when new evidence available | | Process repeated | Cycle reapeated | Multiple repeated observations and interactions; on-going |
| Experience something important | Be puzzled, surprised, satisfied | Be puzzled, surprised, satisfied | Be puzzled, surprised, satisfied | Be puzzled, surprised, satisfied | Be puzzled, surprised, satisfied | Be puzzled, surprised, satisfied | Be puzzled, surprised, satisfied | Be puzzled, surprised, satisfied |
| Notice/ pick up cues | Observe/ collect evidence | Observe; notice | Notice | Collect evidence | Define problem | Identify a problem | Observe/ gather information | Monitor cues |
| Evaluate | Evaluate alternative views | Evaluate evidence | | Evaluate evidence, solutions | Define problem | Identify a problem; evaluate | | Evaluate cues |
| Analyze | Examine/ analyze evidence; evaluate alternative views | Analysis; construct judgement; assess risks | Attend to feelings; re-evaluating experience | Interpret; compare evidence compare different perspectives | Define problem, Analyze means-ends | Identify, frame and reframe the problem | Analyze/ interpret | Compare to goals |
| Synthesize | Generate alternative views; draw conclusions | Invent/choose course of action; restructure understanding | Re-evaluating experience | Construct solutions | Generalize | Generate solutions | Hypothesize | Make decision |
| Verify | | | Attending to feelings; returning to experience | | | | | |

problematic issues do surface, but from a series of experiences rather than one unique instance. An experience in itself might not be negative. Rather, it is its repetition over time, or of a particular aspect of it, that generates a negative evaluation. For example, Marie and Eliza both interacted with pregnant mothers daily, including clients on their second, third even fourth pregnancy. Though each interaction was not necessarily negative, both Marie and Eliza saw this pattern (women repeatedly returning for counselling) as negative. On the other hand, Schön, Boud and Walker, Colton and Sparks-Langer, and McAlpine and Weston contend, each in their own way, that reflection may ensue from a variety of experiences. These authors' views would support the study finding that any experience may initiate reflection. For Schön, as well as for Boud and Walker, either a positive or negative experience may lead one to reflect. Sparks and Colton-Langer view reflection as a volitional act. Therefore, one may choose to attend to whatever experience one has. What motivates this choice is unclear from their writing. Finally, in their study of university professors, McAlpine and Weston found that professors examined both positive and negative teaching episodes. The fact that dietitians constructed knowledge from the accumulation of day-to-day, routine experiences also finds support in some of the authors' writings. Reading through different pieces, I found that Dewey, Schön and McAlpine and Weston all refer to multiple experiences. In addition, King and Kitchener, Taggart, Colton and Sparks-Langer and McAlpine and Weston point out how the cycle of reflection is repeated or is on-going.

A second point of comparison between the eight conceptualizations and study categories relates to mental activities that mediated knowledge construction and improvement of practice. These activities were captured by five categories: **notice/pick**

**up cues, evaluate, analyze, synthesize** and **verify**. These categories are equivalent to elements or descriptors found in the eight authors' conceptualizations. Most included notice/pick up cues, or the observation, monitoring, noticing of evidence, cues or information. Laboskey and Taggart, however, simply refer to defining or identifying a problem which would likely include some form of observation on the part of the practitioner. Neither of them clearly states it though. Evaluate is also found in most authors' conceptualizations. While some (e.g. Schön, McAlpine and Weston) focus on the evaluation of evidence or cues, others (e.g. Dewey, King and Kitchener) refer to the evaluation of solutions and views. As with the previous category, connotations of evaluation could be inferred from Laboskey's element 'define a problem' and Taggart's element 'identify a problem'. Similarly, Boud and Walker describe 're-evaluating experience' as a mostly analytical mechanism but it clearly contains an evaluative aspect. Two categories, analyze and synthesize, can be found across all authors. Everyone describes reflection as an analytical and a creative process. The last category, verify, comes through in Boud and Walker's writing and to some extent King and Kitchener's writing and, perhaps even Dewey's. Boud and Walker, in describing the main elements of their model, include activities such as recounting the experience to others, attending to feelings by sharing them with others and validating emerging ideas with others. King and Kitchener and Dewey suggest one important aspect of reflection is to compare alternative views or perspectives on the issue or problem at hand. This could be equated to verification as described in this study. The other conceptualizations depict reflection as a mostly private act. Study data, on the other hand, suggest reflection is both an individual and a social process of knowledge construction and improvement of practice.

A third aspect of the process of reflection brought forth by interpretation of study data to compare and contrast with the eight conceptualizations refers to a duality found in each mental activity. As was explained in the previous chapter, study data suggest these activities had both cognitive and affective facets. Cognitive is associated with rationality (for lack of a better word) and affective is associated with attitudes, values, interests and motivations. For example, Zoe's account of an incident with a young black mum and her reflection about it suggested that her evaluation and analysis of the events were both cognitive and affective. On the cognitive side, she judged the placement of this mum with a group of middle class white folks to be regrettable. On the affective side, she determined she did not have the competence to help. There was no rational basis for this reasoning as the mum did not blame her. But Zoe felt she failed to help the mother and, as she saw this as a key aspect of her role, it influenced her thinking about the events. Of the eight authors, Boud and Walker as well as Laboskey allude to the affective side of reflection. Schön's emphasis on artistry could be taken as an acknowledgement of the two sides of reflection. Most authors though include some form of affect as a condition influencing reflection. This aspect of the process is not sufficiently discussed in the literature on reflection. Therefore, it will be explored in more depth in the next section drawing on different literatures.

*Outcomes of Reflection*

Analysis of study data resulted in eight outcome categories or types of knowledge constructed about practice and impacts on practice. These are compared and contrasted to what was found in the eight authors' conceptualizations (see Table 23). In this study, changes to practice varied greatly but were grouped under one category **adjust strategy/change practice**. This category was created to account for the minor changes dietitians made day-to-day (adjust strategy), such as adapting materials

Table 23. Outcomes of Reflection and Eight Conceptualizations of Reflection

| This study | Dewey | Schön | Boud and Walker | King and Kitchener | Laboskey | Taggart | Colton and Sparks-Langer | McAlpine and Weston |
|---|---|---|---|---|---|---|---|---|
| Affective knowledge | Knowledge construction | New understanding | New affective state | Knowledge construction | Emotional states; values-attitudes | Schema | Personal views and values | |
| Knowledge of clients | Knowledge construction | New understanding | New understanding | Knowledge construction | Beliefs-knowledge | Schema | Students | Knowledge of learners |
| Pedagogical content knowledge | Knowledge construction | New understanding | New understanding | Knowledge construction | Beliefs-knowledge | Schema | Pedagogy | Pedagogical content knowledge |
| Metacognitive knowledge | Knowledge construction | New understanding | New understanding | Knowledge construction | Reflective skills | Schema | Scripts | |
| Content knowledge | Knowledge construction | New understanding | New understanding | Knowledge construction | Beliefs-knowledge | Schema | Content | Content knowledge |
| Pedagogical knowledge | Knowledge construction | New understanding | New understanding | Knowledge construction | Beliefs-knowledge | Schema | Pedagogy | Pedagogical knowledge |
| Knowledge of professional context | Knowledge construction | New understanding | New understanding | Knowledge construction | Beliefs-knowledge | Schema | Context | |
| Adjust strategy/ change practice | Action/ testing | Change in situation | Intervene; change behaviour | | Solve educational problems | Experiment-ation; acceptance or rejection of solution | Action | Decision making |

to fit a particular group or using different strategies to communicate the same message, as well as the major changes they made (changee practice) such as exploring other forms of interventions like group work or ceasing to see clients. (As mentioned at the beginning of Chapter 3, for the purpose of this study these changes were considered as improvements because the intent of the practitioner was to improve her effectiveness. Discussion on the merits of these changes is not the focus of this dissertation.) Every author but King and Kitchener acknowledge changes to practice as a result of reflection.

