CO-OP STUDENT BELIEFS
ABOUT
INTEGRATIVE LEARNING COMPETENCY

A thesis presented
by

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Abstract

Cooperative education (co-op) enables students to alternate periods of classroom study with periods of employment related to their academic major. A key educational goal of co-op is for students to integrate classroom learning with workplace learning. The aim of this study was to give voice to and to make sense of how college students who have co-op education experience perceived the notion of integrative learning competency. The methodology of Interpretative Phenomenological Analysis (IPA) was employed, and eight students were enlisted to participate in the study. The participants completed a questionnaire and were interviewed one-on-one. Inductive analysis of the texts revealed that participants expressed beliefs about integrative learning competency primarily from the perspective of their expectations to gain workplace experience. The analysis also revealed that participants believed that integrative learning was fostered in the due course of their school and work experiences without having to intentionally aim to become competent at it. Participants supposed that certain challenges would need to be overcome in order to become competent integrative learners; those challenges reflected themes of needing to be capable of being open-minded, meeting higher performance demands, deepening discernment of meaning relationships, resituating knowledge and/or skills across situations, and owning the development of one’s meaning-connecting capacity. Comportment of these beliefs with select formal learning theories and/or constructs is discussed. Considerations for fostering the development of student integrative learning skills through a course of study or counseling-support are also posed.
Acknowledgements

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Chapter 1 – Introduction to the Study

Topic of Inquiry and Practical Significance

The emergence of a global knowledge economy over the last few decades has prompted increasing demands from employers for higher levels of performance from college graduates (Gardner & Perry, 2011). A graduate’s ability to recognize the situatedness of knowledge and skill, and to creatively mediate different types of knowledge and skills across diverse working contexts (Griffiths & Guile, 2004) are key competencies sought by many of today’s employers (Association of American Colleges and Universities, 2007). Moreover, such competencies help assure that graduates are equipped to negotiate the speed of advancing knowledge and societal change, and to engage in continual learning through multiple careers and civic involvements likely to be part of their lifetimes (Billett & Choy, 2011; Cooper, Orrell, & Bowden, 2010; Edwards, 2002). Cooperative education (“co-op”) can play a catalyzing role in helping to prepare graduates with these competencies. More than just learning from the workplace, cooperative education is a system of education where the educational institution cooperates with members of an occupational field to offer a joint educational program that alternates periods of academic study and workplace practice related to a student’s major (Groenwald, Drysdale, Chiupka, & Johnston, 2011; Tyler, 1971; United States, 1914). The arrangement was conceived as a pedagogical structure that aims to establish an intimate tie between theory and practice for the student (Cates & Jones, 1999; Parks, 2003; Sovilla, 1998; United States, 1914; Van Gyn, Cutt, Loken, & Ricks, 1997; Walters, 1947). Recent conceptions of this structure are of one that encourages “students to integrate academic and work-based learning” (Eames & Cates, 2011, p.49) — in other words, as involving connecting skills and knowledge from the academic and work-based experiences, and not strictly application of theory to practice.
Well-developed programs of cooperative education pedagogy typically involve instructors from the institution who plan, coordinate and assure the educative value of student work assignments, and who encourage reflection to facilitate integrative learning. However, integrative learning as either a learning process or outcome in cooperative education is not well understood. As argued in the concluding chapter of the 2011 edition of the *The International Handbook of Cooperative and Work-Integrated Education* (published by the World Association of Cooperative Education): “Even though integration is identified as being fundamental, there is uncertainty within the co-op community about what is meant by the term, how we go about achieving this ‘integration,’ let alone recognizing it when it has been achieved” (Coll & Zegwaard, 2011b, p. 389). This shortcoming is reflected in how co-op studies and commentary about integrative learning reflect a paucity of accounts of the wider variety of forms it could take. It is also reflected in how studies and commentaries about connecting knowledge and skills appear to be more developed in the literature of liberal learning than of co-op learning. For example, the Association of American Colleges and Universities (the professional association of educators promoting the values of liberal education in higher education) conceptualizes integrative learning as a process that can involve not only application of theory to practice and connecting knowledge and skills from multiple sources and experiences, but utilizing diverse and even contradictory points of view, as well as understanding issues and positions contextually (Huber, Hutchings, & Gale, 2005). Arguably, the co-op field falls short of engaging with a variety of forms that integrative learning could take, and this limits co-op’s potential as a catalyst for life-long-learning preparedness.

Lack of understanding of integrative learning in the co-op field is also reflected in other ways. For example co-op commentary and studies that relate to integrative learning have often
been from the perspective of the co-op institution, curriculum, or pedagogical structure (e.g., Ash & Clayton, 2009; Eames & Coll, 2010; Coll, Eames, Paku, Lay, Hodges, Bhat, Ram, Ayling, Fleming, Ferkins, Wiersma, & Martin, 2009). While these studies offer some insights about how students are expected to engage with integrative learning, they offer little to illuminate how students themselves perceive what it is, or what motivates them to achieve it. Moreover, little consideration is given to how integrative learning might be fostered as a metacognitive (Nelson-Narens, 1990) competency per se. Without more understanding of how students make sense of their beliefs about integrative learning competency as an aspect of their co-op education, approaches to co-op pedagogy that might aim to cultivate student agency beyond instrumental learning—and toward integrative learning intentions—remain less informed.

This is a study of how some co-op college students made sense of the notion of integrative learning competency. In this sense it is an exploration of a question of meaning to be probed, rather than an examination of a problem to be solved. It illuminates how participants perceived themselves as learners, rather than to explicate their institution as educator. Noted varieties of integrative learning defined in the literature of liberal education, such as connecting knowledge and skills from multiple sources and experiences, application of theory to practice, utilizing diverse and contradictory points of view, and understanding positions and issues contextually (Huber, Hutchings, & Gale, 2005), prompted the researcher to consider the potential for a diverse mix of participant understandings of integrative learning competency in these ways. The researcher did not, however, presuppose these or other varieties as prescriptive when engaging with the participants of this study, but strove first to explore how they perceived and approached integrative learning competency on their own terms.
The opportunity to integrate learning that is afforded by an alternating sequence of school and work is what distinguishes co-op learning from workplace-only learning (Zegwaard & Coll, 2011). Learning from mere exposure to the practice setting without proactive reflective effort to integrate that learning with academic learning does not leverage the full potential of co-op as an educational opportunity (Van Gyn, 1996). Therefore, the meanings that some co-op students ascribe to their beliefs about integrative learning competency illuminate a practically significant aspect of co-op that has been asserted as its distinguishing educational aim; with insight into these meanings, co-op is arguably edified as praxis—“morally committed and informed by its own tradition” (Kemmis & Smith, 2008, p. 4). Ultimately such meaning can also be informative to future co-op students when reflecting upon their own conceptions and approaches to integrative learning as a life-long learning skill.

**Positionality, Research Questions, and Study Goals**

As a co-op administrator, the researcher observed and helped to facilitate the alternating process of school and work experiences afforded to students at his institution of employ; however, until he conducted this study he had little insight into how students perceived the notion of competency to integrate school and work learning. Considering the paucity of research in this regard, and his positionality as an administrator committed to improving co-op methods, his general aim for this study was to understand how participants perceived the aim to become competent as integrative learners. Toward that end the following primary research question was posed:

*How do college students with experience in a co-op work-integrated education program make sense of their beliefs about integrative learning competency?*
Second-order questions (Creswell, 2009; Lincoln & Guba, 1985) emerged after reporting primary question findings and further literature review, and so were posed in the final discussion chapter of the study. These questions fostered a richly informed discussion on the relation of findings to select theories and constructs in the literature (Smith, Flowers, & Larkin, 2009):

*How do participants think about integrative learning goals?*

*How do participants think about the experience of integrative learning?*

*How do participants think about how to be competent at integrative learning?*

The questions reflect the intellectual goal to understand and give voice to how particular students—by virtue of co-op’s format of affording them exposure to academic and practice settings—perceived the notion of integrative learning competency itself. They also reflect the practical goal to contextualize and make sense of how specific features, challenges and/or opportunities of attaining integrative learning competency have been perceived and experienced by participants as an aspect of their involvement with cooperative education.

**Strategy of Inquiry (Methodology)**

The strategy of inquiry (Creswell, 2009)—or what can also be called the methodology (Mertens, 1998)—for a study is a theoretically informed framework for how one approaches the research. The focus of this study is qualitative and psychological in nature. The questions are framed to explore and understand integrative learning not as an institutional or curricular intervention, or even as a developmental process per se, but how particular co-op students see and experience their relationship to the notion of attaining integrative learning competency as an aspect of their involvement in cooperative education. This is why Interpretative Phenomenological Analysis (IPA) (Smith et al., 2009) was chosen as the methodology of this
IPA is a qualitative psychological research approach to describing and interpreting perceptual phenomena. It is distinguished by its simultaneous commitment to phenomenological, hermeneutical and idiographic concerns. The following table summarizes how IPA aligns to the primary research question on these terms.

Table I

*Theoretical Consistencies Between IPA and the Primary Research Question*

<table>
<thead>
<tr>
<th>Theoretical underpinnings</th>
<th>Primary Research Question: How do college students with experience in a co-op work-integrated education program make sense of their beliefs about integrative learning competency?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phenomenology</td>
<td>IPA is phenomenological in that it explores lived experience and attends to the need to describe lived experience “on its own terms” (Smith et al., 2009, p. 1); as such, it calls for the researcher to strive to bracket aside preconceived categories (theories known or assumptions held) before descriptions and interpretations of experiential accounts are formulated. The question reflects the eidetic aim to express on co-op students’ own terms (i.e. in terms of their beliefs) what is qualitatively essential about how they make sense of integrative learning competency.</td>
</tr>
<tr>
<td>Hermeneutics</td>
<td>IPA is committed to textual interpretation. It utilizes a double hermeneutic, wherein the researcher is called to make sense of (interpret) how the participants make sense of (interpret) their lived experiences in their texts. The question calls for the researcher to make sense of how co-op students make sense of integrative learning competency as expressed in questionnaire and interview texts collected in the course of this study.</td>
</tr>
<tr>
<td>Idiography</td>
<td>IPA is committed to understanding the perspectives of particular people in a particular context, and strives for a deep and detailed level of investigation to inform that understanding. The question also focuses the inquiry on a particular type of college student (co-op students with experiences in academic and practice settings) and on their concerns and experiential claims about a particular aspect of their co-op learning experience (integrative learning competency)</td>
</tr>
</tbody>
</table>

Smith et al. (2009) have pointed out that while IPA is one of several possible phenomenological approaches to psychology (e.g., Giorgi, 1997) and is similar to other approaches that attend to both phenomenological and interpretive concerns (e.g., Langdridge, 2007; Van Manen, 1990), its idiographic emphasis still sets it apart:

IPA is concerned with the microanalysis of individual experience, with the texture and nuance arising from the detailed exploration and presentation of actual slices of human life. It is partly about the degree of focus and speed of generalization. IPA is not opposed to more macro level claims but steadfastly asserts the values of complementary microanalyses, analyses which may enrich the development of more macro accounts (Smith, et al., 2009, p. 202).

On these terms the researcher was concerned with attending to a deep level of focus on participant concerns and experiences about integrative learning competency. Eight college upper classmen and women with experience in a major U.S. based cooperative education program were chosen to participate in the study. Each answered a questionnaire and was interviewed one-on-one. These texts were analyzed individually and collectively to describe and interpret the emergent themes that constitute the study’s primary question findings. Themes were then discussed in relation to theories and constructs from the scholarly literature deemed salient by the researcher to the topic integrative learning competency and cooperative education.

**Approach to the Use of Theory and Definitions**

**Use of theory.** Theory from the literature was not used in the analysis of primary question findings. IPA’s commitment to facilitating emergent qualitative understanding of phenomena called for the researcher to strive to bracket aside theoretical concepts during the collection of participant data, as well as in the initial description and interpretation of how the
participants made sense of their beliefs about integrative learning competency. Following analysis of findings, theoretical constructs were considered in the concluding discussion of the study.

**Use of definitions.** In using definitions the researcher worked to ensure IPA’s phenomenological commitment to honoring participant sense making. It was acknowledged that integration and integrative learning, for example, could hold a variety of meanings for participation in cooperative education, while striving to refrain from conveying more specific definitions for those terms.

**Limitations of the Study: Scope and Assumptions**

This is a study of how co-op students think about, experience and understand integrative learning competency. The scope of the inquiry process, its results and discussion are framed primarily to facilitate empathetic and questioning interpretation (Smith & Osborn, 2007) by future co-op students of the learning experiences described by the study’s participants. The researcher intended to explore, exemplify and interpret subjective-relativistic forms of meaning with some degree of ideographic detail from the texts provided by the participants. As such, the study’s findings and discussion cannot make explicit generalizable claims of applicability to other students or co-op programs.

**Chapter Summary – Study Introduction**

Chapter 1 has described how integrative learning competencies are sought by many of today’s employers, and how cooperative education programs (“co-op”) can play a catalyzing role in helping to prepare college graduates with these competencies. Integrative learning has been often cited as central to how students learn from participation in cooperative education programs (Coll & Zegwaard, 2011a; Ricks, 1996). Little is actually known, however, about how co-op
students make sense of integrative learning competency as an aspect of educational experiences. Therefore this study asked, *How do college students with experience in a co-op work-integrated education program make sense of their beliefs about integrative learning competency?* The researcher’s rationale for choosing the methodology of Interpretative Phenomenological Analysis (IPA) to investigate this question was outlined: IPA’s commitments to phenomenological, hermeneutical and idiographic concerns are epistemologically consistent and, thus, meet the analytical requirements of the research question. The researcher’s approach to the use of theory and definitions, and acknowledged limitations of the study, were also described.

**Organization of the Remainder of this Study Document**

The remainder of this document is divided into four parts: Chapter 2 — Literature Review; Chapter 3 — Methodology; Chapter 4 — Analysis and Findings; and Chapter 5 — Discussion of Findings and Select Literature. Chapter 2—Literature Review—briefly introduces the reader to the field of cooperative education. It then highlights select perspectives in the literature relating to integrative learning as an aspect of cooperative education. On this basis the literature review suggested how the study’s final account of participant beliefs about integrative learning competency might make a useful contribution to deeper understanding by co-op students and practitioners, alike, of the nature of the learning opportunity that is afforded by cooperative education. Chapter 3—Methodology—describes the philosophical and theoretical underpinnings of Interpretative Phenomenological Analysis and associated techniques and procedures employed in the inquiry. It provides details about the research setting, the approach to participant recruitment and selection, and sources of textual data. Data gathering procedures, data description and interpretation strategies, as well as issues concerning trustworthiness, ethics, student co-op researcher rights, and the role of the researcher in the study, are also explained.
Chapter 4—Analysis and Theme Findings—presents a signifying narrative of three superordinate themes and ten subordinate themes grounded meaningfully by passages of text from across the participant cases. The themes reflect the researcher’s description and interpretation of the meaning of participant beliefs about integrative learning competency. Finally, Chapter 5—Discussion of Findings and Select Literature—poses second-order research questions that frame an exploration of the fit of theme findings to select perspectives from the scholarly literature.
Chapter 2 – Literature Review

Introduction

While IPA calls for a stance of striving to suspend preconceptions while collecting data from participants and interpreting accounts of the claims they make, Smith, Flowers, and Larkin (2009) have pointed out that IPA does not preclude the possibility of having some indication beforehand of “what forms these claims are likely to take” (p. 42). The goal of this review is two-fold: (1) It will first provide some background about the domain of co-op student learning to contextualize the aim of the study; (2) It will then spotlight a select range of theoretical and substantive ideas related to integrative learning that are drawn first from the literature of liberal education, and then from the literature of co-op and work-integrated education. These latter perspectives (along with others that emerged due to the researcher continuing to explore the literature after completing the analysis of the case texts) were considered in the writing of the study’s concluding discussion chapter. The discussion chapter describes how the study’s theme findings of co-op student beliefs about integrative learning competency and select salient constructs found in the literature illuminate each other.

Background: Initial Concerns about the Legitimacy of Co-op as Education

Focus on the development of understanding of how learning happens in cooperative education has increased in the last fifteen years or so, following a long period of controversy among co-op commentators and researchers that called the legitimacy and theoretical underpinnings of co-op as education into question (Eames & Cates, 2011). The following section outlines the evolution of this controversy as a seminal and catalyzing backdrop to the researcher’s interest in co-op student beliefs about integrative learning competency.
The co-op field assesses itself. Cooperative education (co-op) is a strategy of experiential learning (Dewey, 1916; Kolb, 1984) that enables students to alternate periods of classroom study with periods of employment related to their academic major. Its founding in 1906 and adoption in high schools and colleges in the United States is widely credited to Herman Schneider (1872-1939), a professor of civil engineering and later Dean and President at the University of Cincinnati (Groenwald et al., 2011; Sovilla, 1998; Wilson, 1971). From its inception, Schneider claimed co-op’s educational aim for students to be the linking of the theory of the classroom with the practice of the workplace (Eames & Cates, 2011; Smith et al., 2009; Sovilla, 1998; Stockbridge, 1911; United States of America, 1914). Questions of the legitimacy of work placements as educative in these terms, however, have had a long history in the education literature (Cohen & Solmon, 1976; Wilson, 1997; Wilson & Lyons, 1961). As argued by Eames and Cates (2011): “The failure to gain clear recognition of work experience components as learning opportunities, and to understand the integrative nature of the learning process, have been linked to a failure thus far to place cooperative education on a sound educational basis with a theoretical underpinning” (p. 42).

A major study of the merits of cooperative education was not undertaken until 1961 (Wilson & Lyons). Much of the co-op research conducted through the 1960s, 70s and 80s was characterized as wanting (Haddara & Skanes, 2007; Ricks, Van Gyn, Branton, Cut, Loken, & Ney, 1990). By 1988 the Cooperative Education Association (CEA)—the field’s own member association—had assessed these significant shortcomings:

1. Academic faculty do not recognize work as a vehicle for learning and in fact view cooperative education as “anti-intellectual”
2. Co-op practitioners see themselves as operational people concerned with logistics and administration – not as educators

3. Cooperative education methodology for promoting learning is vague and underdeveloped (Van der Vorm, 1988, p. 121).

A call to fortify the education aspect of cooperative education was resonant among many of the ideas proposed in the Association’s final report to address these shortcomings. On the topic of co-op research, for example, the report argued for “identifying and evaluating the kinds of learning outcomes that are attained through the cooperative education experience.” (Van der Vorm, 1988, p. 116). It also suggested developing “new instructional models that better integrate the work experience with the classroom” (p. 116). Regarding quality and standards, the Association observed the need for the cooperative education community “to better define itself as a profession” (Cooperative Education Association, 1988, p. 117), and to establish criteria for assessing program resources, operations and learning outcomes. In terms of training and professional development, it was pointed out that cooperative education practice should not be learned only in administrative terms, but also in terms of what was needed to provide “an effective educational experience for students” (Cooperative Education Association, 1988, p. 118).

Consistent with CEA’s assessment, Wilson (1988) also found the state of cooperative education research as lacking an educational emphasis. He observed the nature of research as having made possible an assertion of an empirical basis for knowledge about cooperative education, but that still most of the co-op studies to that time only “either focused directly on or were motivated by concerns about program development” (Wilson, 1988, p. 79).
In other critiques of co-op research, theory and practice that were published from the late 1980s to the early 2000s, calls to focus on co-op’s educative aspects continued to be resonant: a need for theory-based research into co-op learning processes (Branton, Van Gyn, Cutt, Loken, Ney, & Ricks, 1990; Wilson, 1989); a need for more development of the co-op field’s body of knowledge (Finn, 1997; Ricks, Cutt, Branton, Loken, & Van Gyn, 1993); a need to strengthen academic and curricular conceptions of its discipline (Finn, 1997; Ricks, 1996; Van Gyn, 1996; Weaver, 1993). As late as 2004, the *Handbook of Cooperative Education Research* echoed these views by including the observation by Johnston, Angerilli and Gajdamaschko (2004) that co-op research still tended toward a descriptive nature focusing on analyses of personal and employability aspects of students, and not on how learning actually occurs; the authors concluded that up to that time “only a few studies (e.g., Johnston, 1996; Linn, 1999) focused on the nature of learning that occurs through these experiences or examined the co-op curriculum, program and pedagogy, particularly as it relates to student’s academic programs and conceptualization of learning in professional practice” (Johnston et al., 2004, p. 159).

**The developing educational focus in the co-op field.** Co-op studies and assessments published within the last 15 years have evidenced a shift in emphasis toward developing a deeper understanding of the educational dimension of cooperative education. Major literature reviews by Bartkus (2007) and Coll and Kalnins (2009) have pointed to how co-op has developed “a solid theoretical base” (Coll & Zegwaard, 2011b, p. 388). Eames and Cates (2011) summarized several specific theories of learning encompassing cognitivist, constructivist, and socio-cultural perspectives, and how they might be used to ground research into co-op learning aims and educational practices. Cates and Jones (1999) also surveyed the development of conceptualizations of co-op learning outcomes. Their analysis of recurring themes in
frameworks published by the Society for Professionals in Engineering Education (Freund, 1946, as cited by Cates & Jones, 1999), Wilson and Lyons (1961), the National Commission for Cooperative Education (now WACE), and the Accreditation Council for Cooperative Education (ACCE), highlighted these common co-op outcomes:

- Learning that is related to the students’ curriculum
- Learning that is related to the world of work
- Developing connections between theory and practice
- The ability to test aptitudes and career goals
- The capacity to transition from student to professional (Cates & Jones, 1999, p. 55)

More recently Zegwaard and Coll (2011) assessed the overall state of the cooperative education field as having finally attained a matured literature, increased co-op research, widened acceptance and inclusiveness of co-op in academia, as well as improved use of terminology such as “work-integrated learning” (Groenwald et al., 2011, p. 19)—an umbrella term that encompasses a diverse array of educational models such as sandwich programs, service learning, practicums and internships. Tellingly, the World Association of Cooperative Education (WACE—the association of co-op practitioners) recently revised the title of its handbook to the International Handbook for Cooperative and Work-Integrated Education (2011), making explicit the integrated teaching and learning dimensions of cooperative education.

**Variability of co-op standards and practices.** Although the aforementioned writings appear to affirm an enhanced focus among some co-op proponents on issues of education, it is notable that this author was not able to locate a uniform definition of cooperative education itself in the literature. A typical college co-op program will structure alternating periods of work and school. However, how long and frequent these periods are, what the nature of a work placement
is, and whether the placement is paid or unpaid, are just some of the variations in co-op format and practice that may well exist (Groenewald, Drysdale, Johnston, & Chiupka, 2011; Kerka, 1999). In allowing for this, Coll and Zegwaard (2011) recommended a more pliable, learning-centered set of defining co-op affordances that should include:

Exposure to a professional relevant workplace (community of practice), of a duration alongside practitioners (old timers) long enough for enculturation to occur (the ideal duration being a topic of much need of discussion), where the tasks undertaken are authentic, relevant, meaningful, and purposeful, where students are able to learn the workplace norms, culture and understand/develop professional identity, and integrating that knowledge into their on-campus learning. (p. 388)

These authors further argued that even though not every co-op student experience will deliver all of these affordances, it might not matter as long as student learning is still being achieved (Coll & Zegwaard, 2011).

Over the last 15 years all of these developments helped to advance the perceived legitimacy of co-op as a theoretically-grounded educational strategy; yet integration as a tenet of that strategy is not deeply understood. Co-op’s distinguishing format of alternating classroom and workplace experiences is intended to elicit integrative learning from students, and this makes obvious a need to better understand how they make sense of how it occurs.

Select Perspectives: Integrative Learning in the Literature of Liberal Education


Unification of knowledge. Thompson Kline (2005) described the evolution of 20th century discourses that expanded the meaning of integration in formal education. In the 1920s the meaning of integration was influenced by organismic and Gestalt (Koffka, 1935) psychological notions of achieving complete unity (Beane, 1997, as cited by Thompson Kline,
By the 1930s higher education proponents concluded that complete unity was not possible, so integration was reconceived as a “unifying” approach to learning rather than as a fully “unified” one (Hopkins, 1937, as cited by Thompson Kline, 2005). According to Thompson Kline (2005), participants of a 1948 workshop sponsored by the Foundation for Integrative Education continued the development of the meaning of integration by distinguishing differences between integrative content and context: *Content integration* was defined as the bridging of the content of the physical sciences with the arts and letters; *process integration* was the interplay of the individual and the contextual environment (Thompson Kline, 2005). The workshop participants went further, by also proposing a distinction between integrative synthesis and creation: *Integration* meant the synthesizing of accepted postulates, while *integrative building* was the creation of “new conceptual modes of thinking capable of producing a holistic experience” (Thompson Kline, 2005, p. 9) for the learner.

**Integrative learning as presented by the institution.** Developments in the investigation of meanings and modes of integrative learning are exemplified in more recent research conducted jointly by the Association of American Colleges and Universities (AAC&U) and the Carnegie Foundation for the Advancement of Teaching and Learning (2004). Their project, “Integrative Learning: Opportunities to Connect,” enlisted 10 American campuses selected from a pool of 139 applicants to “develop and assess advanced models and strategies to help students pursue learning in more intentional, connected ways” (Johnson Carey, 2004, p. 3). One of the first products of this collaboration was a statement on integrative learning, which points out that integrative learning comes in many varieties:

- Connecting skills and knowledge from multiple sources and experiences
- Utilizing diverse and even contradictory points of view
• Applying theory to practice in various settings

• Understanding issues and positions contextually (Association of American Colleges & Universities & the Carnegie Foundation for the Advancement of Teaching, 2004, p. 13)

Fostering the role that students can and should play in affecting their own learning in these ways has also been emphasized in position papers of the AACU (Association of American Colleges & Universities, 2002; Taylor Huber & Hutchings, 2004). Miller (2005) suggested, for example, that the above forms of integrative learning comprise a wide variety of behaviors that would be expected from students, and so recommended that an institution might commit to one variety as a campus-wide integrative learning goal, with individual programs possibly choosing another variety as its goal.

Select Perspectives: Integrative Learning in the Literature of Co-op and Work-Integrated Education

While writings in the realm of liberal education describe integrative learning as encompassing a variety of ways a student can reflect upon, acknowledge, and apply connections between knowledge, skills and contexts, cooperative education, by its nature, implicates a more explicit occupational-developmental lens on how integrative learning might be conceptualized and understood. Learning that is integrated from participation in cooperative education was described by Eames and Cates (2011) in the International Handbook of Cooperative and Work-Integrated Education:

The principal goal of any educational program is to facilitate student learning. In cooperative education (co-op) programs, this learning facilitation occurs in two distinct settings, the educational institution and the workplace. A key tenet of cooperative
education is that the student will integrate learning between these two settings. To facilitate this integration, educators in co-op programs must adopt appropriate curricula and pedagogy for student learning, underpinned by theory. (p. 41)

That statement aptly encapsulates two conceptualizations of integration that are often, however, conflated in discourse about integrative learning in cooperative education (Brown Leonard, 2007). On the one hand co-op’s educational aim is to present to students an integrated curricular structure grounded in educational cooperation between institution and workplace (i.e., an educational context that is integrated); on the other, its aim is also to afford opportunities for students to integrate their own learning process (i.e., the act of integration or integrating).

**Epistemology of co-op integrative learning.** Coll and Zegwaard (2011a) conceived integration in cooperative education as integration of knowledge between the educational institution and the workplace. They stated: “By integration we mean what the student takes what was learned on-campus into the workplace and vice versa” (Coll & Zegwaard, 2011a, p. 297).

But what might it mean to students for them to be “taking” these knowledge gains from one context into another? Schneider’s original conception of this knowledge exchange between school and work was described as an important responsibility of teachers called “coordinators” (United States, 1914, p. 4), and that it specifically entailed a “linking” (Cates & Jones, 1999, p. 55) of theory from the classroom to practice in the workplace; that conceptualization reflects an assumption that it is theory that comes from the classroom, and the application of theory that happens in the workplace. Billett (2011) explained that this dichotomy is rooted in how contemporary educational discourses are informed by the legacy of the Aristotelian hierarchy of knowledge. Because Aristotle privileged learning about concepts over capacities to undertake tasks, assumptions have endured that educational institutions are generative of theory, and
experiences in workplaces lead to the development of procedural capacities required for practice. Billett (2011) stated:

Clearly this is a simple and erroneous proposition . . . Components of all three forms of knowledge (i.e., conceptual, procedural and dispositional) can be accessed in each setting, because they provide access to and opportunities for their learning through the kinds of activities and interactions that they provide. There is not necessarily privileging of the kinds of knowledge that can be learnt in each of these settings. (p. 24)

**Conceptual dichotomies and work-integrated learning.** Dimenäs (2010) examined ways that students in a work-integrated program may overcome conceptual dichotomies such as those illuminated by Billett (2011). He used survey and interview data collected from graduate students enrolled in a teacher training program at a Swedish university that illustrated that while some students did separate the “reality” of the workplace from the theory of the university-located education, others were able to move beyond such dichotomies by the way they drew conclusions from concrete examples of learning from participation in work-integrated education. For these latter students, his data demonstrated student learning by concretization, shown by how they were able to apply, identify with, and assume critical and self-directed approaches to their learning (Dimenäs, 2010).

**Increasing experience and co-op integrative learning.** Grosjean (2003) also investigated student conceptions of co-op learning and his findings would appear to comport with Dimenäs’; his study, however, includes an analysis of the amount of experience that participants had as co-op students. Using phenomenographic interviews of students enrolled at a mid-sized comprehensive University in British Columbia, Canada, he found that as participants advanced in the co-op program, the depth of the learning conceptions that they constructed
(Martin & Säljö, 1976; Van Rossum & Schenk, 1984, as cited by Grosjean, 2003) also advanced. The following order of learning conceptions reported in his study describe this deepening conceptual sophistication:

1. Learning as increasing one’s knowledge
2. Learning as memorizing and reproducing
3. Learning as applying
4. Learning as understanding
5. Learning as seeing something in a different way
6. Learning as personal change
7. Learning as a life-long process (Grosjean, 2003, p. 190)

Grosjean (2003) further observed that students with fewer work placements drew largely from their academic experiences when conceptualizing learning as increasing one’s knowledge, memorizing, or reproducing. Students with more workplace exposure drew their learning conceptions from opportunities to apply knowledge, a paradigm shift in their perception of the way they gain knowledge “from that of passive recipient, to one of active participant in learning and knowledge creation” (Grosjean, 2003, p. 193).

A professional competence view of co-op integrative learning. Grosjean’s characterization of a paradigm shift in perceptions of learning from passive knowledge recipient, to one of active participant in knowledge creation, is echoed further in what Grainger (2001) conceived as a disposition for developing “professional artistry” (p. 2). In the context of teacher education, Grainger distinguished professional artistry as the way some professionals are able to apply their knowledge “to an indeterminate range of infinitely variable problems” (Grainger,
2001, p. 2), rather than simply applying “pre-learned techniques to a finite range of recurring problems” (Grainger, 2001, p. 2).

**Connective practices and co-op integrative learning.** Whether conceived explicitly as a form of artistry or not, concerns for the development of capacities to connect, synthesize and create knowledge across different situations to solve problems are arguably implicated in Grainger’s (2001), Grosjean’s (2003) and Dimenäs’s (2010) views. Griffiths and Guile (2004) proposed a procedural perspective on such concerns by signifying specific “Connective Practices” (p. 72) of learning through work experience. These authors drew upon activity theory (Engeström 1996) as a way to describe both an entire work/activity system and learning transfer afforded across distinct activity systems (Beach, 1999; Davydov, 1990; Engeström, 2000; Lektorsky, 1990; Leont’ev, 1978; Tuomi-Gröhn & Engeström, 2003; Vygotsky, 1978; Wertsch, 1981). Activity theory’s unit of analysis is motivated activity directed by an individual, group or organization at an object (or goal). It emphasized how the use of tools and artifacts (such as language, computers and information) influence activity; it also focused on describing how rules, community, and the division of labor within the community inform activity. A co-op student’s experiences in an activity system of school alternated with experiences in an activity system of a workplace afford opportunities for generalization, critical thinking and developmental transfer as processes of boundary-crossing (Tuomi-Gröhn & Engeström, 2003) between the two systems. Griffiths and Guile (2004) specified four learning practices (activities) that students should understand as a starting-point for learning through work experience on these terms:

- **Acquiring theoretical knowledge:** The ability to isolate, explore and connect concepts to form an initial abstraction – a kernel concept – which, in turn, can be used to conceive a new understanding of the world
Dialogic inquiry: The ability to use language to dynamically examine and reformulate questions about specific social practices

Boundary crossing: The motivation and confidence to mediate (horizontally) across different forms of knowledge and performance from different contexts to create new understanding, as opposed to learning only by (vertical) attainment of mastery of prescribed knowledge

Resituating knowledge and skill: The ability to take a theoretical (kernel) concept from a situation of origin into another situation to understand that new situation (Griffiths & Guile, 2004)

Centralized role of the learner in co-op integrative learning. While the contexts of school and work might well afford opportunities for co-op students to apply connective practices such as those proposed in the aforementioned section, the experiential aspect of cooperative education ultimately calls upon students to figure out how to make the most of such opportunities for themselves. Learning theory that emphasizes the centralized role of the learner as a unique feature of work-integrated learning has been advocated in the views of a number of education researchers (e.g., Billett, 2006, 2008; Dewey, 1916; Guile & Griffiths, 2001; Mahoney, 1996). Eames and Cates (2011) pointed out that:

Students are required to find meaning across the educational and work environment. The individual’s learning is, therefore, idiosyncratic construction of knowledge (Billet, 2006). Work integrated learning offers the individual the opportunity to learn, but it is up to the individual to take advantage of the opportunity presented. (p. 46)

Billett’s (2011) theoretical ideas on the nature and development of occupational expertise in particular pointed to the student’s opportunity to make integrative meaning a manifestation of
one’s agency for self-monitoring performance, and in being proactive in continuing to learn about professional practice. He conceived an epistemology of work-integrated learning as encompassing conceptual, procedural and dispositional forms of occupational knowledge, along with corresponding canonical, situated and personal domains of understanding of each form (Billett, 2011). He argued that these forms and domains of knowledge are interconnected and interdependent in how they are experienced by the student.

According to Billett (2011), co-op students must reconcile two accounts of knowledge integration, a situational account and a personal constructivist account. The situational account focuses on settings—the nature of activities and interactions afforded to the learner from the physical and social environs of the academic and practice experiences. The personal constructivist account emphasizes the learner’s personal sense-making role in linking and reconciling what has been experienced and learned from the academic and practice settings. Billett (2011) proposed to reconcile these two accounts by emphasizing that neither social suggestion nor personal agency (i.e., intention, subjectivity and identity) should be considered inherently the dominant influence on the student’s learning, but instead that it is more the relational interdependency between these influences that fosters student learning the most. This relational aspect between social and personal learning influences was ultimately invoked in his call for a student-centered approach to fostering agentic integrative learning capacities.

Billett (2011) stated:

The integration of different kinds of experiences is shaped by individuals’ processes of construal and construction that are often premised upon what they have already experienced – premeditatedly, albeit in person-dependent ways. Thus, the linking of experiences from university and practice settings is likely to be quite distinct across a
cohort of students. Moreover, how each will come to link and reconcile what has been experienced and learnt is also likely to be person-dependent by degree. So while there may well be intents on the part of the educational program for linking and reconciliation of two different sets of experiences, these will always be negotiated in part by individuals. (p. 36)

**Chapter Summary – Literature Review**

In the first section of the review the history of criticism of co-op’s educational legitimacy and theoretical grounding was illuminated. Contemporary writings were spotlighted that signaled a turn within in the co-op field toward an educational focus, and recognition of continuing variability of co-op standards and practices among programs. In the second section of the review, selected research and writings on integrative learning from the literature of liberal education were highlighted. Here, the perspectives of integration—understood as a process of unification of knowledge and integrative learning as presented to students by the educational institution—were focused upon. In the final section of the review, writings on integrative learning from the literature of co-op and work-integrated education were then highlighted. Selected perspectives and concepts presented included the epistemology of co-op integrative learning, conceptual dichotomies in student perceptions of work-integrated learning, the relation of increasing co-op experience to integrative learning, a professional competence view of co-op integrative learning, connective practices of co-op integrative learning, and the centralized role of the learner in co-op integrative learning.
Chapter 3 – Methodology

Introduction

Interpretative Phenomenological Analysis (IPA) (Smith, Flowers, & Larkin, 2009) was employed to investigate the study’s primary question: How do college students with experience in a co-op work-integrated education program make sense of their beliefs about integrative learning competency. This chapter describes philosophical and theoretical underpinnings of IPA that comprise the conceptual framework of the study. The research setting, data collection, and analytical procedures are also specified, followed by considerations of trustworthiness and ethics. The chapter concludes with descriptions of student participant rights and the researcher’s role in the study.