Knowledge construction was identified in the review of the literature as one point on which all authors agreed. While Boud and Walker talk of new understandings and Taggart of new schema, they basically refer to the same outcome. The focus of the study then became to determine the types of knowledge dietitians constructed from their experiences. Dewey, Schön, King and Kitchener and Taggart talk of knowledge construction in general terms. Accordingly, one could assume some of this knowledge to be within any of the categories identified in this study. **Affective knowledge**, which emerged from this study as a common and significant type of knowledge constructed from experience, might be included. Whether or not it was their intent is unclear from their writings. Boud and Walker also discuss the outcome of reflection in general terms. However, they do include 'new affective states' as an alternative outcome to 'new understandings'. Affective states could relate to attitudes, values, interest and emotional states. As for Laboskey, she outlines three major outcomes from reflection: emotional states, values-attitudes, beliefs-knowledge and reflective skills. Her first category, 'emotional states, values-attitudes', is equivalent to the affective knowledge category found in this study. 'Beliefs-knowledge', her second category, could incorporate knowledge bases such as content, pedagogical, pedagogical content and

professional context knowledge. The third category, 'reflective skills', would be covered under **metacognitive knowledge**. Finally, Colton and Sparks-Langer and McAlpine and Weston largely categorized knowledge according to Shulman's (1987) classification. Shulman's categories having also been used to organize study participants' knowledge, there are many similarities between this study and their work. Both group of authors refer to knowledge of clients (students or learners depending on the context). In fact, McAlpine and Weston found this type of knowledge to be significant in the practice of the university professors they interviewed. In addition, Colton and Sparks-Langer suggest 'personal views and values' as one knowledge category. This is similar to the affective knowledge category found in this study. However, these authors' choice of terms suggest a narrower applications focusing on values as opposed to including interest and motivation.

*Conditions of Reflection*

The final point of comparison is conditions influencing reflection. Conditions included any factors influencing reflection. While four categories emerged from this study, data suggest **emotions** and **colleagues** as primary influences. Categories are compared and contrasted in Table 24 to what eight authors have said about condition. To various extents, each author(s) addresses factors influencing reflection. Comparing the four categories obtained from this study data with those suggested by them, showed some parallels. **Emotions** are addressed by Boud and Walker as well as Colton and Sparks-Langer. This aspect of reflection, however, is not sufficiently discussed in the literature on reflection. Therefore, it will be explored in more depth in the next section drawing on different literatures. **Colleagues**, which refers to exposure to different perspectives or questions about practice, appear in Boud and Walker's conceptualization of reflection as well as in Laboskey's and Colton and Sparks-Langer's

Table 24. Conditions to Reflection and Eight Conceptualizations of Reflection

| This study | Dewey | Schön | Boud and Walker | King and Kitchener | Laboskey | Taggart | Colton and Sparks-Langer | McAlpine and Weston |
|---|---|---|---|---|---|---|---|---|
| Emotions | | | Feelings | | | | Feelings | |
| Colleagues | | | | | Structural aids (interactions with a supervisor, colleague, peer or 'coach') | | Dialog with more skilled or knowledgeable individual | |
| Personal characteristics | Open-mindedness; whole-heartedness; responsibility; concern with issue; tolerance for uncertainty | Openness | Characteristics of learner | Developmental stage; responsibility | Attitudes | | Flexibility; socially responsible; consciousnes; efficacy; motivated to grow | Prior knowledge; willingness to take risks; personality; motivation to improve and learn |
| Context | | Contextual factors | Scrutiny of others | | Structural aids (e.g. journal writing, practitioner research) | Context | Collegial environment | Opportunity for frequent practice |

conceptualization. Laboskey includes interactions with any colleague whereas Colton and Sparks-Langer limit it to interactions with a more skilled or knowledgeable colleague. Boud and Walker, on the other hand, warn about the potentially negative effect others can have. They relate the influence of others on reflection to an evaluative, judgmental context. Study participants noted how colleagues often influenced their motivation to reflect, triggered or steered their reflection in a particular direction. This aspect of reflection also merits further exploration which will come in the next section. **Personal characteristics**, which included personal traits of a participant, were addressed by all but Taggart. Dewey, Schön, King and Kitchener, Laboskey, Colton and Sparks-Langer as well as McAlpine and Weston all refer to personal traits as a determinant of reflectivity. These authors bring up specific factors which are very interesting to consider. For example, they mention concern with an issue (Dewey), responsibility (Dewey, King and Kitchener), motivation to grow (Colton and Sparks-Langer) or to improve and learn (McAlpine and Weston), efficacy or a sense one can make a difference/help and a willingness to take risks (McAlpine and Weston). Although not expressed in words, these traits could be gleaned from study participants' description of experiences. For example, Zoe's description of her experience with the black mother suggest it affected her efficacy which in turn influenced her reflection on the experience. As another example, the experiences shared by study participants definitely indicate a motivation to improve if not to learn and grow. Finally, **context** was included in everyone's discussion of reflection but Dewey, Boud and Walker and King and Kitchener. Colton and Sparks-Langer's category 'collegial environment' was determined to be a contextual factor as were the structural aids proposed by Laboskey. One structural aid influencing study dietitians' reflection was program evaluations.

## Possible Explanations for Four Key Aspects of Reflection

In this section of the discussion, I return to four key aspects of reflection suggested by study results to validate their potential to describe learning from experience. I draw again on the reflection literature but not limited to the eight conceptualizations. In addition, I draw on the instructional literature on learning as well as on literature on emotions to explore other avenues to explain these points. The four aspects explored include: the contribution of day-to-day, routine experiences to knowledge construction and improvement of practice, affect as an element of process, outcome and condition categories, the types of knowledge constructed through reflection and social construction of knowledge as a characteristic of reflection.

### *Contribution of Day-to-day, Routine Experiences to Knowledge Construction and Improvement of Practice*

Dewey (1916/1944, 1933), Schön (1983, 1987, 1988, 1996) and others suggest that reflection is initiated in response to experiences that are puzzling, surprising or satisfying. Results from this study confirm the role of these types of experiences. Interestingly though, a great part of participants' knowledge was constructed from routine, day-to-day experiences. Mentions of multiple trials and multiple practice situations can also be respectively found in Dewey's and Schön's writings. Mc Alpine and Weston (2000) noted too how "multiple repeated observations and interaction with a phenomenon (p. 367)" was an important mechanism in knowledge construction. Repetition of experiences allowed for the discovery of patterns and the development of knowledge.

One way to explain the contribution of routine experiences might be linking reflection to the literature on formative evaluation as others have done (e. g. McAlpine & Weston, in press). Indeed, study data suggest reflection was used as a formative

evaluation process. In a sense, it was formative evaluation because two key characteristics of formative evaluation (e.g. Scriven, 1996; Weston, McAlpine & Bordonaro, 1995) were evident in the descriptions: the participants' intent was to improve their interventions (or program) to bring about specified outcomes and they conducted this evaluation in the course of these interventions.

A second reason for participants' constant evaluation of practice was a desire to maintain emotional equilibrium. That is, above all they hoped to alleviate and prevent experiences which generated negative emotions for them. Thus dietitians would keep track of the progress of interventions with clients in relation to their goals. In some cases, this constant tracking led to knowledge construction through the discovery of a pattern. The pattern emerged from the accumulation of similar (cases and counter cases), routine experiences. For example, Eliza had several interactions with pregnant women, women on their third or even fourth pregnancy and women she had counseled in the past. Seeing them return again and again eventually led her to conclude that her program's approach was not effective in promoting changes in eating behaviour. She determined to consider other intervention strategies. Knowledge construction in this case proved to be a slow, steady process of observation, evaluation and analysis. Study data suggest this was a tacit process in that participants had difficulty describing it in detail. These experiences repeated over time until, for reasons that could not be expressed by participants, one such experience occurred and resulted in the discovery of a pattern. Although the process was tacit, the outcome of reflection, knowledge construction and improvement to practice was explicit. Dietitians could state what they had learned. Yet, they often could not describe how they came to know it, other than to make general references to experiences.