Conceptual Framework

Theoretical, ontological and epistemological underpinnings of IPA comprise the conceptual framework of this study. The theoretical framework is phenomenology in the Heideggerian (hermeneutic) tradition. Heidegger (1985) theorized that a phenomenological study couldn’t be formulated or understood in an objective sense, free of the researcher being in the world of the participants and the research question (McConnell-Henry, Chapman & Francis, 2009). The IPA researcher takes the ontological position that is critically realistic (Archer, 1998; Bhaskar, 1978, 1998)—that while reality can be recognized as existing outside of one’s awareness of it—the nature and meaning of reality is dependent on the experience and apprehension of it (Dreyfus, 1997; Heidegger, 1985; Larkin, Watts, & Clifton, 2006). The IPA researcher’s epistemological position is, in this sense, contextualistic (Madill, Jordan, & Shirley, 2000) in nature—being “concerned with understanding the person-in-context, and exploring persons’ relatedness to, or involvement in, the world” (Larkin et al., 2006, p. 110). On these
bases the approach to the collection and initial analysis of the texts of this study involved the adoption of a stance of striving to remain sensitive to allowing concerns and experiential claims to be “given voice” (Larkin et al., 2006, p.110), in other words, to describing these claims and concerns on the participants’ own terms. Eventually the IPA researcher, like all qualitative researchers, seeks to balance representation of participant-expressions with interpretation and further contextualization. Larkin et al. (2006) framed this interpretative phase of the analysis as going beyond “giving voice” to “making sense” of what participants say:

Here we wish to emphasize that ‘taking the insider’s perspective’ is only part of the analytic process. The analyst in IPA is doing more than this: he or she is also offering an interpretive account of what it means for the participant to have such concerns, within their particular context. (p. 113)

Overall the IPA researcher keeps the focus at a level of microanalysis of individual experience (Smith et al., 2009). On these idiographic terms, the findings should not be presented as purely reductive in a generalizable way. As stated by Larkin et al. (2006), it would not be wise in an IPA study to “move from discourse to some sort of enduring and certain knowledge of an inner, conscious, or cognitive domain” (p. 109). While conducting this study the researcher recognized that he could not truly know what the participants believed per se, only what he thought their particular texts individually and collectively suggested from close processes of exploration, description, reflection, interpretation, and an openness and responsiveness to emerging understanding.

**Research Setting**

The setting of the research was a major U.S. university that is recognized worldwide as offering a leading co-op curriculum. At the time of the study (2016) the program annually
placed 9500+ students in co-op jobs throughout the United States and international locations. Co-op students participating in the study were in their fourth or fifth year of college and had completed at least two 6-month periods of workplace employment.

**Approach to Participant Recruitment and Selection**

A purposive approach to the selection of student participants was employed (Merriam, 1998) to enhance data (text) richness and to help assure gathering efficiency. The researcher has 15 years of experience as an administrator of cooperative education at the study-institution and collaborates routinely with co-op student advisors. With this familiarity he was able to ask advisors in the institution’s colleges of science, social science and humanities, engineering, computer and information science, and school of business to make initial contact with students to gauge interest in the study, and then to nominate willing students to be contacted and interviewed. Eight participants were ultimately enlisted. Criteria that advisors used to guide their outreach included:

- Minimum of two 6-month periods of workplace employment experience
- Personal judgment by the advisor that the student is a clear and effective communicator

The researcher sought to achieve a final selection of participants that provided access to a wide range academic and workplace perspectives (Smith et al., 2009). Therefore, consideration was given to nominees from a mix of hard-pure, hard-applied, soft-pure, and soft-applied skill-oriented academic programs (Becher, 1989, 1994). Consideration was also given to assuring the participation of equal numbers of men and women.

Upon nomination of a student for the study by his/her co-op advisor, the researcher sent an email introducing the research study to the student. Attached to the email was a “Consent
Request” form and background questionnaire for the nominee to preview. The message of the email introduced the researcher as referred by the co-op advisor. It explained to the nominee that the attached consent form and questionnaire were provided for preview and should be read in their entirety. It also said that the researcher would follow up with the nominee by phone or email to answer any questions and to arrange a time to meet at a location of the student’s choice to sign the consent form, complete the background questionnaire, and be interviewed.

The consent form introduced the researcher, named the title of the research study, and provided researcher contact information for directing questions. It explained why the student was being invited to participate, and what the student would be asked to do in the study. Risks and benefits of participating, how confidentiality would be managed, and a statement that participation in the study was entirely voluntary, were included. Terms of compensation for participation – a $15 gift certificate to the local university bookstore – were also described.

The background questionnaire that was previewed called for the participant to describe perceptions of cooperative education philosophy, the decision to choose to attend a university with a cooperative education program, and the choice of academic major. It also requested brief comments about the quality of the participant’s academic and practice-based experiences, career vision, life-goals, and understanding of integrative learning competency.

**Sources of Study Textual Data**

Text to be analyzed in this study derived primarily from a semi-structured, one-on-one interview that was conducted in person with each participant. Select responses to the background questionnaire were also considered during the development of the analysis.
**Data Gathering Procedures**

The collection of the consent form, background questionnaire and interview texts was managed individually for each participant on a rolling basis. After emailing the consent and background questionnaire forms to the nominee for preview, the researcher followed up by phone or email to arrange an in-person meeting at a neutral location of the nominee’s choosing. Neutral locations included interview meeting rooms in the campus library and a conference room in a campus research and administration building. The researcher began each meeting by asking the nominee if he or she wished to sign the consent form. Nominees were asked to sign the consent form first, and then to proceed with filling out the background questionnaire. Once the background questionnaire was completed, the researcher reviewed it and interviewed the participant. All eight nominees signed the consent form.

The interview itself was audio-recorded using iPad recording software. The interview at first served as an opportunity for the researcher to member-check his understanding of the meaning of responses to the background questionnaire. During the course of each interview the researcher aimed through guided reasoning to explore what the participant believed about integrative learning competency as an aspect of their participation in cooperative education. Probing questions were used to prompt insights about specific experiences of integrative learning competency. Interviewees were also asked to offer perceptions of how and why each experience described indicated that integrative learning competency was or was not in evidence, and to identify opportunities and challenges to developing integrative learning competency.

After all the interviews were conducted, the researcher transferred the background questionnaires and audio recordings into *Atlas.ti* (a computer software tool for storing, reviewing
and exploratory commenting of qualitative research media and data). All eight interviews were completed before exploratory commenting and analysis of the collected texts began.

**Analytical Strategies and Procedures**

The idiographic commitment of IPA is essentially a call to work up from the details of each case, allowing the meaning from each to stand on its own before attempting to identify emergent patterns across cases. The researcher completed a discrete analysis of each case before starting the cross-case analysis. The order of the individual case analyses began with the case that was deemed to be the most “detailed, complex and engaging” (Smith et al., 2009, p. 82), then moved to the next most engaging, and so on, until the case deemed to be the least detailed was analyzed last. For each case the researcher first became oriented to the data by reading, then re-reading questionnaire responses and listening to and re-listening to the interview recordings.

**Exploratory commenting of each case.** The researcher then engaged in three rounds of exploratory commenting of each interview’s audio recording using Atlas.ti. The first round was to review the case text commentary line-by-line noting descriptive characteristics of the language used by a participant to express experiential claims, concerns, understandings, and beliefs about integrative learning competency. A second round focused on notable linguistic characteristics of the text. A third round focused on noting conceptual characteristics. Through this review process each participant’s full-length interview recording was parsed into discrete comments with each comment signified by a beginning timeline code number and a one-sentence descriptive summary name.

**Identifying emergent themes of each case.** Notes about descriptive, linguistic and conceptual characteristics of the comments (questionnaire and recording) of each case were then analyzed further to uncover each case’s emergent themes. According to Smith et al. (2009):
Themes are usually expressed as phrases which speak to the psychological essence of the piece and contain enough particularity to be grounded, and enough abstraction to be conceptual. The focus is on capturing what is crucial at the point in the text but inevitably you will also be influenced by the whole text (p. 92).

Once all of the themes of a given case were named, the researcher then listed them randomly into a table figure. The themes were moved around in the table and classified into meaning groupings. Smith et al. (2009) recommended the consideration of a wide range of specific analytic procedures to help assure the development of a comprehensive and richly-defined table of themes for each case. These include:

- Abstraction (naming common patterns)
- Subsumption (elevating a theme to encompass others)
- Polarization (examining opposing meanings)
- Contextualization (noting surrounding temporal, cultural or narrative characteristics)
- Numeration (counting the mention of certain words or ideas)
- Function (how certain themes operate to affect the meaning of the transcript)

The researcher considered each of these procedures in the identification of themes as warranted by the nature of the texts. Themes were evaluated in relation to one another, and the researcher was also influenced in the naming of themes by what was learned in the process of listening to and signifying the comments of a given case. Some themes were removed, while others were reclassified as superordinate or subordinate. Themes were renamed in some instances as necessary to refine how they signified grounding in the researcher’s interpretation of the case commentary. As themes were entered into the table, they were also cross-referenced with time
code numbers of specific passages from the original texts (questionnaire and interview) from which they derived.

**Member-checking of case themes.** As each case’s table of themes was formulated, the table was emailed to the participant who was asked if it reflected the meaning intended in their questionnaire and interview responses. Along with the table of themes, the participant’s interview recording was delivered for review. The participant was asked to note any passages that he or she wished to be excluded from consideration by the researcher. All participants affirmed the researcher’s signification of their respective themes with no requested changes.

**Analyzing the texts, developing a master list of themes across cases.** Once the theme tables of all of the individual cases were member-checked, the researcher placed all individual case themes into a master list of themes to guide the cross-case analysis. Themes were reviewed again for similarities and differences of meaning, expanded, condensed, resulting in a cross-case heuristic list of superordinate and subordinate themes. These themes are what are named in the study’s final analytical result—a master table of themes of all cases.

In formulating the master list of themes, the researcher evaluated how themes from each case reflected themes in other cases, which themes seem the most prominent overall, and regrouped and edited the names of the themes in the list accordingly to reflect significant idiosyncratic and higher order common qualities.

Individual comments grounding the meaning of superordinate and subordinate themes then were listened to a fourth time to reevaluate them for salience to associated themes, and were transcribed. Transcribed comments were then listed accordingly within the cross-case heuristic list of associated superordinate and subordinate themes. The order and flow of the commentary were evaluated to edit and establish a coherent explication of the comments in relation to the
heuristic list of themes. At this point sub-subordinate designations within subordinate theme categories were also woven in to the commentary to enrich and refine signification of convergence or/or divergence in the meanings suggested or explained by the commentary. From this edited litany of selected verbatim extracts a narrative was inductively formed and woven in to cohere the explication and flow of the analysis. This approach, overall, comports with researcher’s commitment to honoring IPA’s concern for investigating experience at a deep level of detail. Insights that emerged during the process of writing the narrative also prompted some reconsideration of the original definition of themes.

**Forming a dialogue between the themes and select literature.** The final discussion chapter of the study comprises a dialogue between the master list of themes and select salient ideas from the literature. Here the phenomenological concern of IPA does not permit the literature-theme comparison to change the definition of the themes themselves. Rather, the themes that emerged are intended only to be compared and contrasted (illuminated) with the literature, as is the literature with the themes.

**Trustworthiness**

A number of frameworks have been developed for assessing the quality of qualitative research (Creswell, 2007; Lincoln & Guba, 1985; Maxwell, 1941; Van Manen, 1997). Lincoln and Guba (1985), for example, identified credibility, transferability, dependability, and confirmability as important aspects of quality in qualitative research processes. Van Manen (1997) identified orientation, strength, richness, and depth as important aspects of qualitative research writing. Smith et al. (2009) pointed out that use of simplistic and prescriptive checklists for attending to quality poses a risk that “the more subtle features of qualitative work get missed out” (p. 179). Alternatively, they presented Yardley’s (2000, 2007) approach as an example of a
more sophisticated and pluralistic stance toward quality, one that better suits the psychological and idiographic concerns of IPA research. Rather than a checklist, Yardley (2000) named four broad principles to assure trustworthiness; they are sensitivity to context; commitment and rigor; transparency and coherence; and impact and importance.

**Sensitivity to context.** Context can refer to the socio-cultural milieu in which the study takes place, literature streams about the topic under study, and the texts that are collected from the participants. Sensitivity can be demonstrated in a number of ways in these domains. The researcher, for example, aimed to gain access to experienced co-op students enrolled in a college co-op program who are prepared to communicate thoughtfully and deeply about how they have come to think about learning from their co-op experiences. Sensitivity is also suggested by what perspectives the researcher identified from the literatures of co-op, work-integrated and integrative learning as being salient to a discussion of the study’s findings. The researcher aimed to demonstrate sensitivity in his intention to use a background questionnaire to prepare co-op student participants to reflect upon their co-op experiences in advance of the interview; their responses to the questionnaire enabled him to be better prepared to carefully facilitate each interview exchange about integrative learning competency. Findings from an IPA-based study can make no claims of transferability. Readers who wish to extend the findings through theoretical generalizability (Smith et al., 2009) are expected to be responsible for making the judgment of how sensible the transfer is (Hammersley, 1992; Maxwell, 2005; Weiss, 1994).

**Commitment and rigor.** The researcher’s commitment to the quality of the study is demonstrated in his empathy to the interactional needs of the participants. Having scheduled one-on-one interviews at their convenience is one example of this. Having taken care to develop a level of trust with them by appropriately moderating what, when, and how questions are posed
in each interview, is another. Rigor, too, is demonstrated in a number of considerations. A balance between closeness and separateness between the researcher and interviewee was attended to, for example, while staying attuned to opportunities to pick up on cues in order to probe deeper into responses. The researcher adopted a disciplined and systematic approach to immersing himself in the meaning of the texts. This was evident in his use of a variety of modes of exploratory commenting, and in the identification of emergent case and cross-case themes supported by the use of the qualitative analysis software tool, *Atlas.ti*. Rigor was also of concern in the researcher’s choices of verbatim text that are in amounts proportionate to the total number of participants, and are attendant to the fullness and complexity of the lived experience of integrative learning competency described by each participant. Finally, rigor was attended to in how the researcher selected a sample of student participants. The sample was reasonably homogeneous in terms of the amount of co-op experience that each participant had (each having completed at least two 6-month co-op work assignments), and comprised students from a wide range of academic majors so as to afford the possibility of eliciting similar and divergent beliefs about integrative learning competency.

**Transparency and coherence.** Concern for transparency is demonstrated by the researcher in how he has transposed the description of the proposed research process with details of the process that actually occurred. How he framed the themes to fit logically together, and how he chose to explicate any ambiguities and contradictions that emerged among the themes, demonstrate his concern for coherence. The researcher chose IPA because of its simultaneous phenomenological, hermeneutical and ideographic orientation, an orientation that coheres with his aim to attend closely to the meaning that integrative learning competency has for a particular group of experienced co-op students.
Impact and importance. For future co-op students, the study’s discussion presents a grounded description and interpretation of some co-op student beliefs about integrative learning competency; the descriptions are expected to form useful prompts for reflection upon the adequacy of their personal theories of integrative learning competency. For co-op administrators the researcher also hopes the study will stand as an informative example of a practical effort to cultivate a deeper praxis in the educational aims of a certain co-op program, one which can inform their efforts to foster praxis in their own programs.

Ethics

Human subject research requires that care be taken by the researcher to assure that no harm come to participants from their involvement in the study (Creswell, 2009). University Institutional Review Board (IRB) approval of the study design and procedures was confirmed before the researcher proceeded with inviting advisors to recommend students, and before inviting students to participate.

Participant volition. Students who were invited to take part in the study were informed in writing that participation was not required in any way. They were asked to provide formal written consent to participate in the study to the researcher.

Full disclosure. Students who were invited to participate in the study were informed in writing that the purpose of the study was to gain a greater understanding of what they believed about integrative learning competency; from this, new approaches to supporting co-op student integrative learning processes might be researched and made possible.

Impact on student co-op status. Students who were invited to participate in the study were informed in writing that involvement would not affect how their co-op advisor would evaluate their performance on their co-op work assignments.
Anonymity. Students who were invited to participate in the study were also informed in writing that complete confidentiality of their identity is not guaranteed because they were nominated for participation in the study by their co-op advisor. However, they were informed that their anonymity would be maintained to the best of the researcher’s ability. During the research process, the researcher adhered to a protocol of attaching assigned pseudonyms to original text and audio material as it was collected, reviewed, filed, and written about. Pseudonym codes were securely stored only in hardcopy form at an address location that is different from where text, audio and study-write-up materials were stored. Study results reported to others have been scrubbed of other specific student-identifying details such as work location, and employer and advisor names. Original background question responses and audio recordings of the interviews were only directly accessible to the student researcher during the course of the study, and were used only for this study. These materials were not allowed to be used for any other purpose and deemed unavailable to others unless requested by the University’s IRB. Original background question responses and audio recordings of the interviews were destroyed following transcription and final written analysis by the researcher.

Feedback. The researcher started each interview by addressing any need for clarification that emerged from his reading of the participant’s responses to the background questionnaire. The researcher also provided each participant with the opportunity to offer feedback on the themes identified for his or her respective case, and to request that particular passages from interview texts be excluded from the study.

Researcher’s role in the study. The researcher’s role as the author of the study was to serve as the study’s facilitator. Therefore he introduced the study topic and aims to potential participants and secured their commitments to participate. He distributed and collected
questionnaires, scheduled, recorded and conducted interviews, and resolved any questions and technical issues pertaining to study procedures that arose during the course of the study. He also member-checked themes with participants, interpreted texts, and, finally, reported the results of the study. The researcher’s dual roles as the student investigator and as an administrator of the co-op program where the study was based were fully disclosed to the participants. The researcher did not have any direct role in evaluating/grading student performance on co-op during the course of the study. However, in fulfilling his administrative role, he provided administrative support to co-op advisors and students. Care was taken by the researcher to avoid interactions with students in his role as an administrator that would have presented any risk of influence on the interpretation of a participant’s text. Study-related interactions with participants were not disclosed in any form while conferring with co-op advisors and other university personnel in his administrative role.

Chapter Summary – Methodology

Details about the research setting were described in this chapter. The procedures the researcher employed in executing the study were then specified. These included the researcher’s approach to recruitment selection, sources of study textual data, data gathering procedures, and analytical strategies and practices. The chapter concluded by identifying principles of trustworthiness that the researcher followed to assure the quality of the study, along with describing considerations of ethics, participant rights, and the researcher’s role in the study.
Figure I. Conceptual Framework Incorporating the Methodological Process
Chapter 4 – Analysis and Theme Findings

Introduction

The aim of this study was to explore how co-op students make sense of their beliefs about what it means to be competent integrative learners. The central question guiding the inquiry was “How do college students with experience in a co-op work-integrated education program make sense of their beliefs about integrative learning competency?” The approach was to regard the study’s aim not as a problem to be solved but as a question of meaning to be probed. Employing the methodology of Interpretative Phenomenological Analysis (IPA), the exploration focused on describing and interpreting what students believed integrative learning competency is, how they claimed they came to these beliefs, and challenges and opportunities they perceived in being intentional in their approach to it.

Eight undergraduate upper class students—4 men and 4 women—each of whom had completed at least two 6-month cooperative education work assignments—participated in the study. Each participant completed a background questionnaire and was interviewed one-on-one. Participant majors comprised a diverse mix of academic interests, together, reflecting basic and applied orientations, and, thus, ostensible aims to develop hard and soft skills through college pursuits. The majors were psychology (Cam); accounting/management information systems/computer science (Elaine); chemical engineering/mathematics (Jake); chemical engineering (Joe); finance/political science (Marcy); finance (Ron); international affairs (Sally); and human services/American sign language/deaf studies (Sarah).

The researcher’s close exploration of the meaning of the commentary across the participant texts revealed the following themes about integrative learning competency:
<table>
<thead>
<tr>
<th>Superordinate Theme</th>
<th>Subordinate Theme</th>
<th>Associated Concerns or Experiential Claims</th>
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</thead>
<tbody>
<tr>
<td><strong>Privileging Expectations of Gaining Work Experience</strong></td>
<td><strong>Occupational Aims as Motivation for Learning</strong></td>
<td>Validating assumptions about what is attractive about an occupation</td>
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<td></td>
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<td>Acquiring occupational knowledge and experience in an effective way</td>
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<td>Preparing to take advantage of career advancement opportunities</td>
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<td>Recognizing what needs to be learned</td>
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<td>Aiming to be a more persistent student of a chosen field of endeavor</td>
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<td><strong>Occupational Preparation as a Learning Framework</strong></td>
<td><strong>Workplace experience as an important learning guide</strong></td>
<td>Staying focused on making pragmatic learning gains</td>
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<tr>
<td><strong>Forming Meaning Connections In Due Course</strong></td>
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<tr>
<td><strong>Integrative Learning as a Tacit, Unfolding Process</strong></td>
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<td>Having an undeveloped notion of what integrative learning might be</td>
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<td>Relating to integrative learning by a different name</td>
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<td>Allowing what emerges to be instructive</td>
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<td><strong>Integrative Learning as Applying Meaning Relations</strong></td>
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<td>Experiencing that what is known about a field of study works in action</td>
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<td>Experiencing that what is known about ways of learning works in action</td>
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<tr>
<td><strong>Integrative Learning as Understanding Meaning Relations</strong></td>
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<td>Drawing associations between different concepts and/or skills in a critical way</td>
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<td>Building new knowledge from meaning associations</td>
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<td>Recognizing the development of learning skill</td>
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Table II (continued)

_Emergent Themes and Associated Concerns or Claims Among the Cases_

<table>
<thead>
<tr>
<th>Superordinate Theme</th>
<th>Subordinate Theme</th>
<th>Associated Concerns or Experiential Claims</th>
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</thead>
<tbody>
<tr>
<td>Supposed Challenges to Becoming a Competent Integrative Learner</td>
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<tr>
<td>Being Open-Minded</td>
<td>Looking beyond what is required to be known</td>
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<td></td>
<td>Having humility in the approach to learning</td>
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<td></td>
<td>Recognizing that the value of knowledge may not be obvious</td>
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<td></td>
<td>Sustaining a persistent intention to learn</td>
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<td>Meeting Higher Performance Demands</td>
<td>Feeling ready to perform</td>
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<td></td>
<td>Adjusting to a shifting routine</td>
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<tr>
<td>Deepening Discernment of Meaning Relationships</td>
<td>Mediating commitment to classroom instruction</td>
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<td></td>
<td>Adopting a critically-reflective mindset for learning</td>
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<td></td>
<td>Seeing the opportunity to aspire beyond instrumental learning aims</td>
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<tr>
<td>Resituating Knowledge and/or Skills Across Situations</td>
<td>Resituating knowledge and/or skills from academics to a workplace</td>
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<td>Resituating knowledge and/or skills from a workplace to academics</td>
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<td>Resituating knowledge and/or skills over repeated school-work cycles</td>
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<tr>
<td>Owning the Development of Meaning-Connecting Capacity</td>
<td>Recognizing a path to self-directedness</td>
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<td>Claiming responsibility as a self-authoring learner</td>
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<td>Enacting self-authorship of learning</td>
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<td></td>
<td>Clarifying learning aims and needs</td>
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A concentrated summary for each superordinate theme is provided. The naming of subordinate themes distinguishes convergence and divergence of participant accounts. Each subordinate theme is thickly described by frequent presentation of quotations that serve to illustrate further cross-case convergence and divergence of meaning among participant concerns and experiential claims. Summaries of cross-case findings for each superordinate theme are included, along with a summary of the chapter.

Privileging Expectations of Gaining Work Experience

Students have expectations of what they want to learn from participating in cooperative education. This first superordinate theme expresses the finding that all participants privileged aims to gain occupational experience when describing their lived experience of integrative learning. All of the participants on multiple occasions referenced “co-op” in terms that signified the work portion of their participation in cooperative education, with little or no reference to it as a broader curricular notion, one that ostensibly affords opportunities to integrate learning across work and school. Participants did, however, describe co-op participation as helping to develop their ability to learn about their chosen occupations. These observations revealed that participants emphasized participation in co-op as a means to guide what to learn about an occupation, with less emphasis given to it as a means to guide how to learn per se. Divergence and/or emphasis of meaning in comments relating to this superordinate theme were identified by the researcher along two subordinate themes: Occupational aims as motivation for learning, and Occupational preparation as a learning framework.

Occupational aims as motivation for learning. Participants described perceptions of occupational aims as motivating learning approaches and actions in various ways. Some of these accounts reflected a desire to validate assumptions of what attracts one to a particular
occupational field; some conveyed concerns for wanting to acquire occupational knowledge and experience in an effective way. Other accounts referred to needing to be prepared to take advantage of career advancement opportunities, while others expressed concern for not having awareness and persistence of one’s use of learning skills in pursing occupational learning aims.

Validating assumptions about what’s attractive about an occupation. Cam, a psychology major, recollected how during his transition to college, what was emphasized by his advisors, and what attracted him to a co-op institution, were these advantages:

. . . Being exposed to different work experiences; to find out what you want to do; [to] find out what you don’t like doing; [and to] find out certain aspects of working that you need to work on yourself, or certain aspects that you need to kind of vet for when you interview.

Jake attested that such claims also influenced his choice to enroll at a co-op school, and ultimately changed his assumptions about what specialty within engineering he was attracted to and would study:

On my first co-op, which was at a vaccine nano part of the company, like I had no available experience prior to that co-op cause I was in the engineering field and I took pretty much all my prerequisites before that co-op. And then going into that co-op, a lot of it involved immunology and how your immune system works, and how it reacts to different pathogens and how it reacts to different outside particles and all that. So I had, you know, to learn a lot while I was on my first co-op, and it really got me interested in the field. And then when I went back to school, I took like genetics, and that sort of thing, like more medically-related type classes.
Acquiring occupational knowledge and experience in an effective way. Jake also described how his awareness of the temporary nature co-op work assignments had provided some incentive for him to want to gain as much on-the-job knowledge and experience as he could in the limited timeframe of a single workplace assignment:

Say like the last two or three months are the most important. Because at that point you’re having a good idea of what you’re doing; you’re having a good idea of the background, and a good idea of where you’re trying to go with the work. So I guess that motivates me. I guess I would be motivated to try, and so learn everything a little bit quicker, so I would have more time at the end to push forward and try and contribute in the best way that I can.

Marcy, who was studying finance and political science, and who was actively considering her third and final co-op work assignment at a business start-up, conveyed desire for acquiring occupational knowledge and experience in an effective way by how she considered a change of plan for her last semester before graduation. Foregoing a final semester of classroom instruction, and, instead, completing her college degree course requirements online, she believed, would allow her to stay employed with the start-up upon graduation.

Preparing to take advantage of career advancement opportunities. Some participants framed their occupational learning motivations in terms of a need to be ready to recognize and leverage opportunities for getting ahead in a career. Joe, a chemical engineering major, ascribed his first motivations for co-op learning as having primarily to do with believing his school’s claims that “most students get a job right after graduation because of their experience on co-op.”

For Cam, participating in co-op education provided motivation for him to plan a sequence of career-advancing “stepping stones”: Going from co-op workplace experiences to being
inspired by these experiences to write and get published; getting published and how that will help him get into grad school; and how grad school will ultimately get him started in a first job as a therapist in a community mental health center.

Ron, who was majoring in finance, and was about to graduate and move into his first job with a large investment bank, also described his motivations for occupational learning in terms of wanting to be prepared to take advantage of career-advancing opportunities that he expected to emerge. Toward that end he said he connects his career planning perspective to his understanding of technical aspects of the investment-banking field:

I know I want to kind of grow. . . I mean eventually I’d like to start my own private equity company. And I know to do that I need to be aware of both realms of knowledge. You need to be able to make these connections, you need to be able to find common ground; you need to be able to take those technical skills with, you know, and an astute sense of career management . . . I need to find ways for them to connect in order to kind of move up and see different opportunities that may arise.

**Recognizing what needs to be learned.** Participants also conveyed their motivations toward occupational learning when describing moments of recognizing what they needed to learn. Joe compared two experiences that illustrated this. He began with a reference to a situation in the classroom of recognizing knowledge connections from the workplace:

So for the entire length of the co-op, the company is built around the foundation of promoting the pros of continuous manufacturing; And so going [back] into class, just that first day, I was incredibly excited because, when the professor sort of asked, what would be the pros of this system, I could list all of them.
Referencing his second workplace assignment, however, he described a situation of not being prepared to make a knowledge connection to academics:

Working at my last co-op we ran into this tricky situation, where we were drying some powder that had several different chemicals in it, and we weren't getting the result that we expected, and my boss asked me to perform this calculation, and he asked me to calculate how much of this solvent should be evaporating? And I didn’t remember those equations from a couple of years ago because I sort of disregarded them as not very important? So whereas, if I had sort of mastered that and chosen to remember those and dedicated those to permanent memory, I could have come back to him with a result in twenty minutes or half an hour; but instead I had to reteach myself that and it ended up taking me the rest of the day.

Sarah, who was studying human services, American Sign Language and deaf studies, also conveyed her motivation by occupational aims in how she recognized what she needed to learn. Unlike Joe, however, she revealed a sense of readiness to plan her learning proactively:

If I apply to this co-op currently . . . [I’m thinking] I can improve in event planning as well as building coalitions and things I wouldn’t necessarily get out of applying to a different co-op, you know? And so, in that sense, yeah; I think about, like, where are my strengths; like where are places I know I have the ability to follow through on things.

And where do I lack? And I’ll actively pursue that.

Aiming to be a more persistent student of a chosen field of endeavor. Two participant accounts also expressed motivations for occupational aims in terms of how the workplace inspires learning persistency. Cam described classical classroom-based ways of learning as more
“autonomic.” From that conditioning, he saw co-op as a kind of antidote to his sometimes being unmotivated to actively think about how he learns:

I think co-op [a workplace assignment] provides a new experience to apply what I know in a different way and really learn about how I can actually do the best that I can at the job that I’m given or at other tasks that I maybe want to take on.

Similarly, Sally referenced her workplace assignments outside of the United States as helping to prompt her learning intentions. She underscored her desire to make useful human connections in a foreign culture as an important learning motivation:

If you are there alone [in a foreign country], and you’re looking at people and you’re, like, not really like finding things that you can relate to, you get over that quickly, and you get beyond the differences, and you just pick out the things that are similar because it makes you feel good. And it makes you feel a little bit more home and, from there, you just build off of it, and it makes yourself more dynamic and open.

**Occupational preparation as a learning framework.** Participants valorized occupational prerogatives as framing the planning and direction of their learning efforts as well. Some accounts illuminated how work experience is conceived as a learning plan or guide. Other accounts pointed to how work experience helped to accentuate one’s focus on making pragmatic learning gains.

**Workplace experience as an important learning guide.** It is notable that all but one of the participants repeatedly referenced the term “co-op” from the perspective of what is primarily learned in the workplace, with seemingly no conception of “Co-op” as encompassing both work and school-based learning. For example, Jake indicated that he expects his “co-op” (i.e., a
workplace assignment) to guide how he anticipates what might be missing in his understanding of chemical engineering:

I guess I, to an extent, think about the different gaps in my learning. But I realize that I’ll get there through these different experiences. And I don’t actively try to learn these concepts before I get there. If I do through co-op [workplace] then that’s great, and then it helps out in classes, but I don’t try going to seek the knowledge that I might not have before the class.

Joe described a more intentional approach, how, as he prepares to seek post-graduation employment, he consults his “co-op” (i.e., workplace assignment) contacts as a way to inform his learning direction:

I’ve recently just started looking for jobs post-graduation, and started just taking a preliminary look at job postings and what they require, and starting to talk to people from my previous co-op, and asking their direction, and asking advice, and just gaining some more knowledge about what they did after they graduated from their undergraduate university. And, so definitely after those sort of experiences, I now have a much better idea of what I still need to learn, or what I would still need to learn whether that’s experiential like learning, like hands on, or classroom-type knowledge.

_**Staying focused on making pragmatic learning gains.**_ The theme of occupational preparation as a learning framework is also grounded in how some participants expressed their intention to stay focused on making pragmatic learning gains. Elaine explained how it was important for her to choose a mix of academic concentrations that would ultimately lead to the practical end of getting a job:
The reason I chose the majors I did? Accounting is very practical. I knew from the beginning I would get a very good job out of that. It also gives you a good baseline to understand the business. And MIS [management information systems], on top of that, gives more of a bridge between the, you know, business side of the world and the technical side of the world. And I thought that would be very useful. And then computer science I knew was going to kick my butt, but at the same time, it was very impressive looking on a resume, and it kind of rounded out this business-bridge-technical aspect to my education. It was all about practicality for me; what is going to give me the most options. And honestly, I’m paying for this, so [it’s about] what am I going to get out of it in terms of employment.

Cam also conveyed his concern for staying focused on making pragmatic learning gains in his description of how had he made an effort to assure that he would have a good mentor in the supervisor that he would be working for on his next work assignment. “That was a big thing, and helped me with the interview process, a mutual vetting that was occurring in the interview.” This, he believed, would help him to avoid a work situation that becomes less about learning about the job and more about pleasing his supervisor:

Like my second co-op was more of a power dynamic that, I don’t know . . . I was this subordinate, and not only the subordinate, I was the “co-op.” I was the person who did certain tasks. But it had a limited range of tasks . . . . That interaction wasn’t really helpful for me to be ambitious and like really learn and apply myself.

When asked if there was one moment when she became aware of her learning intentions as a co-op student, Elaine described how her learning gains became explicit for her at the end of a work assignment when she realized she had to go back to school:
. . . I essentially wrote a list everything I was thinking, and I had been thinking for the past six months. It was something I did on my own cause I just think a lot, and I just kind of wanted to make sense of everything I was thinking, and I wanted to write down everything that I wanted to talk to my manager about. When I had my conversation with my manager using what I had written on that list, that was one of those moments, where I was like, okay, this is what I’ve learned, and this is what I want to bring forward.

**Summary – Privileging Expectations of Gaining Work Experience**

This section explored commentary across the cases deemed by the researcher to suggest that participants privileged aims to gain occupational experience when describing their lived experience of integrative learning as co-op students. Accounts revealed participant beliefs about what they expect primarily to be focused on learning as co-op students: namely, knowledge and skills of a particular occupational field. Divergence and/or emphasis of meaning in comments relating to this superordinate theme was called out by the researcher along two subordinate themes: Occupational aims as motivation for learning, and Occupational preparation as a learning framework.

**Forming Meaning Connections in Due Course**

Students have expectations of how they will experience learning from involvement in cooperative education. The second superordinate theme captures the finding that participants perceived integrative learning as a tacit, unfolding process of forming meaning connections in due course. Participant commentary conveyed little conception of the meaning of integrative learning per se, although explicit instances of applying and understanding knowledge connections were evident. This observation suggested that some participants might experience integrative learning while attending to no formal definition of it that might foster intention to
achieve it competently. Divergence and/or emphasis of meaning in comments related to this superordinate theme were called out by the researcher along three subordinate themes: Integrative learning as a tacit, unfolding process; Integrative learning as applying meaning relations; and Integrative learning as understanding meaning relations.

**Integrative learning as a tacit, unfolding process.** Participants described perceptions of integrative learning that characterize it as tacit and unfolding. Some of these accounts were highlighted in terms that suggested that participants held undeveloped notions of what integrative learning is; other accounts acknowledged the effect of integrative learning in their co-op educational process though appreciated it by a different name. Still others conveyed the expectation of integrative learning as requiring one to allow what emerges to be instructive.

**Having an undeveloped notion of what integrative learning might be.** The theme of integrative learning as a tacit and unfolding process was grounded by comments that indicated that participants did not have a clear conception of integrative learning. Marcy, for example, acknowledged that she could not remember being exposed to the idea of integrative learning in an explicit way through her studies:

> There could have been, but it’s not something that I . . . that jumps out at me as, like, ‘Oh yeah, that’s definitely something that I learned.’

And although she had been instructed in her business classes that one must pay attention to “a lot of different stuff,” she concluded:

> I don’t recall integration being a particularly big term that anyone pointed to in that regard.
Elaine dismissed the efficacy of integrative learning itself. She found it difficult to define. Irrespective of whether you put the word “integrative” in front of it – she regarded it as a subjective concept, not concrete enough to learn about in a prescribed way:

I just don’t think that somebody could say you have integrated your learning experiences based on X, Y, Z criteria. It’s more, do you feel like you have grown as a person, is how I would say you were successful. And whether or not that was a direct factor of integrative learning you’ll never know because there are so many external factors in your life, how do you even know that, how can you isolate that as the driving factor?

While indicating that she was not aware of it as a formal concept Elaine, did, however, refer to integrative learning in terms of having a vague sense of the experience of it:

The term never actually came into my head. It was more that I had come across it before rather than “this is integrative learning in action.” . . . I mean, I think it’s interesting because you don’t ever actually ever think about it; you don’t think “Oh, okay, it’s like, remember ‘X’ from this source, and I remember ‘Y’ from this source, and I’m putting them together, so I’m integrating them, and I’m performing integrative thinking here . . . I’m thinking about thinking right now.