The fact that study participants constantly monitored their clients' progress, their interventions' and program's effectiveness is in line with other studies. For example, studies by Cao (2000) and by McAlpine et al. (1999a) investigated university professors' reflection and revealed that they constantly reflected on their practice in order to improve on it. It was an on-going, continuous process. The notion of accumulation of routine experiences leading to knowledge construction can be found in other sources. For example, Lonergan (1957) suggested that the development of understanding was a cumulative process. More recently, Clegg and Saeidi (2002) and Tomlinson (1999) referred to the need for high number of experiences. Bakken (2002), who studied how physicians learned to diagnose Lyme disease, concluded that an important part of the learning process was the repetition of cases as well as counter-cases. Through this repetition, physicians could discover a pattern in how the disease manifested itself. Shulman (1986) wrote about the wisdom of practice "garnered as a result of many teaching-learning encounters with many students (p. 9)." References to the value of repetitive, routine situations in learning can also be found in another area of the education literature. Reviews of research on expertise (e.g. Ericsson & Lehmann, 1996; Ericsson & Smith, 1991) conclude that expert practice is achieved after years of intentional practice. Ten years is usually seen a minimal requirement before expertise can emerge. The accumulation of experiences allows practitioners to group together similar experiences, draw parallels between them or note telling differences, and understand them better.

Another way to understand how knowledge construction and improvement to practice are achieved through reflection, and the contribution of routine experiences, might be Argyris' notions of single-loop and double-loop learning (1982, 1991, 1994). These two concepts describe two forms of learning. In single-loop learning, the

emphasis is on strategies. In this instance, a professional would examine strategies used and only explore alternative ones. On the other hand, double-loop learning emphasizes exploration of criteria, goals and assumptions. In this case, a professional would go beyond strategies and question these criteria, goals and assumptions. To illustrate the difference between both notions, I will use an example drawn from Zoe's interview. The experience in which Zoe tried to help a young black mother connect to services in her community is a good model. When the mother told Zoe how bad she felt among a group of white middle class people, Zoe first looked for other ways to achieve her goal. Had she been content with that, it would have been a case of single-loop learning. However, she went beyond that, questioning her role and nutrition messages she communicated. Smith (2001) uses different terms to differentiate between single and double loop learning. The way he explains it, a professional monitors what happens as a result of her actions and either adjusts her action strategies (single-loop learning) or questions her governing variables (double-loop learning). Argyris and Schön (1974) explain that governing variables are what would be of interest to a professional. That is, her goals and values.

The concepts of single and double-loop learning may help explain how study participants constructed knowledge from the accumulation of routine experiences. The initial focus of a routine experience might have been on exploration of alternative moves and strategies or single-loop learning. But, at some point, for some reason, the focus changed to one of double-loop learning or the questioning of assumptions and goals. Study data does not support Argyris on one point. Whereas he presents single-loop learning as an approach contrary to learning, data suggest that it can contribute to learning. It may be a prerequisite to double-loop learning. Dietitians, while constantly adjusting strategies to improve their practice, eventually move beyond it to examine the

assumption underlying their practice. Another example from the data will help illustrate that point. This one is general because it applied to more than one participant. Dietitians went into community-based prenatal practice assuming women were concerned about nutrition. Their first experiences in the area saw them adjusting their strategies to help women improve their food choices despite the women's often difficult situations. After a time, they questioned those assumptions, realizing that they had to address issues other than nutrition. In some ways, single-loop learning may be considered primarily a formative process intent on improving practice while double-loop learning, although also intent on improving practice, builds knowledge. Such a view of reflection might address the point made by some (e.g. Convery, 1998) that reflection should focus on underlying problems as well as immediate ones.

One surprise of this study was how participants brought up personal experiences as examples. All later confirmed in the follow-up interview that personal experiences contributed to their professional knowledge. Specifically, it shaped their attitudes and developed their empathy and understanding of clients. Construction of affective knowledge from personal experiences has been recognized by other authors. For example, Rolfe (2002) actually contends that personal experiences may be the best way to develop this type of knowledge. The fact that personal experiences contribute to professional knowledge and practice suggest that inexperienced practitioners can reflect despite their limited professional knowledge. To some extent, they can draw on their personal experiences. This might be particularly true for certain professions, such as dietetics, where professionals encounter situations in their personal lives similar to those experiences by their clients. It has been suggested (e.g. McAlpine & Weston, 2000) that lack of knowledge would make it more difficult to reflect. For example, inexperienced practitioners might not know what information to look for. It should be

noted that, in the preceding discussion, no differentiation was made between personal and professional experiences because data suggest the process was similar. At times, knowledge was constructed from a series of similar or routine experiences, be it personal or professional experiences.

*Affect as an Element of Process, Outcome and Condition*

One challenge in interpreting the data was categorizing participants' statements with affective connotations. I debated (and still debate) whether emotions were part of the process, an outcome or a condition. The challenge of determining where emotions fit within reflection was recognized by Moon (1999) who explored reflection in professional development. From her review of the literature, she concluded that, although it has been explored, findings on this relationship were inconclusive. In what she wrote, I recognized my predicament:

> Yet, the nature of the role of emotion in reflection is rarely addressed directly. There seem to be three possibilities that are not mutually exclusive. Emotion could be a part of the process of reflection. Alternatively, it could be the content of reflective processes in the same way as cognitive material. The third possibility is that it has a role that impinges on the process of reflection. If affect is part of the process of reflection, the suggestion is that it is actively contributing to the way in which a person is reflecting and to the outcome of that reflection. ... This is, perhaps, the most problematical of the three possibilities. There seems to be little problem in recognizing that an emotional state can instigate reflection. The material of counselling is usually emotional, though the question might be whether it is the feeling that we reflect on or the cognitive understanding of the feeling – is it the actual feeling of sadness that is the subject matter of reflection or the knowledge that we are feeling sad? It would seem from this that an actual feeling can be the outcome of reflection. ... The third possibility is the one to which Boud, Keogh and Walker make main reference – that emotion influenced or steers the process of reflection... (p. 95)

In the end, I chose to follow the inclusive direction for two reasons. First, data clearly suggested that emotions influenced reflection (e.g. feeling bad about something said by

a client pushed a dietitian to examine her actions). As well, participants openly referred to their growing empathy or appreciation for clients. Without a doubt, emotions were part of outcome and condition of reflection. Second, data suggested that study participants' mental activities during reflection (process categories) were shaded by emotions, interests and attitudes. Taken together these elements are referred to as affect.

Therefore, affect is manifest in the three components of my study. As indicated earlier, affect is part of the process in that each mental activity included in the conceptual framework has a cognitive and an affective side. Affect is an outcome as signaled by affective knowledge. Lastly, emotions, which are part of affect are conditions, particularly in the case of incidents. It was clear from data analysis that emotions generally pushed participants to reflect on an experience. Emotions also pushed them to improve their practice. Callahan (2004), for one, noted the capacity of emotions to move people into action. Study participants had different takes on the role of positive versus negative emotions. Some argued that learning was most likely to occur from negatively charged experiences. These types of experiences pushed them to examine the experience in greater detail in order to avoid it in the future. They did not want to go through the same thing again. On the other hand, they contended positively charged experiences simply reinforced ways of thinking or behaviours, without much examination of it on their part. Other participants, however, believed they learned as much from positive experiences as they did from negative ones. Affect also surfaced when participants described their experiences. Their descriptions provided a glimpse into how they constructed knowledge and revealed their processing could not be entirely pegged as intellectual or rational activities. Participants' interests, motivations and attitudes underlined how they noticed, evaluated, analyzed and synthesized an

experience. As such, affect was also interpreted as process. For example, one participant mentioned how she "got interested" in something: an affective response to an experience. Another one talked about how something "struck a chord" with her. Authors who have developed or revised learning taxonomies (e.g. Anderson, Kratwohl et al., 2001; Hauenstein, 1998) have acknowledged that there was indeed an affective and a cognitive side to every learning response. Finally, some outcomes of reflection could also be categorized as emotionally based. The term affective knowledge was selected to represent this concept. It stems from learning taxonomies (e.g. Kratwohl & Masia, 1964, Hauenstein, 1998) which differentiate types of learning into the affective domains.