Relating to integrative learning by a different name. Integrative learning as a tacit and unfolding process was also reflected in several comments that described experiences of it but by a different name. For example, Marcy’s comments convey that though she was not familiar with the specific term integrative learning, she was aware of another term that she saw as akin:

I mean the idea of, you know, disparate thinking has been introduced to me; the idea that you would go to multiple places to figure out proxies for finding other information. That’s familiar to me. But the specific term, integrative learning? No.
Ron commented on how he perceives the meaning of integrative learning framed as a process of drawing different kinds of information together, as well, but also characterized it as having the skill to effectively articulate the meaning of what is drawn together. Despite not having investigated the notion of integrative learning per se, he spoke of being inspired by video interviews of business executives that he watches routinely to learn how they are able to easily talk about concepts, compare them, and draw clear underlying commonalities among them.

Sally likened integrative learning to the way she strives, as an international affairs major, to consider multiple perspectives:

I don’t know if I ever put the, like, phrase or concept ‘integrative learning’ on to that; but that has always been a very active thought process for me. . . . It’s being multidisciplinary in every possible way that you can. You know what I mean? . . . For my field particularly, I guess the explicit way to put it is the fact that you’re drawing from, like, sociology, anthropology and political science.

Sally affirmed that taking multiple perspectives involves reflection that is informed also by her personal background:

When it comes to like actually being a human being out in the world, it’s drawing on your emotions; your education; your history; your life goals; you know? Your background, and things like this, to approach something.

Allowing what emerges to be instructive. Tacit and unfolding aspects of integrative learning were reflected also in comments that suggest an openness to allow what emerges to teach one as one goes. Cam stated that he makes no deliberate effort to identify gaps in his disciplinary knowledge that would cause him to focus on closing such gaps:
I guess it sounds a little bit more organic, taking it as it comes, and then applying it to the next step in my classes.

Marcy’s comments reflected a similar disposition to Cam’s, but were not only receptive to learning from what emerges from situations, but also because of confidence that experience instilled in her to be able to mediate the unexpected:

I mean I know that being part of a start up [in my next work assignment] I’m going have to get really good at bargaining customer acquisition; like I’m going to have to get really good at it. And I’m not good at it now. I’ve never taken a class in it. So I have intro to marketing, but there’s tons of resources online. I’ll probably learn as I go. And co-op, to some extent, teaches you that you can pretty much figure out stuff when you need to know it.

Comments by Sally expressed skepticism about the viability of devising any kind of formal learning plan:

It has been kind of a perfect storm that’s led to where I am. I don’t really know if it is something that can be designed, because it is something that I took to; I threw myself into something, and I really, really took to it.

**Integrative learning as applying meaning relations.** Participants described perceptions of integrative learning in terms of applying emerging meaning relations. Some of these accounts suggested that participants saw themselves engaged in an applicative process that helps to confirm that what they know about their chosen field of study works in action. Other accounts suggested that participants saw themselves engaged in an applicative process that confirms that the way they learn works in action.
Experiencing that what is known about a field of study works in action. Sarah cited her classroom exposure to the concept of active listening to illustrate how she was able to authentically experience and affirm its applicative value in the workplace:

When I realized that I wasn’t actively listening as much, like, I tried to use that skill that I had learned in class with some of the clients. And that was an immense improvement in our interactions and in our situations. . . . It was like, oh, well . . . That makes sense why that skill was taught. Because, oh, because people actually use it! It’s not just like a thing we need to learn.

This comment by Jake conveys how he saw the inherent value of facts and perspectives not only in terms of how they prepared him academically, but as knowledge to be tested in action for solving authentic practical problems in collaboration with workplace colleagues:

OK, let’s say, an example: In class you learned about biochemistry and you learned about amino acids and that sort of thing… Then to take those facts about the amino acids and apply those to, say, a new cancer treatment on your co-op? You know, your advisor and you might be talking about different approaches to treating cancer. And you realize you know these different facts about amino acids. And then you can maybe suggest . . . or, you now bring up some different perspectives about how to treat the cancer using these different amino acids.

From her experience as an international affairs student, Sally offered this anecdote; it illustrates how, for her, engaging with academic theory led to identifying personally and deeply with applicative action on the job that concretized her aim to help others:

I’ll read about it, and it’s really vague, and it’s hard to kind of pin down and put into a real sense. And then I’ll read a case about, I don’t know, a girl in Egypt whose
undergone like FGM [female genital mutilation] and doesn't really have many rights, and struggling, and her husband gets arrested or something like that. And then I go to the Middle East and I meet someone like that. And I look into their eyes and I understand what it is. And the theory makes sense now, because I can see it right here in front of me, and instead of just taking that and letting it just wash over me, I take it, and I try and utilize my actions and my abilities so I can change that, or help someone if they want it, right?

*Experiencing that what is known about ways of learning works in action.* Integrative learning as applying emerging meaning relations was also expressed by some participants in terms of their emerging insight into application of approaches to learning itself. For example, Jake’s comment implies a developing capacity to recognize not only what one is learning about a discipline, but also how one is learning about a discipline:

You know the theory, but you don’t really know the practice of it; you don’t know the practicality. So when you go on co-op and you’re actually doing these different techniques and applying this knowledge you have, you kind of more solidify that knowledge that you learned in classes. So you get a better idea, a better understanding of the knowledge you learned in classes by performing these different techniques and practicing what you learned.

Elaine also suggested the importance of staying aware of one’s learning direction. She stressed her need to intentionally reflect back upon what she had learned about her chosen field of study:

It’s just something you have to be consciously aware of. Then at the end of your experience, you try and reconcile what you learned with what you wanted to learn, [and
also know] how you can apply [what you have learned] to whatever you wanted to apply it to.

Cam characterized his first work assignment at a child-care center as loosely structured and “free flowing,” and making it difficult for him to recognize opportunities to apply knowledge in concrete ways. He spoke of his sense of frustration at not being allowed to perform substantive tasks, which he believed would have helped him to stay mindful of seeking applicative learning opportunities on the job. He then contrasted this weakness in his first work assignment with more engaging ways he was able to learn on subsequent assignments:

My third co-op [in a hospital] was a little more understandable, because [I was] working more with stats. I [was] working more with Excel and SPSS in my second co-op [also at a hospital]; and so I was able to apply things a little more concretely and actually understand what I learned.

His growing awareness of how his learning was working seems apparent. He described his wish to get beyond the “make a good impression stage” with workplace supervisors and colleagues:

You want to best apply yourself and apply your strengths, but also work on your weaknesses, and have your employer and your co-workers understand where you’re at with everything—so have there be kind of a mutual interaction.

**Integrative learning as understanding meaning relations.** Participants described integrative learning in terms of emergent understanding of meaning relations. Some of these accounts conveyed perceptions of co-op as a given educational process that fosters aims to critically compare and contrast associations between different concepts and/or skills that are related to a field of study and practice. Other accounts highlighted perceptions of that process as fostering the aim to build new knowledge from these meaning associations. Still other accounts
revealed how some participants see that process as fostering the recognition that understanding of these meaning relations is attendant to becoming mindful of one’s developing skills as a learner.

**Drawing associations between different concepts and/or skills in a critical way.**

Cam observed how he attained an enhanced ability to reflect critically to himself upon multiple perspectives and meaning associations after returning from the clinical workplace to the canonical material presented in the classroom:

I can kind of question certain things, and reevaluate the validity of certain things; like, this is what a psychoanalyst does, versus this is what an evidence-based treatment looks like, and this is how an existentialist handles therapy.

Ron’s comments also revealed how he perceives how he can critically draw meaning associations between different concepts and/or skills; however, he expressed this in terms of having the skill to break down complex subject matter and to be able to communicate it with facility and ease to others:

To kind of take it to that next level you need to be able to articulate yourself, and, you know, explain these complex topics, because I think there’s someone who had that famous quote that if you—and I’m not saying this verbatim—but I think, you know, if you’ve really understood a topic, you can explain it, or, so that anyone can understand it, or, you know, that a child could understand it.

**Building new knowledge from meaning associations.** The theme of integrative learning as understanding meaning relations is also grounded by comments that described or reflected perceptions of building new knowledge from forming meaning relations. For example, being able to formulate a solution to a problem without the benefit of direct knowledge sources was a
condition of hire for Marcy’s most recent work assignment. Asked by a prospective employer to demonstrate how she would estimate how many smart watches were likely to be sold by the company, Apple Computer, she employed a strategy of investigating and associating disparate proxy sources of information.

If we want to have the solution of, like, how many we think will be sold, what the perception might be, all of these things, well, we have to look at [things like] how did they make people think the iPad mattered? Right? How did they make people think that from a perception standpoint? And then, what did that turn into from a sales standpoint? And, what’s the difference then, in, like, the amount of watches that have sold just in general, right? So the smart phone? A lot of people use that as a watch. And, how has the actual watch market looked over the years, and will [the Apple Watch], like, somehow impact the watch market? Will it cannibalize other watches? Or is it such a different product that it won’t actually impact the normal kind of static watch market, but it really will impact the rest of the smart watches in the market, and [for] how much they’re selling? Or [alternatively], will it really impact whether or not people buy iPad because, maybe, they’re thinking, I’ll buy a smart watch or I’ll buy an iPad, [because] you know, I have an X amount of disposable income. [And] what does that look like? [It’s] sort of just trying to figure out how many disparate places we can look to find the answer to this one thing we want to find.

From a different perspective, Sarah’s comment spoke not about connecting and building knowledge about her occupational discipline, but rather about connecting and building relationships with peers as a form of integrative learning:
It’s one thing to like synthesize someone else’s experiences, you know, but it’s another to like be there in real time and have to understand it and then react to it, and then, I guess, like, figure out what to do from that point, you know? . . . And then, like, a second level to that integration is being able to synthesize the experience of all the people in the classroom, and integrating that into one learning outcome that everyone is taking away, even though the experiences were different.

**Recognizing the development of learning skill.** The theme of integrative learning as understanding meaning relations is also reflected in comments by two participants that conveyed aspects of building insight into one’s developing skills as a learner. The following comment illustrates Sarah’s forming awareness of her need to understand why certain learning skills are important to learn:

I mean just like up until high school, really, the things you learn in class are things that you might just think, oh, like, these are things that happen in school. Like my multiplication tables, my, you know, reading comprehension, my phonics, you know, and like, there’s not really a stress on ‘why’ exactly. You know, like, there’s no discussion on why exactly that skill is important because you’re just expected to learn it. Whereas, I feel like with integrative learning, there is a very clear spotlight on the connection rather than just the skill set or just the experience. There’s also the spotlight on why these two things connect. So that’s just my perception.

Ron also revealed insight into his forming skills as a learner in how he described the way he went about demonstrating the nuance and depth of his analytical abilities to a prospective investment banking employer:
I guess from what I’ve learned in [my] specific mergers and acquisitions class is that you’re going to get this understanding that, okay, you know this type of model; you know a leverage buyout model produces a value that’s lower than a discounted cash flow model, for example. So that’s something that I learned in class, and I knew that going in there [to the job interview]. So I was able to perform these sanity checks: When I created my model and [asked], hey look, you know, why is a leverage buyout model producing a higher value than my discounted cash flow model, because in school, I learned, you know, it’s supposed to be the opposite? And, you know, intuitively, it makes sense that it would be that from what I learned in school, so why the heck is this, you know, producing different values? And I think that really impressed the colleagues at work. They were like, you know . . . He’s not just churning out numbers, and blindly, you know, following it. He’s actually thinking, right?

**Summary – Forming Meaning Connections in Due Course**

This section explored commentary across the cases that was interpreted by the researcher to convey that participants perceived integrative learning as emerging in the due course of their lived experience of the co-op curriculum. These accounts were framed primarily in terms of beliefs about how integrative learning happens: namely, as a tacit manifestation of an unfolding process of changing school and work activity, and concerns having to do with occupational identification, and knowledge-building and skill formulation. Divergence and/or emphasis of meaning in comments related to this superordinate theme was called out by the researcher along three subordinate themes: Integrative learning as a tacit, unfolding process; Integrative learning as applying meaning relations; and integrative learning as understanding meaning relations.
Supposed Challenges to Becoming a Competent Integrative Learner

Students have expectations of why they will be able to learn from participating in cooperative education. The third and final superordinate theme was named by the researcher to signify the finding that all of the participants perceived certain challenges to becoming competent integrative learners. Why they could see themselves as capable of attaining and managing their capacities for integrative learning diverged along five subordinate themes: Being open-minded; Meeting higher performance demands; Deepening discernment of meaning relationships; Resituating knowledge and/or skills across situations; and Owning the development of one’s meaning connecting capacity.

**Being open-minded.** Participants perceived challenges to becoming competent integrative learners in terms of being open-minded. Some of these accounts described being open-minded in terms of not being narrowly focused on learning only what one thinks one needs to know. Other accounts expressed a need for having humility in one’s approach to learning. Others suggested a need to recognize that the value of knowledge may not always be obvious. Possessing a desire to sustain one’s persistent intention to learn was also perceived as a challenge to being open-minded.

**Looking beyond what is required to be known.** Joe said that he perceives himself as open to all knowledge. With some consternation, he confided, however, that whenever he is taking a class, for whatever reason, he focuses narrowly on exactly what he needs to know, and “sort of block[s] out things that are extraneous to that.”

Elaine’s tendency toward narrow-mindedness is suggested in how she recognized a distinction between the instrumental aims of performing as a good student and the developmental aims of being a deep learner:
I feel so much more pressure to be a good student. And by good student to me that
means an “A.” Sadly, it doesn’t mean, did I actually learn anything in this class, because,
honestly, at the end of the day, what did we get? We get a diploma with a little number
that says what our GPA was . . . which really is the criteria for how successful you are in
college, right?

Referencing a memoir by Donald Rumsfeld that had recently read, Ron described a more formal
approach than Elaine to looking beyond what he thinks he is required to know:

He [Rumsfeld] distills, you know, knowledge, or you know, an understanding of facts til’
you have your “known knowns”—you know, stuff you know that are true. Then you
have your “known unknowns”—stuff [where] you know you don’t know something.
Then you have … this other realm, you know, of “unknown unknowns”—[knowledge]
which you don’t know you don’t know…I try to find, you know, those known
unknowns. And I like seek that rigorously, you know? In the hopes that they’ll kind of,
like, turn a stone over, and take some of those unknown unknowns and put [them] into
that [known unknown] basket.

**Having humility in the approach to learning.** Some comments reflected more inward
concerns about open-mindedness in the way they suggested the necessity of being a humble
learner. Sally, for example, described how, when working in the realm of international relations
particularly, she strives to validate knowledge from the perspectives of others before allowing
her own presuppositions to intrude upon her understanding of a given situation:

[When] I’m trying to find something out about a country or a group of people or
something like that, I will do as much research as I possibly can to understand it from any
lens, any position I possibly can, and gather it all. But then I’ll walk into the room and
I’ll sit down with them and chat with them, and I don’t ever put any words into their mouths. If anything, what comes out of their mouths, I try and link it with the research I did. And that’s what becomes valid to me, rather than just relying on one or the other. But I never go in assuming that what I have read is correct. I have to see it. It’s the trial and error kind of process that I was talking about. But it’s that humility to say “That’s your situation and I can understand as much of it as I can possibly can, and I’ll do my best. But I’m never going to assume that I do know it.

This comment by Cam conveyed a similar concern for humility. Drawing upon his recent experience of working in a psychology counseling workplace, he emphasized the importance of avoiding a prideful or arrogant attitude with one’s supervisor when communicating what one wants and needs to learn:

Like, it’s just my first week, and I'm very good at one task, but [for] that task they’re spending time training me? So, instead of using that as an opportunity to kind-a like show off, like letting the person train you and waste the time and then just blowing them out the water with, you know, [letting them think] you’ve learned right then and there, and how quick of a learner you are? [Instead] let your supervisor know “I’ve actually learned this. I know how to do this,” and “I don’t know how to do this” . . . or “I know how to do X, and I don’t know how to do Y.”

Jake revealed a concern for humility in the way he approached his learning, as well. He saw learning as demanding more than attending to one’s own mental frame of reference:

Knowing that you don’t [yet] know what you’re learning really is a key . . . Because you know that you’re going to have to keep learning. You don’t really master something just by, you know, being in a classroom and learning about it. You master it by, you know,
by practicing it; by repeating it; by, you know, doing it in practice instead of just all in
your mind.

Joe conveyed a similar concern for the limits of one’s personal awareness by simply
summing up. “You can’t...try to learn what you are unaware of, exists.”

**Recognizing that the value of knowledge may not be obvious.** Concerns for open-
mindedness were also suggested in comments that acknowledged the situated and, thus, potential
for latent recognition of the relevance of possessing certain knowledge. Jake expressed it this
way:

To take into account that you need . . . to not trivialize different parts of your education.
That maybe everything might be important. Or everything might be important at some
point potentially. And—not to discount anything because it might show up in your co-op
—which, then, if you kind of dismiss it at first, then you may have to relearn the whole
thing.

Joe affirmed a like-minded perspective, while underscoring the importance of also taking
a proactive stance:

I would advise anyone to go after as much as you can, because you have no idea of what
is going to be valuable in the future.

Sarah, too, was emphatic in the way she expressed her aim to stay open-minded,
describing her stance as inspired by her recognition of lost opportunity:

Like with my second co-op, it’s far more intentional because, in the beginning, when I
had that moment [of using the skill of active listening] with the client, like in my first co-
op, I realized, like, oh, wait: How many other things are there that, like, I just haven’t
thought about or made a connection—things I’ve learned in the classroom? So that was, like, the start of being a little more actively aware of those moments.

_Sustaining a persistent intention to learn._ The theme of being open-minded was also reflected in several comments that suggested modes of learning persistence. Cam’s comments, for example, reflected an on-going commitment to discovery. He explained his experience of exploring a variety of course topics and the importance of being able to be exposed to different instructors:

> It gives a taste of a different discipline. . . . It [also] provides a newer perspective, a different perspective. It’s actually interesting, because a lot of the psych teachers teach what they want to interpret psych to be. And since psych is pretty fragmented, there are many different interpretations.

Sarah conveyed a disposition toward open-minded persistence in how she recognized that even negative work experiences are meaningful to clarifying career aims:

> I feel like co-op is kind of like dating where you end up going on a lot more that you don’t like. You learn a lot more about what you don’t want than what you do want (laughter). So the first co-op [work assignment], it could be, your one and only, but most likely it won’t be.