In psychology, emotions are viewed as conscious or unconscious evaluations of events as relevant to an important concern or goal (Oatley & Jenkins, 1996). This is congruent with study data. For example, when Eliza was able to help a mum work through her discomfort and figure out she had a lactose intolerance, she felt satisfied. Her goal was to help this mother get better, she did and consequently experienced positive emotions. Eliza' positive emotions were an evaluation of the events. Zoe, on the other hand, did not reach her goal to connect a young black mum with people and organizations in her community. This unsatisfactory outcome led her to feel strong negative emotions.

Emotions as an aspect of reflection has been brought up by other authors. Boud and Walker (1985a, 1985b, 1992b), for example, incorporated feelings into their model, although it seems restricted to the state of condition. Other studies report emotions as conditions or factors influencing learning from experience. One example is a study which investigated how knowledge became meaningful in the professional practice of social workers, nurses, adult educators and lawyers (Daley, 2001.) The author found

that emotional encounters with clients were often at the root of meaningful learning. That is, they represent it as a factor influencing reflection rather than a way also to construct knowledge. Cao (2000) interviewed university professors to document their post-class reflection. He found that a great part of their reflective process was based on intuition and feelings. Therefore, his proposed framework depicted reflection as both a rational and emotional process. Pintrich, Marx and Boyle (1993) analyzed models of conceptual change and noted that many mistakenly considered conceptual change as a 'cold' process. They argued for a model of 'hot' conceptual change which would incorporate factors such as values and personal interests as influencing the process. Even Dewey (1916/1944), as it turns out, referred to emotions as a condition for reflection. He wrote that "reflection also implies concern with the issue, a certain sympathetic identification... (p. 147)."

Frederikson (2001) and Frederikson and Branigan (2001) explored emotions and their role in behaviour. Their studies hypothesized and confirmed that positive emotions resulted in broader thought-action repertoires. That is, when people experienced positive emotions, their thinking was more creative and receptive. As well, positive emotions acted as motivators. As Frederikson and Branigan explain, "positive emotions do often appear to function as internal signals to *approach* or *continue* (p. 133)." This is akin to what some participants stated in this study. Experiences that produced positive emotions were thought of as reinforcers, as confirmation of the value and effectiveness of their work. Frederikson et al. also focused on the role of negative emotions. Negative emotions, on the other hand, were thought to narrow a person's thought-action repertoire. Therefore, a person experiencing negative emotions was more likely to retreat than to explore. Evidence from this study tends to contradict this point. Participants reported being motivated to alleviate and prevent negative

experiences and hence thinking more about those experiences. McAlpine and Weston also found evidence that university professors' negative emotions motivated their reflection.

Finally, Argyris (1982, 1991, 1994) discusses emotional influences on learning in management contexts. According to him, what prevents a professional from moving beyond single-loop learning thinking into double-loop learning thinking are emotions. He refers to it as "defensive reasoning." Professionals are driven "to remain in unilateral control, to suppress negative feelings...to avoid vulnerability, risk, embarrassment and the appearance of incompetence (p. 80)." Therefore, professionals are stuck in single-loop, looking for external factors to account for the outcome of situations. On the contrary, in this study, participants' negative emotions often moved them to question aspects of their practice. It moved them to double-loop learning.

Although I have referred to emotions in general terms, it is important to note that emotions can vary in their degree of intensity. Ortony, Clore and Collins (1988) give fear as an example. Fear can be expressed mildly as concern and fright to more extremely as petrified and horror. Study data suggest participants' emotions moved them to make changes and construct knowledge but the degree of these emotions is unclear from the data.

*Types of Knowledge Constructed Through Reflection*

Whether dietitians recalled routine experiences or incidents, two common knowledge outcomes of their reflection on experiences were **affective knowledge** and **knowledge of clients**. All participants in this study reported having gained much knowledge about their clients. As well, they stated having more empathy and a greater appreciation for their clients. The importance of these two knowledge bases, affective knowledge and knowledge of clients, was evident as it permeated through many, if not

most, of their descriptions of experiences and reflection. McAlpine et al. (1999a) found that, while reflecting, university professors frequently drew on their knowledge of learners. Rolfe (2002) contends that for people in the helping professions, such as dietitians, affective understanding is of the utmost importance. Researchers who evaluated a prenatal nutrition program (MacLellan, Bradley & Brimacombe, 2001) came to a similar conclusion. To them, the relationship between dietitian and client was an important contributor to the program's success.

Dietitians of Canada's (1997) competency statements for entry level dietitians include aspects of affective knowledge and knowledge of clients. For example, novice dietitians are expected to "demonstrate empathy in professional practice" and to "recognize factors affecting an issue." The latter would include social, religious or economic factors, thus knowledge of clients. As it is used in this study, however, knowledge of clients entails actual acquaintance with factors affecting clients (e.g. socio-economic status, culture, religion, attitudes) as opposed to theoretical knowledge of them.

Studies on dietitians' professional development are rare as are studies exploring dietitians' knowledge. However, extrapolating from studies and papers which document dietitians' practice as well as their expressed learning needs, one can conclude that knowledge of clients and affective knowledge should not be an entirely surprising finding. Marquis and Gayraud (2002) examined favourable and unfavourable events from clinical dietitians' day-to-day practice and found some of these incidents impacted dietitians' affect. Similarly, Barr, Walters and Hagan (2002) found that dietitians' experiences contributed greatly to their confidence. Finally, Dietitians of Canada (1998) identified interacting with others (including clients), self-esteem and confidence as learning needs of dietitians.

The emphasis study participants put on affective knowledge and knowledge of clients might be a function of the stage they have reached in their career. Reviews of research on teachers' professional development (Burden, 1990; Sprinthall, Reiman & Sprinthall, 1996) discussed models describing how career stages affect knowledge, attitudes, commitment and satisfaction. For example, a teacher in the early stages of her career would be concerned with her self, her performance. On the other hand, a teacher in the late stages would express concern for her students and the impact of her teaching on her learning. Other models describe teachers' career as moving from stages such as preservice, induction, competency, enthusiastic and growing, career frustration, stable and stagnant, career wind-down and career exit. Similarly, models of teaching (e.g. Ramsden, 1992) portray teaching as a developmental process in which teachers move toward more student-centered approach. In this study, all of the participants had more than five years of experience. Two could be considered to be in advanced stages in their career. Most of the experiences related by the participants touched on their impact on clients. Therefore, career stage might be one way to explain the knowledge outcomes revealed in this study, particularly the pre-eminence of affective knowledge and knowledge of clients.

*Social Construction of Knowledge as a Characteristic of Reflection*

Another interesting aspect of the descriptions provided by participating dietitians was their references to other people, particularly colleagues. One participant pointed out that much of her work was done in a team setting. Evaluations, analyses and syntheses were often done as a group, as well as individually. In her work with social workers, Hess (1995) noticed the same phenomenon. Similarly, Järvinen and Poikela (2001) argued individual and group learning at work are intertwined processes. The influence of peers on one's knowledge construction brings to mind social

constructivists learning theories. Vygotsky, a Russian scholar with an interest in intellectual development, believed that individual learning could only be understood in reference to social and cultural contexts (e.g. Gredler, 1997; Schunk, 2000; Smagorinsky, 1995.) One key concept of his theory is what he referred to as the zone of proximal development. This concept suggests that what a learner can achieve individually can be enhanced by collaboration with peers. Put another way (Goldstein, 1999), according to Vygotsky "the process of cognitive growth is inherently relational (p. 648)." A philosopher (Lonergan, 1957) also argued that "the self-correcting process of learning goes on in the minds of individuals, but the individual minds are in communication (p. 290)." These views of learning would support verification as an important step in the reflective process documented here as well as colleagues as a factor influencing it. Study participants' reported their construction of knowledge progressed through their discussions with peers. This translated into a process category labeled verify and a condition labeled colleagues. These two categories recognize the social aspect of learning.

## Conclusion and Summary

The purpose of this study is to assist dietitians in their quest for continuous learning. To achieve this goal, experiences of dietitians and the reflection embedded in them were documented. Study results suggest ways we might foster reflection in our practice as well as in dietetics education and these are examined in later sections. One critical aspect to consider is the importance of valuing experiences as a source of knowledge and of valuing reflection as a healthy thinking habit. This point was made by Kuhn (1999) about critical thinking:

> In the end, people think carefully and reflectively not out of habit, because such thinking is not an effortless habit to maintain, but because they are convinced of the value of doing so. (p. 24)

Dietetics discourse abounds with references to reflection. Although it will require effort, this study motivates use to incorporate it in our practice. This study provides directions on how this might be done. It is my hope that this study, partly through its narrative approach, will be relevant to dietitians and dietetics students by ""provok[ing] thought and rais[ing] questions for them (Berliner, 1992; Fairbairn, 2002; Kennedy, 1999)."