Unlike Sarah and Cam, Sally referred to experiences prior to coming to college as helping to instill her commitment to open-mindedness and learning persistence:

> It first began with going to the Middle East and loving it and coming back. And, I mean, I was a kid when I went, too. So that was very impactful for me to go over . . . and I spent time with family friends that I had grown up with, you know? Like, really, really lovely people. And one family, the mother is an artist, and then another family is a bit
more pious, you know what I mean, but, really, really wonderful. And I fell in love with it as a child. And then to come back, to be told that everything that I had just experienced was dangerous, wrong, backwards. And everybody that I had met was a terrorist that wanted to kill me. It was one of those things where, as a kid and as a teenager, I tried so hard to try and make other people open-minded to the way that I felt and the way that I saw it, and it didn’t work. And because they were so resistant to it, it made me even more open.

**Meeting higher performance demands.** Participants perceived challenges to becoming competent integrative learners that suggested concerns about meeting higher performance demands. Some of these accounts were described in terms of the need to feel ready to perform; another expressed concern about having to adjust to the shift in routine posed by co-op’s alternating school-work format.

**Feeling ready to perform.** Jake pointed to the challenge of being expected to know how to act as a professional, while also having to attend to learning how to apply disciplinary knowledge in a work situation:

> [With] all this other peripheral type of adaptation that you have to do while you’re on co-op, it might be hard to kind of take what you’ve learned in classes and apply it, at first at least.

Sally conveyed concern about feeling ready to perform in how she described being overwhelmed by multiple demands of a particular locale when she was on a work assignment abroad:
That all definitely came together in Northern Ireland, and it was very difficult for me to filter through all of it because it was so much happening at once. And of course, Northern Ireland is its own crazy forest.

This comment by Sarah illuminated how she chooses to cope with the feeling of needing to be ready to perform. She emphasized modulating one’s expectations of what one thinks one will be permitted to do on a work assignment:

People are . . . can be disillusioned with what they’ll actually be doing. So sometimes it might be more like intern duties, in the beginning, just in the beginning. But, like, [by] understanding that, that shouldn’t stop that co-op from being a positive experience. It’s like once you build more trust and rapport with the staff and the people you work with, you can work toward being part of, like, greater projects. So just not signing off on a co-op with a great company just because, oh, “All I’m doing is photocopying.”

Adjusting to a shifting routine. Jake was the only participant who perceived a challenge to meeting higher performance demands in terms of getting used to co-op’s changing classroom-workplace schedule:

One of the hardest things I guess [at school] is you get into a mindset of taking classes. Then you switch to a forty-hour workweek. And that’s pretty difficult, to try to switch gears so quickly after taking classes and studying all the time: and, then, you’re getting up early and working all day. It’s kind of exhausting. And then even harder is, like, switching back to classes after you had worked for six months, because, you know, you’re making money on co-op, you’re getting into a routine, and then, all of a sudden, you go back. Bang! You’re in classes again. And you have to, you know, remember,
like, how to study, remember your most optimal methods of learning, you know, attending class, and all that.

**Deepening discernment of meaning relationships.** Participants perceived challenges to becoming competent integrative learners in terms of a need to develop discernment about the importance of meaning relationships. Some of these accounts expressed concerns about the focus one places on the value of classroom instruction while participating in an experiential education program. Other accounts suggested concerns about adopting a critically-reflective mindset for learning. Finally, some accounts conveyed concerns for aspiring beyond instrumental learning aims.

**Mediating commitment to classroom instruction.** The theme of deepening discernment of meaning relationships is reflected in several comments that have to do with mediating the emphasis one places on academic learning in relation to work-based learning. For example, Cam described how he tends to think more about his co-op work assignments and less about his courses. He further characterized work assignments as more valuable experiences “that I’ll remember for a longer period of time than what I had learned in some of my classes.” He allowed, however, that what he had learned from courses does still contribute to his educational and career advancement:

> It’s the foundation and the first stepping-stone that leads me to be more effective at any of my co-ops. And, I mean it’s further reinforced . . . [because] the more classes I take the better informed I am going into co-op experiences, or going into any co-op or any job, or applying for grad school or anything like that.

In contrast, Marcy characterized her workplace experience as resonating more with her academics:
Okay, in my corporate finance class I was tasked to do X, Y, and Z, and, now, I’m like [in a] finance job—my corporate finance job—you know? [And am I] seeing the same things? That’s not the way my experience has worked. It’s not a one to one. I will for sure take the skills that I learned in my co-op into my classes because now I’m a better researcher; now I’m a better presenter; now I’m better at communicating; now I’m better at synthesizing information.

Elaine was more dismissive. She noted how, for her, in a digital world, the value of classroom instruction is suspect:

[In] all my accounting classes, we learned very specific formulas, right? We learned very specific journal entries, and specific items. Then you go out into your accounting job? Ninety nine percent of what you learned in the classroom you don’t actually use. And that makes you wonder whether or not what you learned in the classroom was useful.

And especially in this new age when you can Google just about anything, and . . . that’s how you learn at work. And [so I question] whether that’s more effective than this memorization [of classroom instruction], (laugh), you know, “re-iteration”?

**Adopting a critically-reflective mindset for learning.** Some comments perceived challenges to deepening discernment of meaning relationships in terms of needing a critically-reflective mindset. Sarah described having to confront situations where she perceives her thinking and feelings are muddled:

Even if I feel a certain way about, like, what I’ve learned, or if I think a certain way about what I’ve learned . . . I might not know how to articulate it number one; or even what to make of it.
Her orientation as a human-services major seems manifested in this comment expressing concern for critical thinking and feelings about another person:

It’s one thing to like synthesize someone else’s experiences, you know? But it’s another to be there in real time and have to understand it, and then react to it, and then, I guess, like, figure out what to do from that point.

Sarah further described how adopting a critically-reflective mindset was also helpful when relating to others in a group situation:

Things happen every day. But you don’t necessarily have a moment to think back on it. And actually like break down, okay, what happened? How did I feel about it? What did I take away from it? And like what can I prepare to do next time this happens? And so for that kind of opportunity to be in an intentional time and space like a classroom, where you’re not only sharing what you’re learning or what you experience and what you took away from it, you’re also hearing from other people who had that similar experience and what they took away from it, and comparing and contrasting. I think that’s what makes it integrative; that that intentional piece is there.

Like Sarah, Cam’s comments indicated a willingness to be critically reflective in an intentional way, but by committing to self-direction, rather than relying on the formal prompts provided by the context of the curriculum or a classroom itself:

Often times I hear [from friends] like “oh I have this reflection due, you’re so lucky you don’t have to do that.” It’s like, you know, well, I still think about it too! Like, I’ve recorded journals for my first co-op, and, actually parts of my second co-op, just because the content of the co-op was very interesting to me and something I want to pursue more. But like I’ve recorded and kind of like reflecting and [writing] pieces on what I thought
was interesting about my co-op and what I thought. Like there’s, say, an instance that happened, or an incident that happened, and my reaction to it, and why did I react that way; and kind of being more introspective, in that sense?

**Seeing the opportunity to aspire beyond instrumental learning aims.** Some comments conveyed supposed challenges to deepening discernment of meaning relationships in terms of wanting to aspire beyond the aims of instrumental learning outcomes. For example, Elaine observed how she perceives a dichotomy in aiming for good grades or aiming to retain understanding of knowledge that is afforded to her by the academic curriculum:

There’s being a student the way I am, and there are those people that I’ve interacted with at school who don’t really care about their GPA [grade point average] and who really want to learn. And that’s exactly the way they’ve put it. [I focus on] what was my GPA. . . I don’t want it to be awful.

Elaine underscored the importance to her of her career development goals and instrumental focus:

Every day I wish I could just not care about my GPA and just actually learn something. But at the end of the day, you know . . . it’s just the other side of my brain is saying, “job,” you know? Get a three-nine whatever; and then that’s ultimately what you’re in college for. Cause, I mean, when you think about it, what else are you paying for?

And although she appeared to privilege these instrumental concerns, this concluding comment revealed her aim to be free to learn authentically in light of her own intentions:

. . . Even on co-op they tell you to write down what you want to get out of it. But it’s sometimes hard to articulate. You know, “I want to be a better communicator”, “I want to be a—blah, blah, blah.” And there are some very standard answers you can put down
because they are forcing you into writing something, so you don’t really . . . you know, you kind of just go to your immediate answers. . . . but on a more personal or deep level, what you are actually going to take from it? I think . . . is not really something that you can write down on your co-op evaluation, right? It’s just something that you have to be consciously aware of.

This comment by Cam mirrored Elaine’s desire to aspire beyond instrumental learning aims. It also suggested how he recognizes the potential of his participation in cooperative education as more than a way to prepare for an occupation:

It’s just weird because . . . not once has it seemed to dawn on me or my friends that just, like, take a moment to think about, like, “Oh wow! It’s . . . it’s not just a co-op; it’s not just, like, classes; it’s more about developing me as a person!”

**Resituating knowledge and/or skills across situations.** Participants also perceived challenges to becoming competent integrative learners in terms of possessing a capacity to recognize opportunities to resituate knowledge and/or skills across situations. Some of these accounts emphasized concerns for resituating knowledge and/or skills from academics to the workplace; some for resituating knowledge and/or skills from the workplace back to academics; others, for resituating knowledge and/or skills over repeated school-work cycles.

**Resituating knowledge and/or skills from academics to a workplace.** Concerns for making sense and use of knowledge and skills across situations were suggested in commentary that emphasized resituating from academics to the workplace. The opportunity to transfer knowledge and skill from academics to the workplace was characterized as usually more self-evident and specific in nature when compared to going from the workplace back to academics. Certain challenges related to applying knowledge and skills learned from academics in the
workplace were pointed out. For example, Jake conveyed his concern for being able to recollect academic knowledge that helped him to better understand his practice in the workplace:

Because when you’re on co-op you’re trying to use these different techniques that you’ve learned before, so you’re trying to, like, actively remember and actively use your prior knowledge to figure out what you’re actually doing on co-op? And, that’s probably the more difficult part of it . . . is just to remember what you’ve learned, and apply it to the new practical situation.

Marcy saw a challenge in resituating standards of practice from the classroom to the workplace:

We do a lot of presentations [in school]. We do a lot of those kinds of things… And then I go into this co-op and I’m tasked with creating a presentation. And it’s, like, this is awful by their standards; like this is not good. And, that’s not to say that it’s, you know, unusable. But like the type of thing that they’re looking for . . . not even just like this particular company, but the way in which they organize information, is not the way I was tasked to organize it before.

Elaine’s comment suggested how she sees resituating knowledge and skill from the classroom to the workplace as a kind of trial-and-error challenge to see what actually works and doesn’t work:

I think it’s easier to almost take, or to apply, which means to, take a soft skill and try it out in action, or take a technique and then . . . you know, use it toward a project, or to say why don’t we try doing it this way? That’s what I mean by applying in that sense.

Resituating knowledge and/or skills from a workplace to academics. The theme of resituating knowledge and skills across situations is also grounded by comments that considered resituating from the workplace to academics. Jake reasoned that going from the workplace to classes was not as rigorous as going from classes to the workplace:
Because, the things you do on co-op [in the workplace] are pretty specific to that co-op and to that field. Whereas, when you’re in classes you’re learning a broad general knowledge about certain subjects, so it’s not as applicable back to classes?

At the same time he allowed that work experience did help him to be better prepared for new academic directions:

You still learn more techniques on co-op, and you can see how they apply to different subjects . . . and that kind of increases your knowledge and aptitude for different subjects as a whole.

Elaine reported that, for her, too, workplace-to-academic connections are “harder” to make and that it doesn’t work most of the time. She viewed predefined schedules, rubrics and criteria of a formal course as a “very narrow box” to align workplace learning to. Like Jake, Elaine allowed, however, that workplace experience still informs her learning direction:

It’s more applying it to your career path and search. Which essentially stems from you having to have some academic grounding first to get even to a career? So for me it hasn’t really come back into the classroom as much as helped me figure out where I’m going to strategically look for my next [career-preparation] move.

Unlike Elaine and Jake, Cam, however, emphasized a willingness to resituate knowledge from work back to academics by pointing to the opportunity it presented for him to critically compare his counseling experiences in the hospital (where he had been employed) to academic theories and perspectives presented in his courses:

So I’m interested in therapy. And, [I’m] able to see how certain therapy actually translates . . . on the page versus in person . . .
**Resituating knowledge and/or skills over repeated school-work cycles.** The theme of being challenged to resituate knowledge and skills across situations is also revealed in participant commentary that recognized developmental opportunities afforded over repeated school-work cycles. These accounts indicated an awareness of growing capacity among certain participants to make intellectual connections recursively from school to work and then from work back to school. From the perspective of having completed one work assignment, Joe, for example, cited his growing understanding over time of how to build a nuclear reactor system:

Up until this point I’ve only learned the pieces of the puzzle. I hadn’t yet taken the classes to put it all together. I didn’t have the skill-set to like design a reactor system even if someone had asked me to. On co-op I saw a finished picture of something. So now, when I went back to classes—even though I was only learning a piece of that—I could see where it came from.

Sarah also framed a perspective on resituating knowledge in terms of her evolving development over repeated cycles of school to work and back to school. But unlike Joe, she explained in terms of connecting ideas about her own educational needs as a student, rather than in terms of connecting knowledge of her chosen occupational discipline:

I’ve, like, changed some of the courses that I’ve taken after my first co-op. . . . It’s after you go back [to school] from your first co-op, after that initial moment of, “Hey, this is a thing” . . . where it’s, like, flowing into each other? . . . I realized, oh, like there was these, like, gaps in knowledge. . . . Like in my first co-op, we were part of a grant making process. And so I took a grant-making course . . . because that was interesting to me and it intrigued me. . . . [So] it really depends where you’re at in your point in the cycle . . . I would say [that determines] what, like, informs what? But I feel like you feel more of a
balance by your second or third co-op, where, you kind of understand that, “Oh these are tools that I can configure to my needs.”

**Owning the development of meaning-connecting capacity.** Participants perceived challenges to becoming competent integrative learners in terms of developing a sense of ownership of one’s meaning-connecting capacity. Some of these accounts described this ownership as manifest by recognizing a path to self-directedness; some accounts described a need to claim one’s responsibility as a self-authoring learner. Still, other accounts illustrated ways of enacting self-authorship of learning, while some highlighted the need to continually clarify one’s learning aims and needs.

**Recognizing a path to self-directedness.** On Joe’s second work assignment, he was given more responsibility to research answers on his own. He reflected upon how these work-based demands had helped him to see the opportunity to self-direct the pace of his education over time:

My most recent co-op was a more challenging and independent job in general, where I had to make a lot of decisions on my own. And, it involved a lot of reading on my own, because, sometimes, my bosses didn’t even necessarily know the right answer, and it would take them just as long to figure out the right answer. Whereas, in my first co-op, if I had a question? There was always someone that I could go to that would know. I was more doing work that was too menial for someone more educated to do. So, definitely, that more rigorous environment [of my second work experience], where I had to do a lot of learning, you know, self-directed learning on the job, sort of promoted that realization that, you know, a lot of this stuff I would be learning in future classes, but I had to teach
myself now to get this job done now. So, so I think . . . This past co-op accelerated any
notion I had of that, integrative learning.

Jake recognized the nature of his self-directedness as a learner in the way he referenced
the importance of having a long-term perspective on what he wants to achieve for himself:

I’m a big goal-oriented kind of guy. And I look toward the future a lot. So I kind of
realize what this experience might have . . . or what kind of impact this might have on
my future, and, how the experiences I gain at this co-op, whatever it may be, are
important to my future. And, I kind of buckle down, and, you know, attack the problem,
or, you know, try to integrate my learning, or integrate my learning in a way, that is more
beneficial to me and my future and goals.

Seeing a way of becoming self-directed as a learner is illuminated not only in Jake’s desire for
future professional attainment. This comment reveals, perhaps, how he also recognizes the part
that experience plays in the pace of his education; that for him his learning and development
must be allowed to emerge in due time in how he is or is not making sense of his place in a given
learning context:

Success might not be, you know, doing it right on the first time. It might kind of just be
recognizing and understanding what you are doing, and how it relates to the overall . . .
work that you might be involved in, and the whole theory behind it. And how your
background applies, or, how your whole background knowledge can be used to progress
the work that you’re doing.

Claiming responsibility as a self-authoring learner. Another perspective on owning the
development of one’s meaning-connecting capacity was expressed in terms of not simply
recognizing a path to becoming self-directed, but by knowing that one is accountable to oneself
for what one wants and needs to learn—that one can claim authorship as the creator of how and what one learns. Elaine conveyed the sense of this kind of claim in the way she described her experience of looking beyond what others were telling her to get out of her learning:

I think the challenge is just trying to understand that what you’re learning can have other applications, if you will. Or it’s not just to be learned because the professor taught it to you, or because your manager told it to you, but to say, you know, “This is a concept that I can apply in all of these different areas.

In the following comment, Ron’s developing sense of agency is revealed as an aspect of his claim on learning authorship. Here he describes the importance to him of developing an ability to moderate the tension between taking initiative, and asking for guidance from a colleague or supervisor:

There’s a fine line between taking initiative and getting something done without asking for guidance cause you were just able to, you know, to find the right resources; versus taking too long and spinning your wheels for hours at a time… when it was much more efficient to ask your colleague who sits right next to you. So I think that’s probably one of the biggest challenges. ‘Cause you know, developing this higher level of understanding is very difficult. I think probably . . . seventy to eighty percent of co-ops [students] don’t do that. From my own experience of just talking to people, I can kind of tell when someone doesn’t really understand [at this higher level]. You know, they probably have just gone through the motions?

Cam’s commentary illuminated another aspect of claiming learner self-authorship as involving not only the choice of when to ask for help, but also whom to ask for help. He characterized his second workplace experience as not having gotten past the "I want to create a
good impression" phase with his supervisor; so his approach to his third co-op job search claimed a different tack:

It’s on me to also kind of like interview the interviewer, and understand the work environment that I’m getting into prior to actually accepting a job offer . . . That did help inform how I interviewed for my third co-op, and which job I took.

**Enacting self-authorship of learning.** Having ownership of one’s meaning-connecting capacity is a concern suggested also by comments that illustrate participant experiences of enacting self-authorship. For example, Elaine, an accounting major, described a side project that she initiated and curated for herself on work assignment that did not involve the application of accounting skills per se. Enacting self-authorship for what she wanted to experience and learn is implicated in this statement, and as prompting insight into whether she was strongly committed to doing actual accounting work:

I looked at their process and I saw how inefficient it was and I decided to completely redesign it? And automate it to some degree? And move it online? That was kind of a separate project I created for myself in addition to what they were having me doing? And that was so interesting for me. And it’s been two years and I’m still really excited about it because it has kind of defined what I chose for a second co-op and what I want to do for a full time job, which is process improvement? So, that was a big win. Right? That’s something that I’m going to remember, you know, forever!