## Contributions to knowledge

This study explored reflection, an important concept in professional dietetics associations' documents as well as in the dietetics literature relating to professional development. It contributes to knowledge about reflection in several ways. First, it broadens conceptualizations of reflection beyond incidents, or uncertain, puzzling, problematic situations, and beyond professional experiences. The study draws attention to day-to-day, routine experiences as important sources of professional learning. As well, it points to personal experiences as contributors to professional knowledge development. Second, the study highlights the significant role affect plays in the construction of knowledge and improvement of practice. It particularly points to a need for further exploration of that aspect of the process. Third, the study reveals the different types of knowledge dietitians constructed from reflection. By doing so, it supports the claim that some knowledge can best be developed through experience. A case in point was affective knowledge and knowledge of clients which emerged as common and significant outcomes of reflection. Furthermore, the study begins to explore dietitians' knowledge base. It suggests a need for understanding the knowledge dietitians bring to their practice and for categorizing it. The knowledge categorization used in this study was developed for teachers and its value in describing

dietitians' knowledge should be further explored. Fourth, by defining conditions and fifth, differentiating between day-to-day experiences and incidents, the study provides guidance for future research exploring those aspects of reflection. A sixth contribution of this study is to bring together what reflection means to practitioners and what it means to researchers. This was accomplished by using a grounded theory approach which emphasized participants' own description of their process of knowledge construction and improvement of practice. Seventh, the study brings attention to the social aspect of reflection. It suggests the need to explore how knowledge about practice is cooperatively constructed and how practice is cooperatively improved. Last, but not least, by documenting dietitians' experiences, how dietitians examined them and the outcomes of this process, the study contributes to our perception of the value of this way of thinking.

## Limitations of Methodology

> For better or for worse, the steps and leaps of the imagination escape the mechanics of our memory and our understanding. The little we do know is that somehow in the flow of thoughts that endlessly fill our minds, the artist learns to recognize, capture, and remember that which is useful to his purpose.

The difficulty of capturing one's thinking is well expressed by artist and writer Leo Lionni. Certainly one of the greatest limitations to any study aiming to explore phenomenon such as reflection lies in accessing people's thoughts. It is neither observable nor easily accessible. Therefore, studies investigating thought processes have to devise ways to help participants externalize their thoughts. An unfortunate consequence of such interventions is that it affects the flow of thoughts. Thus the phenomenon under study, in this case the process of reflection, is likely changed. In this study, my role was that of a catalyst, trying to bring out dietitians' thoughts,

feelings and actions during and after an experience. I forced or steered their reflection. McAlpine, Weston and Beauchamp's experience (2002) suggested that interview questions become an intervention, especially when data collection involves multiple interviews over time. They also concluded that the act of interviewing was seen by participants as a sign of engagement and as such it affected participants' thinking. In this study, one participant concluded our interview by saying "I've thought about things that I hadn't really ever put into words before."

Upon being asked how she came to know something about her practice, Sara, one of the study participants, said: "They are hard questions. ... You know, I've been doing this for a long time. So it's hard to know." This quote illustrates a second limitation of this study: asking participants to recollect events that occurred months or often, years ago. Reliance on memory limited data collection. One author (Pinnegar, 1995) referred to this type of reflection as delayed or postponed reflection. He argued that this type of reflection might not represent how the process actually unfolds. Rather, it is a re-construction of events by the person. To maximize recall and minimize distortion, study should be designed, whenever possible, to interview participants as soon as possible after the events (Andresen, Barrett, Powell & Wienecke, 1985).

A third limitation of this study is the short amount of time spent with participants. Asking professionals to share experiences with someone, particularly a researcher, might be seen by some as invasive. Informants, quite naturally, may only want to share thoughts that portray them well. In addition, as mentioned in the introduction, there are few qualitative studies done on dietitians' thoughts about their practice. It might be somewhat of a new and perplexing experience for many of these professionals. A future study on reflection might be designed as a longitudinal study, to allow for several interviews over the course of several months. This would likely

increase the participant's level of comfort with the interviewer and with being interviewed. Participants should have time to build confidence in the interviewer. There would be another benefit to being in the setting with a participant for a longer period, permitting examination of experiences as they occur.

The study of workplace learning can be seen as political. Boud and Solomon (2003) found workers, such as dietitians, might be reluctant to discuss their practice in terms of learning. There is a tension between being a competent practitioner and a learner. The latter suggests incompetence hence the tension. This highlights how carefully interview protocols should be constructed. Study participants might not interpret a word the same way it is intended. In this study, for example, the word incident initially used to collect data might have been problematic. In hospital, health professionals are sometimes called to fill out incident reports. These reports detail problem events. As such, the word incident might have a negative connotation for professionals with experience in hospital settings such as several of the study participants. Gould and Masters (2004) encountered the same problem. These researchers examined critical incidents brought forth by nursing students. They found students held different interpretation of the word incident. As one student bemoaned, "the word 'critical' incident, it sounds like I am looking at the worst possible scenario." Fortunately, this study followed a grounded theory approach which was flexible enough to allow changes in wording of interview questions.

## Implications for Professional Development

Four key results came out of this study:

- knowledge construction about practice was a slow, steady process. An early focus of reflection was on the improvement of practice . Through repeated efforts at improving practice, new knowledge emerged in due course.
- professional and personal experiences were sources of learning about practice.
- experiences often contributed to affective knowledge, knowledge of clients and knowledge about health education; knowledge bases which may be critical to effectiveness in areas of practice where client interactions were the focus.
- emotions and colleagues were major influences on the improvement of practice and the construction of knowledge about practice.

Study results suggest reflection is a valuable habit of thinking because it can have positive outcomes on knowledge about practice and on practice itself. Recognition of its value has several implications for professionals and professional development interventions. We need to think of ways to improve our thinking and our work environment to further foster reflection. Putting activities in place would encourage us to be more intentional about our learning from experience through reflection. There is, however, reluctance in some (e.g. Canning, 1991; Clegg & Saeidi, 2002; Eraut, 2004) to formalize reflection. In her work with teachers, Canning (1991) observed that it was often best to give people latitude in their application of reflection. One of her program participants noted that "When you try to fit into someone else's framework, you lose the flow of your ideas (p. 19)." Given people have different learning styles and the social aspect of reflection highlighted in this study, different strategies are suggested to favour reflection.

Drawing on the literature on teaching and learning in higher education (Weston and McAlpine, 2004), a distinction can be made among strategies that are informal, formal. Informal strategies are not documented and structured but may be planned as well as spontaneous. Formal strategies would include activities that integrate planned tools and procedures of which people are aware and that document results. It should be noted that informal activities are considered as valuable as formal activities. In addition, an activity may be formal in terms of time (e.g. a regular meeting scheduled to share experiences) while informal in terms of agenda.

Informal strategies would include: discourse, observation, discussion and time allocation. One strategy relates to discourse. References to reflection in the context of professional development, at least in the dietetics literature, tend to focus on assessments of learning needs and development of a learning plan. Reflection has to be recognized as a way to learn about one's practice. In itself, it is a strategy to develop professionally. Discussions on professional development also tend to focus on continuing education activities. The emphasis on these types of learning activities to the detriment of informal learning reduces the potential of the process of reflection. Therefore, we may need to adapt our discourse to better denote the value of reflection. Another strategy might be to encourage practitioners to observe. Data from this study suggest the root of participants' knowledge construction was noticing/picking up cues, or their observations of aspect relevant and significant to their practice. This first step in the process might be enough to ensure continued engagement in reflection. Another useful strategy might be to invite dietitians to talk more openly about their experiences. The sharing of cases would encourage discussion about practice issues and thinking. Burton (2000) and Greenwood (1998) reviewed questions used to guide reflection. Some of these questions are similar to those used with study participants. What

happened? What were you thinking and feeling? What do my practices say about my assumptions, values and beliefs about dietetics? What was good/bad about the experience? What sense can you make of it? What else could you have done? If it arose again, what would you do? Another beneficial strategy would be to make room in professionals' busy schedules for time to think.

Formal strategies would include scheduled club meetings, similar to journal clubs, where dietitians could discuss their experiences as opposed to the literature. Results to be documented could be as simple as taking attendance. Professional portfolios are becoming integral to practice in dietetics (e.g. the American Commission on Dietetic Registration's portfolio for recertification process (Anonymous, 1999; Pertel, 1999)) and are another formal strategies we can use to foster reflection. Typically, portfolio's goals are to help professionals to set learning goals and plan learning activities to achieve these goals. As it is now, these portfolios tend to focus on learning needs assessments and learning plans. They should be expanded to include documentation of experiences and knowledge about practice constructed from it. Study results highlight the importance of recognizing learning from experiences. Knowledge such as affective knowledge and knowledge of clients might be best developed through experience. Experience also leads to a better understanding and use of theoretical knowledge because it allows practitioners to see the nuances, qualitative differences (Benner, 1984/2001) in cases they encounter. These experiences result in flexibility in knowledge application. Documentation of knowledge about practice would also contribute to the development of a knowledge base for dietetics practice. As for experiences, their documentation could prove useful since some could be used as spring boards for discussions in formal professional development events and in dietetics

education. It also has the advantage of making informal learning visible (Boud & Middleton, 2003.)

In addition to activities to put in place to foster reflection, study results have other implications. For instance, results suggest that learning from experience happens as a cumulative process. One has to be able to experience similar situations (cases and counter-cases) at different times and with different people to discover patterns relevant to practice. This suggests retention of professionals in an area of practice, such as community-based prenatal nutrition, is essential. One participant, Eve, actually pointed how being able to see long term effects (seeing a pattern) requires being in the position for a while. Long-term commitment to a position would also allow the professional to build her knowledge of the clientele with whom she is working. According to some study participants, these knowledge bases led to more effective practice. In addition, prolonged time spent in a position means exposure to a greater range and diversity of experiences/cases. This point raises the issue of professional value and retention. To build the knowledge in the slow and steady way described in this study, dietitians need to stay in a position for long enough periods. One participant, Eve, mentioned how being in her position for a long time helped her see patterns emerge. During the course of this study, participants' and contacts' comments suggested that positions in community-based prenatal nutrition, particularly with non-government organizations such as family resource centres, were not valued. There seemed to be a tendency for dietitians to see it as en entry-level position. Therefore, they were likely to look for other opportunities and consequently did not stay long enough in the organization to reap the fruit of their experiences with this challenging clientele. As for organizations, their limited resources did not seem to allow them to offer dietitians full-time, permanent positions. This in itself would add value to the position. The issue of

retention, it can be suspected, is not limited to the area of community-based prenatal nutrition. Professional, organizations and schools need to examine it and explore ways to increase the perceived value of such positions. At a recent conference (2004), the Canadian College of Health Service Executives focused on the issue of retention and recruitment.

The study supports the role of colleagues and emotions in learning from experience. Colleagues provide different perspectives on practice and act as sounding boards to test one's thinking. Professional organizations and workplaces need to augment their efforts to build and foster communities of learners. For example, mentorship programs and professional meetings where practitioners can exchange about issues in their practice should be continued and strengthened. But beyond these formal strategies, organizations have to create a true learning environment. That is, organizations should welcome professionals raising questions about goals, roles and program effectiveness as much as developing new strategies. A desire to learn should be recognized as a sign of competence rather than an indication of ineptitude. Boud and Solomon (2003) investigated how four groups of workers talked about learning and being learners. They concluded that "having an identity as a learner was not compatible with being regarded as competent (p. 326)." Organizations could also demonstrate their commitment to reflection, and thus to development of professional knowledge and improvement of practice, by allotting time for professionals to think. In professional worlds, action is often valued to the detriment of thinking. Giving people time to think has been brought forth by other authors (Clegg & Saeidi, 2002.) Emotions are another important influence on reflection. Boud and his colleagues (1985a, 1990, 1992b) believed that a first step in reflection was to attend to one feelings.

According to them, only once one has dealt with those feelings can one proceed to an examination of events.

## Implications for Dietetics Education

Reflection is a skill and like most skills it needs to be developed and practiced. Study results suggest a framework to understand how professionals may improve practice and construct knowledge about practice. This framework can be used to guide students' thinking about their experiences throughout an internship or practicum. It also provides a language to share and analyze these experiences. In practical terms, here is an example of how this might be applied. A student doing a one week rotation in outpatient services might first witness a dietitian's interactions with a patient. The dietitian might even share her thinking about the observed intervention and her practice in general. Once the student does her own intervention with a patient, she may be asked questions to stimulate her thinking. She might be asked how it went, what she was thinking and feeling during the session and afterwards, what cues she noticed or picked up from the patient, what these cues meant to her and so on. Such an instructional activity would position reflection as an integral part of practice. It would foster students' positive attitude toward its use and relevance. In turn, this would favour their long-term use of reflection to improve their practice and learn about it. Schön (1987) suggests some questions to consider before integrating of reflection into our practice and educational programs:

- What kinds and levels of reflection are to be encouraged?
- At what point in the cycle of professional development should reflection be introduced?

- How should the curriculum be changed to accommodate the integration of reflection?
- How would it affect the role of professors and clinical supervisors?
- Can students engage in reflection despite their lack of experience?

The accumulation of experiences being an important aspect of the process of knowledge construction, as results from this study suggest, professional schools should continue to integrate and strengthen practicum or internships in their curriculum. To strengthen these early professional experiences, schools might want to consider how to increase exposure to similar experiences (cases and counter-cases). However, as was noted in the introduction of this dissertation, there is much to be learned about nutrition in a limited period of time. Logistical issues also make it difficult for schools to guarantee each student will be exposed to a variety of cases and situations. For that matter, we do not know how many such exposures are necessary. One way to address this problem might be to encourage students to draw on personal experiences. Another way to address this problem is with specialization. Once a practitioner has chosen an area of practice, she could pursue its exploration. This is already done to some degree with, for instance, masters in community nutrition. Professional schools should offer practitioners more advanced training (e.g. a master's degree, a certificate) in their chosen area of practice and facilitate access to such programs. Specialization should be envisaged as a way to allow for sustained experience in an area of practice and its exploration, already begun by some (e.g. Skipper, 2004) should be pursued.

Dietitians are members of a helping profession. As such, an essential skill of dietetics professionals is their ability to empathize and relate to their clients. Affective knowledge and knowledge of clients can be developed through experiences as seen in this study. One implication for dietetics education might be to focus on the

development of these two knowledge bases in practical experiences, such as the internship or stages (also referred to as practicum.)

## Recommendations for Future Research

Future research should continue the exploration of reflection on day-to-day, routine experiences. Such studies could focus on the potential contribution of these types of experiences to knowledge construction and improvement of practice. Considering knowledge construction from these experiences is a cumulative process, future studies should follow a longitudinal design. Participants should be followed over a long period of time to really be able to document the impact of their experiences. In addition, future studies should incorporate observation of practice as well as interviews. This would not only provide a basis for conversation with participants but contrast their theories-in-use with their espoused theories. It would help document the knowledge base of practitioners. Another important area to explore is emotions. If affect, as this study suggests, is connected to cognitive processes such as noticing, evaluating and analyzing, what is the extent of its influence? In addition, doing this study raised questions for me about the knowledge base of dietitians. Should entry level competencies for dietitians put more emphasis on affective knowledge and knowledge of clients? How well do Shulman's (1987) categories works for dietetics practice, particularly community-based practice? Other question raised by study results are: What are the career stages in dietetics? What knowledge outcome can be associated with each stage?

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# APPENDIX A

# FORMAL INTERVIEW GUIDE

Formal Interview

Date:

Participant:

1. Introduction: (collect consent form)

   • State the day, date, where and with whom.

   • State the goal of the study: to explore how dietitians' learn from practice.