Sally’s description of confronting the challenges of working in a foreign country revealed how her experience prompted her enactment of self-authorship as a learner willing to connect with others in a culture she was not accustomed to:
You are alone. There might be other students that are there with you, but you can’t really bank on that. You know? You’re going into another country. You have to find your own housing. You have to deal with your own visa. You have to get around [while] studying abroad. You’re there with a group of foreigners. And you’re probably stuck in that group of foreigners. So it’s that mentality that you’re forced to be an integrative learner, to be honest with you. You know? It’s putting someone into that position where they don’t have any other choice than to be innovative, and to draw on a lot of things to relate to another human being. Right?

*Clarifying learning aims and needs.* The theme of owning the development of one’s meaning-connecting capacity is also grounded in comments that suggested a concern with clarifying learning aims and needs. For example, Joe’s concern for having clear learning intentions seemed manifest in how he sees his expanding frame of reference as a chemical engineering student:

> We didn’t have the knowledge or the scope to talk about it two years ago? . . . But now we do. Now that we’re actually learning how to build these [nuclear reactor] systems . . . we can go back to everything that we’ve already learned and implement that.

Elaine described how clarity for her learning aims and needs was formed out of her discovering her passion for engaging with skills required to improve a workplace process:

> I think it was just basically having an understanding of it; and that I actually liked doing it, and was interested in it. Rather than just, you know, ‘good’ at it—which, I think was the main focus of my academic career—which was [more about] ‘What am I good at?’
Sarah’s concern for clarity in her learning direction was expressed by how proudly she referenced having written her own job description and proposed it to employers whom she recognized as possessing the kind of knowledge she wished to gain:

My second co-op which is the one I’m currently on now, I created this position myself? And the two really big parts of my role that I proposed to my supervisors? Those were both things that I wanted to be able to develop skills in. And I knew that my supervisors would be willing to support me on [this] because they’re people who are very good at the things I want to learn.

**Summary – Supposed Challenges to Becoming a Competent Integrative Learner**

This section explored commentary across the cases deemed by the researcher to describe perceived challenges to attaining integrative learning competency. Accounts suggested beliefs about why (i.e., on what basis) participants could see themselves as ready to manage their capacities for integrative learning. Divergence and/or emphasis of meaning was signified and explored by the researcher along five subordinate themes: Being open minded; Meeting higher performance demands; Deepening discernment of meaning relationships; Resituating knowledge and/or skills across situations; and Owning the development of my meaning connecting capacity.

**Chapter Summary – Analysis and Theme Findings**

This chapter explored case commentary with meaning that converged around three superordinate themes. Commentary grounding the first theme—Privileging expectations of gaining occupational experience—suggested participant beliefs about what they expect to be learning as cooperative education students, namely, knowledge and skills of a particular occupational field. Divergence and/or emphasis of meaning in comments relating to this superordinate theme were identified by the researcher along two subordinate themes:
Occupational aims as motivation for learning, and Occupational preparation as a learning framework.

Commentary grounding the second theme—Forming meaning connections in due course—suggested participant beliefs about how integrative learning happens; namely, as emerging in unintentional ways from experiential processes of changing school and work activity, and considerations such as career identification, knowledge-building, and formulation. Divergence and/or emphasis of meaning in comments related to this superordinate theme were called out by the researcher along three subordinate themes: Integrative learning as a tacit and unfolding process; Integrative learning as applying meaning relations; and Integrative learning as understanding meaning relations.

Finally, participant commentary grounding the third theme—Supposed challenges to integrative learning competency—suggested beliefs about why (i.e., on what basis) participants could see themselves as ready to manage their capacities for integrative learning. Divergence and/or emphasis of meaning in comments related to this superordinate theme were called out by the researcher along five subordinate themes: Being open minded; Meeting higher performance demands; Deepening discernment of meaning relationships; Resituating knowledge and/or skills across situations; and Owning the development of meaning connecting capacity.
Chapter 5 – Discussion of Findings and Selected Literature

Introduction

The primary research question of this study was, *How do college students with experience in a co-op work-integrated education program make sense of their beliefs about integrative learning competency?* This question framed the researcher’s exploration and analysis of the meaning of the participants’ texts, and the identification of the three superordinate and ten subordinate themes reported in Chapter 4. In the present, final chapter, the superordinate themes informed the researcher’s formulation of three second-order research questions. These questions guided the researcher’s selection of theories and/or constructs from the scholar-literate that are discussed in relation to the findings.

Table III

*Second Order Questions Framing Discussion of Findings and Selected Literature*

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Following the discussion of theme findings in relation to selected literature, the final sections summarize the chapter, offer recommendations for co-op practitioners and further research, and state overall conclusions.
Privileging Expectations of Gaining Work Experience

This study revealed that participants think about integrative learning goals from the perspective of privileging expectations of gaining work experience. Two aspects of this perspective were conveyed across the case texts: the first was that occupational aims are perceived as motivation for learning; the second was that occupational preparation was perceived as one’s learning framework. This section of the discussion focuses on exploring the relation of each of these two themes to formal theories and/or constructs selected from the literature, and attends to the question, How do participants think about integrative learning goals?

Occupational aims as motivation for learning. “Occupational aims as motivation for learning” is a theme manifested by comments that conveyed a variety of particular concerns: needing to validate assumptions about what attracts one to a particular field; the desire to learn about a field in an effective way; wanting to be ready to take advantage of career advancement opportunities; the desire to recognize what one needs to learn about a career or discipline; and wanting to be a persistent student of a chosen field. These expressions of self-determination suggested that getting a job after graduation—one that one wants to have, and to do—is an important motivation for learning. By these accounts, the value of learning for its own sake does not appear to be prominent in thinking about learning. Arguably, for participants in this study, the right job after graduation is understood to signal the attainment of a crucial milestone in one’s development as a student of a profession.

Ryan and Deci’s (2000) theory of self-determination (SDT) proposed a perspective on motivational processes and their relation to psychological needs for increasing agency that is salient to this section of the discussion. Arguing that motivation is not a unitary phenomenon, Ryan and Deci related classic regulatory styles of amotivation, extrinsic motivation, and intrinsic
motivation to underlying human needs for competence, relatedness (to contextual supports), and autonomy. A person in an amotivational state does not value an activity, does not feel competent to perform an activity, or does not believe that engaging in an activity will lead to achieving one’s goal (Ryan & Deci, 2000). A person who is intrinsically motivated calls upon innate human capacities to learn and assimilate and wants to behave in a certain way for the satisfaction or pleasure of the activity itself (Ryan & Deci, 2000). Extrinsic motivation is defined by Ryan and Deci (2000) as externally-prompted motivation to attain some separable end. SDT poses a continuum of motivational processes to explain this regulatory style. Ryan and Deci (2000) stated that extrinsic motivation “can vary considerably in its relative autonomy and thus can either reflect external control or true self regulation” (p. 54). On one pole of this continuum is “external regulation” (Ryan & Deci, 2000, p. 61); this is when extrinsic motivation is identified by a person as compliance in response to external rewards or punishments; the locus of causality prompting externally-regulated motivation is perceived by a person as most external to him or herself. Ryan and Deci (2000) pointed to the psychological need for competence as important for how one experiences extrinsic motivation by external regulation. Next on the continuum is “introjected regulation” (Ryan & Deci, 2000, p. 62), which is posed as an ego-centric state of needing self-approval or the approval of others as motivation. The locus of causality prompting introjection is perceived by a person as only somewhat external to him or herself. Ryan and Deci (2000) emphasized the psychological need for relatedness to contextual supports as important to how one experiences extrinsic motivation by introjection. More autonomous or self-determined forms of extrinsic motivation are signified further toward the opposing pole of the continuum. “Identification” (Ryan & Deci, 2000, p. 62) comes next; this was posed as a process of conscious valuing of regulation that motivates progress toward one’s goals (in other words the person
accepts the regulation as his or her own); with this form of extrinsic motivation, the locus of causality is perceived by a person to be somewhat internal to him or herself. Ryan and Deci (2000) underscored the psychological need for attaining greater autonomy as important to how one experiences extrinsic motivation by identification. Lastly, “integrated regulation” (Ryan & Deci, 2000, p. 62) is a process of perceiving external regulations as fully assimilated (internalized) to the self. The locus of causality of integrated regulation according to Ryan and Deci (2000) is perceived by a person to be most internal to him or herself; here, as with identification, the authors pointed to the psychological need for autonomy as manifesting how one experiences extrinsic motivation by integration.

Statements by participants that conveyed occupational aims as a motivation for learning cited advantages of participating in a curricula-format that afforded real-world work experiences outside the classroom; these comments comported with Ryan and Deci’s (2000) constructs of extrinsic motivation by identification or integrated regulation because the locus of causality in these comments was expressed in ways that suggested acceptance or assimilation with the rules and structure of that format.

In this way Self Determination Theory (Ryan & Deci, 2000) reveals motivation for learning in co-op students’ occupational aims not only in terms of how they know and connect subject matter content, but also in terms of how they integrate the agency for learning itself into the pursuit of occupational aims.

The finding in this study that occupational aims are perceived as motivation for learning also suggested how Self Determination Theory (Ryan & Deci, 2000) can be understood as a vocational tool – a basis for exploring one’s underlying psychological motivations for approaching how to learn about a particular field or career.
Occupational preparation as a learning framework. The finding “Occupational preparation as a learning framework” is grounded in participants’ comments that conveyed concerns about work experience serving as an important learning guide. The finding is also supported by comments about work experience helping one to stay focused on striving for pragmatic learning gains. Both of these sets of concerns demonstrated that participants held practical conceptions of the aims, pedagogic format, and learning benefits of cooperative education. Van der Sanden and Teurlings’s (2003) construct of a student having an individual learning theory is discussed in this section for its salience to these concerns. Those authors argued that a student’s personal learning framework—comprised of his or her goal orientations, epistemological beliefs, and conceptions of learning—is what determines what is able to be learned, and that instructional strategies and measures (Miller, 2005) do not directly influence a student’s learning processes and results (Van der Sanden & Teurlings, 2003). They supported this position by reporting how scientific learning theories have been understood to have individual, naïve and non-scientific counterparts (Slaats, Lodewijks & Van der Sanden, 1999; as cited by Van der Sanden, Terwel & Vosniadou, 2000); they pointed further to how such studies do indeed reveal layperson variants of formal objectivistic and constructivistic perspectives on learning, and that layperson perceptions of the role of practice periods in these studies seemed to fit these formal perspectives:

Students with objectivistic individual learning theories may view practice situations as occasions for applying previously learned general, “portable” or “ready-made” knowledge. . . . Constructivistic individual learning theories, on the other hand, may lead to an interpretation of practice situations as settings in which new knowledge, skills and attitudes can be constructed or prior ones be reconstructed (Ng & Bereiter, 1992;
Having one’s own individual learning theory (Van der Sanden & Teurlings, 2003) comported with how participants in this study expressed concerns about occupational preparation by work experience. In this regard participants seemed primarily to theorize learning in a constructivist way, though some concerns were objectivist in nature. Constructivist understandings were reflected in comments that described practice situations as revealing gaps in knowledge that, in turn, fostered the creation of new knowledge, skills and attitudes. Practice situations were also seen as introducing the perspectives of others into one’s experience, and that, too, fostered the creation of new knowledge, skills and attitudes. An objectivist view of learning was also evident in certain comments that emphasized the need to reflect and write about what was learned in the workplace to carry it into academics. In those comments, no mention was offered, however, of formulating new understandings from these activities either at work or subsequently in the classroom. The practical advantage of learning about more than one discipline was also cited objectively as a way to increase one’s chances of getting a job after graduation. At the same time no mention was made of how learning more than one discipline might afford one the opportunity to connect existing disparate knowledge and perspectives in ways to create new knowledge, skills or attitudes.

It is notable that comments in this study that reflected either constructivist or objectivist views of practice situations usually also referenced the workplace assignment as what “Co-op” is, rather than the broader experience of alternating school and work as encompassing what “Co-op” is. This circumscription of what “Co-op” is would seem to comport with Van der Sanden and Teurlings's (2003) contention that a student’s individual learning theory is what determines
what can be learned, and that instructional strategies and measures do not directly influence 
one’s learning processes and results. The formal institutional vision (Miller, 2005) of an 
alternating curriculum of both school and work that participation in cooperative education 
presents/represents to students may well have less influence on their perceptions of their learning 
framework than the focus they sustain on gaining work experience and entrée into a profession.

**Forming Meaning Connections in Due Course**

This study also revealed that participants understood experience of integrative learning 
from the perspective of forming meaning connections in due course. Three aspects of this 
perspective were conveyed across the case texts: the first was integrative learning as a tacit, 
unfolding process; the second was integrative learning as applying meaning relations; and the 
third was integrative learning as understanding meaning relations. This section of the discussion 
focusses on exploring the relationship of each of these three themes to formal theories and/or 
constructs selected from the literature, and attends to the question, *How do participants think 
about the experience of integrative learning?*

**Integrative learning as a tacit, unfolding process.** “Integrative learning as a tacit, 
unfolding process” is a theme grounded by participants’ comments that conveyed three 
dispositions: having an undeveloped notion of what integrative learning might be; relating to 
integrative learning by a different name; and allowing what emerges to be instructive. These 
dispositions suggested how integrative learning was not conscientiously approached as a formal 
learning method or outcome, but conceived as manifested from participation in activities across 
school and work experiences that afford opportunities to recognize meaning relations. Billett’s 
(2006, 2008, 2011) ideas on the centralized role of the learner are salient for consideration in this 
regard. A key tenet of Billett’s (2011) perspective is the proposition that co-op students learn by
reconciling two accounts of knowledge integration, a situated social account constituted by academic and work experiences, and a personal constructivist account constituted by one’s intentions, subjectivity and identity. Neither of these accounts is necessarily the dominant influence on a student’s learning; it is the relational interdependency between the accounts that fosters student learning the most (Billett, 2011). Billett concluded that because of this relational interdependency:

How each [student] will come to link and reconcile what has been experienced and learnt is likely to be person-dependent by degree. So while there may well be intents on the part of the educational program for linking and reconciliation of two different sets of experiences, these will always be negotiated in part by individuals (Billett, 2011, p. 36).

Billett’s (2011) idea of “negotiation” (p. 36) evinces the nature of personal responsibility that co-op students need to develop for experiential learning. Seeking to responsibly negotiate one’s approach to one’s learning is reflected in participant comments that recognized integration as hard-to-define. It is also suggested by comments that spoke of being committed to deep exploration of the meaning of disciplinary knowledge so to be able to gain the capacity to speak intuitively and clearly about it. Comments that noted an emerging degree of insight into one’s learning progress also conveyed a sense for having to negotiate one’s approach to sustaining that progress.

The finding that integrative learning is perceived as a tacit, unfolding process also illuminates Billett’s (2011) idea of the interdependency between social and personal learning. The terms “tacit” (Polanyi, 1958, 1962, 1966) and “unfolding” infer, respectively, that students can experience integrative learning in a way that is difficult to define to themselves, or in an implicit way that can only become explicit as they are afforded insights from their social
experiences of school and work. In this way the finding revealed a way to understand the nature of the centralized role of the learner as inflected not only by what is already explicitly known to a student, but also by what he or she finds difficult to conceptualize, or can only conceptualize in relation to their experiences.

**Integrative learning as applying meaning relations.** “Integrative learning as applying meaning relations” is grounded in responses that revealed two concerns that were important to participants: Experiencing how what is known about a field of study works in action, and experiencing that what is known about the way one learns works in action. These concerns illustrated ways that participants spoke about epistemological dichotomies that had become apparent to them while relating academic learning to its application in the workplace, or while relating learning gains from workplace to further academic learning. A study conducted by Dimenäs (2010) is salient for consideration in this regard. He researched from a content perspective the way work-integrated learning students integrate learning from their academic studies and practical training. He used survey and interview data collected from graduate students enrolled in a teacher training program at a Swedish university to explain how some students separate the “reality” (Dimenäs, 2010, p. 48) of the workplace from the theory of the university-located education. In other words, some students understood their learning from a dichotomized theory-practice point of view. However, some students in his study moved beyond such dichotomies, as shown by they way they drew conclusions from concrete examples in their academics and practical training. For those students his data demonstrated instances of student learning by concretization, application, identification, and critical thinking, and that concretization shows that students can take responsibility for their own learning (Dimenäs, 2010).
Dimenäs’s (2010) findings comported with how participants in this study characterized integrative learning as applying meaning relations. For example participants’ comments suggested concretization of learning by drawing conclusions from experience, and using those conclusions to inform approaches to further applicative conceptualizations and/or actions. Identification was conveyed by comments that drew the conclusion that it is important to be attracted to the kinds of activities that one will have to perform if a particular career direction is chosen. And critical thinking was echoed in comments that recognized the importance of being able to judge the practical value of certain academic knowledge in the workplace, or the quality of mentoring that is likely to be experienced when deciding whether to accept a co-op job offer.

The finding that participants in this study perceived integrative learning as applying meaning relations also illuminated Dimenäs’ (2010) finding that dichotomous thinking was overcome through a mixture of different learning modalities. In the present study the term “application” appeared in participant responses to be conceived broadly to mean not only the putting of knowledge into practical action, but also as signifying learning by concretization, identification and critical thinking.

**Integrative learning as understanding meaning relations.** “Integrative learning as understanding meaning relations” is conveyed by participants’ comments that pointed to three principal concerns: drawing associations between different concepts and/or skills in a critical way; building new knowledge from meaning associations; and recognizing the development of one’s learning skill. These concerns suggested how participants were capable of understanding integrative learning not only as a matter of grasping relations between theoretical and practical content (knowledge or practical techniques), but also as a process that involves reflecting on experience, interpretation, and questioning one’s own perspectives through dialog with others.
Van Manen’s (1977) conception of linking ways of knowing with ways of being practical is salient to exploring the meaning of these expressions.

Van Manen (1977) proposed that social scientific inquiry can be broadly conceived in terms of the empirical-analytic, hermeneutic-phenomenological, and critical-dialectical research traditions; and he pointed out that each of these traditions can be understood as distinct ways of knowing that can be associated to distinct ways of being practical. He described empirical-analytic (scientific) ways of knowing as linked to the practical desire or need to gain effective control over things; hermeneutic-phenomenological (interpretive) ways of knowing he linked to the practical desire or need to seek communicative understanding with others; and critical-dialectical (emancipatory) ways of knowing he linked to the practical desire or need to reflect critically on how one’s perception of reality can be distorted by underlying repressive structures of authority. Responses that suggested that participants perceive integrative learning as understanding meaning relations aligned primarily with how Van Manen (1977) described hermeneutic-phenomenological (interpretive) ways of knowing that are linked to seeking practical communicative understanding with others. Notions of communicative understanding were conveyed by comments that spoke about the importance of classroom discussion with peers after a work experience, empathic listening, focusing on not just what meanings connect but on understanding why they connect, and how being able to clearly articulate connected meanings is indicative of one’s deep understanding of them.