   • State purpose of the interview:

      • To review and discuss practice context (background questionnaire);

      • To describe specific (three) work experiences in prenatal or postnatal nutrition care;

2. Background Questionnaire: (collect written copy if applicable)

   How long have you been practicing dietetics?

   How long have you been practicing in the area of prenatal nutrition care?

   How long have you been working in CPNP projects?

   What are your project/department philosophy/approach?

   What are the goals of your project?

   Describe your project's main activities?

   What are your main responsibilities as CPNP dietitian?

   Could you describe your interactions with clients (e.g. Frequency, direct, indirect, one-on-one, group etc.)?

   What does the task of prenatal nutrition care entail?

   What is the role of a dietitian in a community-based prenatal nutrition project?

   What are your expectations about clients in prenatal nutrition projects?

How do clients achieve nutrition goals?

How do you apply your belief about how clients achieve goals to the kinds of activities you choose? In your interactions with clients?
What is effective prenatal nutrition care?

3. Interview questions: (or three specific experiences)

Tell me about some specific experiences you've had since working on this project.

Tell me about a time when you experienced an uncertain, puzzling, surprising or satisfying situation in your work as prenatal dietitian. Describe the circumstances leading up to it and what happened in as much detail as possible

Tell me about an incident in which learning about prenatal nutrition care occurred for you. Describe the circumstances leading up to it and what happened in as much detail as possible.

Tell me about an incident that had an impact on your thinking about or your approach to prenatal nutrition care. Describe the circumstances leading up to it and what happened in as much detail as possible.

Questions to explore or prompt:

What did you think?/What were you thinking at that point?
What were you paying attention to?/ What struck you?
Why did you notice that?/What does that mean to you?
How did you know? Where did you learn that?
How did you feel?
How did you react? What did you do? Why?
What happened in between X and Y?
Give me an account of what you saw, heard, felt and thought?
What question, if any, did this incident raise for you? How did you address it? What did you think or do next?
What did you learn/what lessons did you draw from it?
Is there anything you reconsidered about prenatal nutrition care following this incident? What and why? What did you think or do next?
How did this incident affect you thinking? Your practice as a whole?
How did you know that?
How did you come to know that?
How could you tell?

How long between the incident and when you first noticed a change in your thinking/practice?

4. Conclusion:

Is there anything we haven't talked about that you'd like to bring up?

Thank you.

Next steps (transcription, verification, follow-ups). Ask for mailing address and phone number for follow-ups.

[Participant recruitment: Any other dietitians might know?]

# APPENDIX B

# FOLLOW-UP QUESTIONS

Follow-up

1. The interviews reveal the need for a certain amount of repetition in order for learning to occur. In other words, one has to go through similar situations several times before one can extract knowledge from it. How does that work for you? What kinds of experiences would you say need to be repeated? What kind of experience do you learn from the first time around?
2. One issue arising from the interviews relates to emotions. Emotionally charged experiences seem to be more memorable and result in longer, more involved and repetitive processing. How does that work for you?
3. It seems one is more likely to remember an experience that generated negative feelings than positive ones. One participant states "You tend to dwell on the negative." How much have you learned from your negative experiences as opposed to your positive (or neutral) experiences? What kinds of learning have your negative experiences led to compared to positive (or neutral) experiences?
4. Personal experiences, such as having a baby, also seem to play an important role in the construction of professional knowledge. One participant states that "facing challenges personally as well as professionally adds broadness" and that "experiencing something important yourself brings things together." Others relate their feelings and thoughts when facing situations similar to what their clients face. What is the role of your personal experiences in your professional learning? How do your personal experiences contribute to your professional learning?
5. From the interviews, it seems there are several kinds of knowledge people develop through their experiences. How would you describe or categorize the knowledge you have acquired through your experiences?
6. Study participants report learning a variety of things. Three which seem to be more general are:
   - Doing the best that you can do while being aware of limitations
   - Knowing how to do the work - strategies
   - Relating to program clients/participants - attitude
   - Not to have expectation or expect anything

   How well do these apply to you? According to you, which learning should be included in this list?
7. In education, one way to describe learning consists of using taxonomies (such as Bloom's Taxonomy which you might be familiar with). These taxonomies use action verbs to describe mental activity. Here is one example of verbs often used:
   - remember, recognize, recall, gather evidence or information
   - understand, interpret, exemplify, classify, summarize, infer, compare, explain, question
   - apply, execute, implement, experiment
   - evaluate, check, critique
   - create, generate, plan, produce, decide

assist, work toward collaborate with others, facilitate, reflect, consider options

How well do these words describe your thinking during and following an experience? What other words could be used to describe it?

8. Some participants have mentioned how discussing issues or experiences with colleagues, students (or even sometimes family) contributes to their learning. What about you? How do other people contribute to your learning? How important to your learning is discussing experiences with others?

# APPENDIX C

# CONSENT FORM

How dietitians learn from practice in community-based prenatal nutrition projects

The goal of this study is to explore how dietitians reflect on their practice and the outcomes of this process.

During this study, you will fill in a questionnaire, participate in one formal interview and in one or two follow-up interviews. The questionnaire will provide information on years of experience, setting, thinking about prenatal nutrition care and practice. The formal interview will focus on your experiences in community-based prenatal nutrition projects. This interview will last approximately 1 1/2 hours and will be audio-taped. Transcripts of the interview will be prepared and sent to you so you may verify it. The follow-up interviews will explore topics from the formal interview and discuss interpretation of the data. These follow-ups may last around 30 minutes and will also be audio-taped and transcribed. Toward the end the study, you, along with all other participants, will be invited to take part in a one hour round table discussion to respond to study results and its interpretation.

There are no perceived risks from involvement in the study. Confidentiality will be protected by using codes to label participants and data. Data will only be accessible to the principal investigator and her advisory committee. Study results may be presented at professional meetings and in research articles submitted to professional journals.

If at any time during the research you have questions or concerns, please do not hesitate to contact me:

Jacinthe Beauchamp
Dietitian and PhD Candidate
McGill University
Telephone: 506-536-1436
E-mail: HYPERLINK mailto:Jacinthebeauchamp@hotmail.com
jacinthebeauchamp@hotmail.com

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I understand the purpose of this study.

I understand that I am free to withdraw at any time from the study without any penalty or prejudice.

I understand how confidentiality will be maintained during this research project.

I understand the anticipated uses of data, especially with respect to publication, communication and dissemination of results.

I have carefully studied the above and understand my participation in this agreement. I freely consent and voluntarily agree to participate in this study.

Name (please print): _____

Signature: _____ Date: _____

# APPENDIX D

## EXAMPLE OF PART OF AN INTERVIEW TRANSCRIPT

ZOE: From my masters? Did I take any other courses? Uh, [Silence] Well, I've, I've trained in NCAST. And I did that, I guess, after - I've done that since I've been here.

Int.: What is NCAST?

ZOE: NCAST is Nursing Assessment Satellite Training. Basically what that's looking at - It's a, it's an assessment of feeding relationship, early feeding relationship and early teaching relationship. So you would look at - You have a - It's a, a scale. And you would uh, observe a feeding interaction and rate it based on cues that the child's giving, cues that the mother's giving. ((And)) based on the whole thing that's happening. And then you would give the mother some anticipatory guidance around uh, areas you felt could help her in terms of establishing good feeding relationships. Cognitive growth, social growth, uh, responsiveness to cues, that kind of thing. Actually right now all of the nurses here are being trained uh, in it because we're starting a new program in January called the uh, Early Childhood Initiative or Healthy Beginnings. Where we're going to be uh, screening all children that are, all, all families that give birth in the province. And then uh - Screening them for their uh, uh, need for, to have a in-depth family assessment. And if they screen in, then one of the assessment would be an NCAST, the NCAST assessment and uh - Among others. So uh - I guess I, I was trained quite a while ago. And the reason I got interested in it is because I had a daughter who was born 12 weeks premature. So in the hospital they were using NCAST for uh, trying to uh, give parents guidance around feeding ((of preemies). And uh, I got interested in it and then when I came back, a couple of nurses and myself went to get trained to (( about it)). So I've use that in my practice quite a bit. Although I'm not reliable with the scale anymore 'cause I don't use it enough. But certainly ((the training remains)).

Int.: How do you use it in your practice?

ZOE: Well, I would use the principles of it in terms of - And it goes along with other things. You know. So sort of you bring it all together. So uh, Ellyn Satter's materials have been a big influence on the way I look at and, and look at clients and in terms of uh, counselling or providing them guidance. Uh, the NCAST in terms of uh, observing feeding and giving parents cues around uh, uh, - Are they, are they picking up on the child's cues? Are they giving good cues themselves? Are they uh, uh, doing other things besides just the feeding in terms of socialization, growth, fostering, you know, those kinds of (( )) to the child. Those kinds of things. Making it more of a, a broader experience. So uh, so I use it. I use it every day. I don't use - I use it on phone, I use it when I see clients, I use it when I talk to people, I use it when I give group presentation. It's been a big influence. ((NCAST has.)) It's stuff you already, always knew. But I guess at a point, and you know, - I guess it's timing or whatever. So uh, you know, I think of my career - You learn all these kinds of things in bits and pieces. And it sort of really comes about when you also, I think, uh, experience something really uh, uh, important yourself. So having my eldest daughter be so premature and, and uh, having her, all her experiences be uh, not normal in terms of - Now she's totally normal. It's totally fine. But having it from the perspective of,

"Hey!, you know, I, I have to think of this in terms of the outside as opposed to the norm." It really kind of gives you uh, more sensitivity to uh, wanting to really understand and to really help parents. 'Cause then you start thinking, "What really is normal." [Chuckles] So uh, so I think that having, having had the - You know, I probably was prac - , had, probably had eight years of experiences as a dietitian by that point. In various jobs. You know, the clinical, the admin and the more community perspective. But then sort of, ... working then in public health uh, - In my masters degree I kind of focused on the family, breastfeeding, early childhood. So it, that was sort of my area that I wanted to grow some specialty around. Hence when I did the practicum in breastfeeding, that was growing my knowledge and experience around that area. And then when I came to work in public health, just after that, I was sort of, I was put into the family program which was more, pre-conception, prenatal to age five. So again, growing my experience there, trying to bring all, everything in together to put to use in that area and then have children of my own. So it sort of all - And at that point I was having kids. So it kind of all came together.

Int.: That's interesting what you're saying. There's a mix of your personal experiences with your professional -

ZOE: Absolutely! Absolutely for me. I don't think you can separate them. And uh - I would never take uh, I would never take a - I would never think that because you don't have children, you can't really uh, you can't be effective uh, practitioner. Don't get me wrong. But I think that uh, facing some of the challenges personally as well as professionally, I mean, ((helps you)) to help parents. I think adds a little uh, of uh, broadness to the way you approach things. As long as your personal experiences don't affect your professional knowledge and judgment. I mean there's a fine line there. And when I'm talking to parents, I'll often give the, you know, the professional opinion ((we're talking about it in terms of )) and the more objective type information. And then sometimes I will add in my subjectiveness and I'll always preface it. Like "But as a mum, I kind of face this and one of the strategies I've used as a mother has been this, and you can take it." You know. So, so I think of - And I don't think you can help doing that. But you bring in some of that. But I always, I'm a firm believer in you don't mix the two. Like you can, as long as the parent knows that - 'Cause they're take - They're looking at you as the professional, right? And if you give them one strategy that's worked personally for you, they might take that as being the gospel. As opposed to, this is one mother's experience. So I, I try to make that distinction.

Int.: You were saying - We're going to jump ahead here.

ZOE: (( )). [Laughs]

Int.: Uh, you were saying there were some really, I can't remember the word you used. I think you said powerful experiences? And that really sort of bring it all together. So having your children was one. Can you think of any other experience that had an impact like that? Not in the sense that it was a big "aha" but it sort of -

# APPENDIX E

# CERTIFICATES OF ETHICAL ACCEPTABILITY

**MCGILL UNIVERSITY**
**FACULTY OF EDUCATION**

## CERTIFICATE OF ETHICAL ACCEPTABILITY FOR FUNDED AND NON FUNDED RESEARCH INVOLVING HUMANS

The Faculty of Education Ethics Review Committee consists of 6 members appointed by the Faculty of Education Nominating Committee, an appointed member from the community and the Associate Dean (Academic Programs, Graduate Studies and Research) who is the Chair of this Ethics Review Board .

The undersigned considered the application for certification of the ethical acceptability of the project entitled:

How dietitians learn from practice in community-based prenatal nutrition project

as proposed by:

Applicant's Name JACINTHE BEAUCHAMP

Applicant's Signature Jacinthe Beauchamp

Degree / Program / Course PhD

Supervisor's Name CYNTHIA NESTON

Supervisor's Signature Cynthia Neston

Granting Agency —

The application is considered to be:

A Full Review _____

An Expedited Review X

A Renewal for an Approved Project _____

A Departmental Level Review _____
Signature of Chair / Designate

The review committee considers the research procedures and practices as explained by the applicant in this application, to be acceptable on ethical grounds.

1. Prof. Ron Stringer
Dept of Educational and Counselling Psychology

_____
Signature / date

2. Prof. Ron Morris
Department of Culture & Values

Ron Morris June 3/2000
Signature / date

3. Prof. René Turcotte
Department of Physical Education

_____
Signature / date

4. Prof. Ada Sinacore
Department of Educational and Counselling Psychology

_____
Signature / date

5. Prof. Brian Alters
Department of Educational Studies

Brian Alters 5/23/02
Signature / date

6. Prof. Kevin McDonough
Department of Culture and Values in Education

5/28/02
Signature / date

7. Member of the Community

_____
Signature / date

Mary H. Maguire Ph. D.
Chair of the Faculty of Education Ethics Review Committee
Associate Dean (Academic Programs, Graduate Studies and Research)
Faculty of Education, Room 230
Tels: (514) 398-7039/398-2183 Fax: (514) 398-1527

Mary Maguire June 5, 2002
Signature / date

**(Updated June 2001)**

**MCGILL UNIVERSITY**
**FACULTY OF EDUCATION**

## CERTIFICATE OF ETHICAL ACCEPTABILITY FOR FUNDED AND NON FUNDED RESEARCH INVOLVING HUMANS

The Faculty of Education Ethics Review Committee consists of 6 members appointed by the Faculty of Education Nominating Committee, an appointed member from the community and the Associate Dean (Academic Programs, Graduate Studies and Research) who is the Chair of this Ethics Review Board.

The undersigned considered the application for certification of the ethical acceptability of the project entitled: HOW DIETITIANS LEARN FROM PRACTICE IN COMMUNITY-BASED PRENATAL NUTRITION PROJEC as proposed by:

Applicant's Name JACINTHE BEAUCHAMP

Supervisor's Name CYNTHIA WESTON

Applicant's Signature/Date Jacinthe Beauchamp

Supervisor's Signature Cynthia Weston

Degree / Program / Course PhD

Granting Agency _____

Grant Title (s) _____

The application is considered to be:

A Full Review _____

An Expedited Review _____

A Renewal for an Approved Project ✓

A Departmental Level Review _____

Signature of Chair / Designate

The review committee considers the research procedures and practices as explained by the applicant in this application, to be acceptable on ethical grounds.

1. Prof. René Turcotte
   Department of Kinesiology and Physical Education

   _____
   Signature / date

2. Prof. Ron Morris
   Department of Integrated Studies in Education

   _____
   Signature / date

3. Prof. Ron Stringer
   Department of Educational and Counselling Psychology

   _____
   Signature / date

4. Prof. Joan Russell
   Department of Integrated Studies in Education

   _____
   Signature / date

5. Prof. Helen Amoriggi
   Department of Integrated Studies in Education

   _____
   Signature / date

6. Prof. Ada Sinacore
   Department of Educational and Counselling Psychology

   _____
   Signature / date

7. Member of the Community

Signature / date

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Mary H. Maguire March 8, 2004
Signature / date

**Office Use Only**

**REB #:** 392-0502 **APPROVAL PERIOD:** MARCH 8 2004 to MARCH 8, 2005

**(Updated September 2003)**


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