Drawing poignantly upon Dilthey’s (1962) ideas, Van Manen (1977) expressed the communicative aspect of seeking understanding in dialog with others this way:

We explain nature, man we must understand. Understanding involves the capacity to grasp the inner realities of the human world—empathy. In ordinary English, we speak of
“understanding look” which suggests more than mere objective knowledge. In Dilthey’s terms, we understand ourselves and others only in re-experiences, by inserting our owned experienced life into every form of expression of our own and others’ lives. Understanding is reserved to designate the operation in which the mind grasps the mind (Geist) of the other person. It is not a purely cognitive operation of the mind at all, but that special moment when life understands life (Van Manen, 1977, p. 214).

Interestingly, the finding that participants saw integrative learning as understanding meaning relations comported seemingly less with Van Manen’s (1977) other perspectives on being practical—that of having effective control, or reflecting critically upon power structures that underlie how one understands one’s place in the world. While participants preparing for empirical and analytically-oriented professions such as chemical engineering and finance did occasionally express concern for assuring fidelity in how they were able to relate classroom-born scientific theory or technical procedures to practice, they seemed just as apt to evince concerns based on their own interpretations of reality and attendant needs to communicate effectively with others about those interpretations. Critical-dialectical reflection as a way to understand the impact of repressive forms of authority on one’s perception of reality was, notably, left unmentioned by a student preparing for a career in human services.

**Supposed Challenges to Becoming a Competent Integrative Learner**

The participants in this study were asked to comment on their capacities to become competent integrative learners in terms of any particular challenges they foresaw. Their comments revealed that they perceived five supposed challenges to becoming a competent integrative learner: being open-minded; meeting higher performance demands; deepening their discernment of meaning relationships; resituating knowledge and/or skills across situations; and
owning the development of their meaning-connecting capacity. This section of the discussion focuses on exploring the relation of each of these perceived challenges to formal theories and/or constructs selected from the literature, and attends to the question, *How do participants think about how to be competent at integrative learning?*

**Being open-minded.** Participants saw their capacities to be open-minded as a challenge to becoming competent integrative learners. Comments in this regard uncovered four principal concerns: avoiding a narrow focus on learning only what one thinks one needs to know; having humility in one’s approach to learning; appreciating the value of knowledge that may not always be obvious; and sustaining one’s persistent intention to learn. Self-awareness of fallibility in the way one experiences, explains and interprets one’s life-world is conveyed in all of these accounts. In his teacher’s guide to fostering open-minded inquiry, Hare (2004) framed a definition of open-mindedness in terminology that underscores a need for such self-awareness:

Open-mindedness is an intellectual virtue that involves a willingness to take relevant evidence and argument into account in forming or revising our beliefs and values, especially when there is some reason why we might resist such evidence and argument, with a view to arriving at true and defensible conclusions. It means being critically receptive to alternative possibilities, being willing to think again despite having formed an opinion, and sincerely trying to avoid those conditions and offset those factors which constrain and distort our reflections. The attitude of open-mindedness is embedded in the Socratic idea of following the argument where it leads and is a fundamental virtue of inquiry (p. 39).
Hare (2004) went further to include a glossary of concepts related to the aforementioned definition; among them, “humility”—the virtue of recognizing limitations and liability to error (p. 39).

Hare’s (2004) perspective on open-mindedness for teachers comported in a number of ways with how co-op students in this study expressed their recognition of it as a challenge to integrative learning competency. The need for “being critically receptive to alternative possibilities” (Hare, 2004, p. 39) is illustrated by participant comments about prioritizing aims for good grades and practical job prospects over attending to deep learning and scholarship. Having the “humility” (Hare, 2004, p. 39) to recognize personal liability to error was reflected in participant responses that spoke to the importance of not assuming the accuracy of knowledge about people and their culture until you meet them. Hare’s (2004) prescription to be mindful to avoid “being set in one’s opinion” (p. 39) resonates with participant statements that emphasized the advantages of developing greater receptivity to one’s context and the opinions of others through the development of proactive listening skills. And Hare’s (2004) reference to the Socratic virtue of “following of the argument where it leads” (p. 39) is reflected in participant responses that spoke of needing to choose an expansive range of course topics and instructors to gain exposure to different interpretations of one’s field of study.

The finding that co-op students in this study saw open-mindedness as a challenge to becoming competent integrative learners also illuminated how Hare’s (2004) guide might be improved. In the introduction to the guide he stated:

The aim is to offer teachers an insight into what it would mean for their work to be influenced by [the Socratic] ideal, and to lead students to a deeper appreciation of open-minded inquiry. From assumptions to zealotry, the glossary provides an account of a
wide range of concepts in this family of ideas, reflecting a concern and a connection throughout with the central concept of open-mindedness itself (Hare, 2004, p. 37). For co-op students—who by definition are afforded opportunities to self-direct their learning—the guide could be more explicit by demonstrating the connection of open-mindedness to situations that don’t involve teachers per se, and instead emphasize the development of open-mindedness by students’ own volition.

**Meeting higher performance demands.** “Meeting Higher Performance Demands” is a subtheme that signifies expressions of the need to feel ready to perform, and having to adjust to the shift in routine posed by co-op’s alternating school-work format. Comments that posed doubts about one’s ability to meet such demands suggested how participation in cooperative education was perceived as adding psychological pressure to the aim to succeed as college students. Studies by Gardner (2010) and Pryjmachuk and Richards (2007) reported that programs with major practicum components can be particularly stressful for students. In a study of undergraduate nursing and teaching-education students who were attending the University of Limeric in Ireland, Deasy, Coughlan, Pironom, Jourdan, and Mannix-McNamara (2014) reported further that practicum students experience stress as largely associated to their program of study (assessments, exams, assignments and practicum), as well as to financial and social demands. Those students were found to employ adaptive coping strategies such as seeking social support and problem solving; they were also found to employ mal-adaptive strategies of escape avoidance by substance abuse, unhealthy diet and/or physical inactivity (Deasy et al., 2014). The authors recommended that educators provide relief from excessive workload expectations, as well as interventions to assist students “to develop skills to better manage their time and workload” (Deasy et al., 2014, p. 17).
Interestingly, undergraduate psychological distress and coping strategies as identified by Deasy et al. (2014) do not comport in all ways with how participants in the present study described higher performance demands as a challenge to gaining integrative learning competency. Participants’ responses did not ever include the term “stress,” per se. Mal-adaptive stress avoidance concerns such as substance abuse, unhealthy diet, and/or physical inactivity were not mentioned. Moreover, none of the comments portrayed the expectation of increased workload as “unnecessary,” a factor posed by Deasy et al. (2014) as a likely reason for why students feel stressed by the task-load of certain academic and practicum assignments.

The Deasy et al. findings do comport with the present study by how participants’ responses illustrated adaptive coping strategies. Some responses noted, for example, that despite the stress of work-overload, the effort to manage it would likely be understood as beneficial in time. In these expressions, having the patience and persistence to gain more experience is presented as a problem-solving approach that calibrates one’s adaption to greater workload.

The finding that participants in this study saw higher performance demands as a challenge to developing integrative learning competency illuminated Deasy et al.’s (2004) conclusion that adaption by problem solving was used to cope with workload distress. Arguably integrative learning competency is a specific form of problem solving competency. On these grounds workload distress might then be viewed not simply as an impediment to student learning to be overcome by solving problems, but as prompting adaptive behaviors that foster integrative learning competency as a positive developmental end unto itself.

**Deepening discernment of meaning relationships.** Participants perceived that the attainment of integrative learning competency can be challenged by one’s capacity for “Deepening Discernment of Meaning Relationships.” This finding is grounded in comments that
spoke about three types of concerns: being capable of mediating one’s commitment to classroom instruction; of adopting a critically-reflective mindset for learning; and seeing the opportunity to aspire beyond instrumental learning aims. It signifies how participants recognized the importance of particular modalities of intellectual and investigatory rigor as needed for the formulation of sound meaning relationships. In her essay *Integrative Learning in U.S. Higher Education*, Mary Taylor Huber (2015) spoke to this issue. She argued that teaching integration as metacognitive skill is especially important for beginning students because they may not yet value multiple perspectives on a problem, and, thus, fail to recognize poor and misleading connections between them (Huber, 2015). She further pointed out that “These dangers are magnified by the Web, of course, which makes it easy to make connections, but not always ones that are productive or sound” (Huber, 2015, p. 17). Once students become cognizant of multiple perspectives, the ability to reason analogically among them is implicated (Ferrett & Stewart, 2013) in one’s ability to discern appropriate meaning relationships between them. Huber’s (2015) emphasis on the need for students to be cognizant of different perspectives aligned with participants’ responses that noted the differences between having the perspectives of aspiring to become educated and aspiring for a career. Huber’s (2015) emphasis on the need for students to be capable of evaluating the soundness of connections between different perspectives is echoed in further comments that highlighted, for example, the desire to formulate a critically-reflective mindset for learning when in dialog with people or when engaged in personal journaling about one’s experiences.

Another perspective on the problem of sound analogical reasoning was developed by Tversky (1977). His theory of the features of similarity proposes a basis for understanding the kinds of reasoning challenges that Huber points out. Specifically, Tversky (1977) argued that
when comparing two objects, common and distinguishing features inform how well people can judge their degree of similarity. Context in terms of location impacts how prominent or not prominent in the mind such features are when judging object A to object B versus object B to object A; the mind can violate the transitivity of the direction of object relations to draw different conclusions about the degree of similarity between them because it notices different features in each object when perceiving the relations in each of the two directions (Tversky, 1977). An object’s classification, it should be noted, is also a form of context. Lewis (2017) summed up this aspect of Tversky’s (1977) theory this way:

A banana and an apple seem more similar than they otherwise would be because we’ve agreed to call them both fruit. Things are grouped together for a reason, but once they are grouped, their grouping causes them to seem more like each other than they otherwise would. That is, the mere act of classification reinforces stereotypes. If you want to weaken some stereotype, eliminate the classification (Lewis, 2017, p. 115).

In the present study, Tversky’s (1977) notion of context, and how it can influence which features of similarity are noticed, comported with comments about the challenge of mediating commitment to classroom instruction as an aspect of learning in cooperative education. In some participants’ responses the authenticity of work assignments was regarded as more memorable than classwork. In other responses classroom learning was seen as helpful once in the workplace, while workplace learning was seen as less helpful after one had returned to the classroom. These comments demonstrated how participants viewed changing contexts as influencing their ability to deepen their grasp of what they believed they had learned at any given place and time.
The finding that participants perceived their ability to deepen discernment of meaning relations as a challenge to gaining integrative learning competency also highlights the potential of Huber’s (2015) and Tversky’s (1977) ideas as supports for meeting that challenge. Participants’ comments that articulated a higher regard for workplace learning and lower regard for classroom learning acknowledged the weakness of having this bias, and that multiple perspectives on learning problems and opportunities (such as Huber emphasized) are inherently afforded when both classroom and workplace experiences are considered in relation to each other. Participants’ responses that expressed concern for being capable of adopting a critical learning mindset illustrated the importance to them of entertaining multiple perspectives. Responses that spoke to concerns for seeing the opportunity to aspire beyond instrumental learning aims and toward quality of learning suggested further the importance to participants of rigor in how one apprehends similarity among multiple perspectives (such as Tyversky theorized).

**Resituating knowledge and/or skills across situations.** The subtheme “Resituating Knowledge and Skills Across Situations” signifies another challenge for participants to becoming competent integrative learners. This finding is grounded in concerns for resituating knowledge and/or skills from academics to the workplace, from the workplace back to academics, and over repeated school-work cycles. Commentary described knowledge and skills in terms that assumed them to be static and transferrable across changing contexts.

Guile and Young (2003) argued for a reformulation of knowledge transfer as transition. Grounded in Activity Theory (Engeström, 1996), these authors proposed that abstract knowledge cannot be transferred across situations, but, rather that people should be understood to be recontextualizing the activities of their development processes across different activity systems.
Underlying this reformulation is the principle that thinking and conceptualizing cannot ever be fixed in the abstract, and thus be completely decontextualized from a given system of activity. The way people think and conceptualize is manifested in this sense, then, by overcoming the constraints of a given context. In other words they don’t transfer set knowledge from one situation to another, but instead iteratively transition between the developmental activities (processes) of different activity systems (e.g., school or work).

Drawing upon Van Oers (1998), Guile and Young (2003) also proposed that transition can be understood in terms of horizontal and vertical processes of recontextualization. Horizontal recontextualization happens when simply executing procedures learned in one context in a different context; vertical recontextualization happens when using negotiation of task-based problems as grounding for discovering/creating new activity patterns in different contexts; vertically recontextualized patterns of activity are said by the authors to afford, in increasingly refined ways, the opportunity to devise original solutions to especially difficult problem-situations (Guile & Young, 2003).

Guile and Young (2003) emphasized, too, that a context serves to give meaning and coherence to learning, and can support the building of students’ boundary-crossing skills, and ultimately their abilities to grasp connected meanings between activities performed across other contexts. On this basis, Guile and Young (2003) formulated an epistemology of resituating knowledge and skills in these terms:

First, how can students interrogate the knowledge they acquire in the workplaces from the perspective of the knowledge that is acquired from the curriculum? And second, how can students give meaning to the codified knowledge of the curriculum from the experience of the workplace? (p. 77)
Guile and Young’s (2003) notion of contexts as giving meaning and coherence to learning comported with the ways that participants in this study expressed concerns about being able to resituate knowledge and/or skills across situations. The first question—which asks how students interrogate knowledge situated in the workplace using codified knowledge from the curriculum—aligned with participants’ responses that spoke of higher standards of performance in the workplace, and that saw the workplace as a way to test if what was learned in the classroom will work in the workplace.

Guile and Young’s (2003) second question—which asks how students can give meaning to the codified knowledge of the curriculum from the experience of the workplace—aligned with participants’ responses that spoke of classroom subject-matter as seeming to be broader and less rigorous when compared to knowledge gains from more exacting experiences in the workplace.

Guile and Young’s (2003) construct of vertical recontextualization—using negotiation of task-based problems as grounding for creating new activity patterns in different contexts—also aligned with participants’ responses that attributed repeated rounds of school and work to the fostering of deeper insight into knowledge connections, and to an expanding awareness of, and concern for, making learning progress. Guile and Young (2003) stated that:

For activity theory, it is not working on the problem by itself that causes people to become motivated to learn. It is the nature of the activity system in which both the problems and the interpretations of the leaner are embedded that makes the difference as to whether people are able to personalize and generalize from their experience of addressing a “problem” (p. 74).

Participants’ responses also reflected an awareness of a need to continually question previous learning and assumptions; the need to persist in exploring, discerning and connecting alternative
perspectives in the light of the particular problems of changing contexts was confronted. In this sense, “transition” (Guile & Young, 2003, p.64) might then also be seen as not simply signifying an openness to negotiating situated problem-solving, but also, as constituting the continual process of developing competence as an integrative learner.

**Owning the development of meaning-connecting capacity.** “Owning the Development of Meaning-Connecting Capacity” is a sub-theme that was signified by four concerns of the participants: recognizing a path to self-directedness; claiming responsibility as a self-authoring learner; enacting self-authored learning; and clarifying one’s own learning aims and needs. These concerns revealed ways that those participants conceptualized the development of their learning skills, and suggested how the acquisition of learning competency is understood by them.

Stuart and Herbert Dreyfus proposed a five-stage model of human skill acquisition in 1980. The model was further developed by Stuart Dreyfus in 1991 who named the following stages: novice; advanced beginner; proficiency; competence; and expertise (Dreyfus, 1991, 2004). The inexperienced novice copes with situations by adherence to rules that are given; the advanced beginner is able to see meaningful situational and non-situational maxims that can guide action; the competent person, however, is emotionally involved, and with commitment, moves to plan an approach or choose a perspective that guides focus on what aspects of a situation should be given priority; a proficient person is further able to spontaneously see what needs to be done, but is still deliberate in deciding on a course of action; finally, an expert is one who has assimilated the experience of a variety of situations and positions, and is able to react by intuition more than reason (Dreyfus, 1991, 2004).

Dreyfus (1991, 2004) attributes the attainment of human-skill competency to the disposition to be emotionally involved and committed to plan one’s approach to learning and
development. This definition comported with participants’ responses that conveyed intentions to develop meaning-connecting capacity by recognizing, claiming, enacting, and/or clarifying one’s capacity for self-authored learning. For example, recognizing a path to begin directing one’s learning was conveyed by comments that described having the experience of conducting on-the-job research as inspiration for recognizing a wider range of academic course-taking options. Claiming self-authorship of learning was revealed in comments that spoke of the importance of choosing a co-op job for the quality of the mentoring that would be likely provided by a supervisor. Enacting self-authored learning was apparent in comments that emphasized the advantage of instigating a project at work that was seen by the employer as beneficial to the organization. And clarifying learning aims and needs was indicated in comments that spoke of being allowed by an employer to write one’s own job description.

Notably, some participants’ responses aligned also with Dreyfus’s (1991, 2004) definition of proficiency—the capacity to spontaneously see what needs to be done while still being deliberative in choosing to act. These comments, for example, advocated the need for fellow students to develop a higher level of understanding about their own learning process, and to be willing to consider the need for help from colleagues. Another response described the experience of feeling alienated while on co-op abroad living and working in a foreign culture, and how deeper reflection on aspects of common humanity helped to alleviate loneliness while working that far from home.

The finding that participants supposed a challenge in owning the development of one’s meaning-connecting capacity also brings to light ways to interrogate emotional involvement and planning as distinguishing Dreyfus’s (1991, 2004) definition of human skill competency. Participants’ responses that described personal capacities to recognize or claim ways to make
connections did convey a sense of having some emotional involvement in pursuing that end. And participants’ comments that described personal capacities to enact or clarify ways to make meaning connections reflected the sense of some ostensible need to plan toward that end.

**Summary – Discussion of Findings and Select Literature**

This chapter was an exploration that engaged salient theory and/constructs from the scholar-literature with the findings reported in Chapter 4. The question, “How do participants think about integrative learning goals?” framed discussion of the first superordinate theme, “Privileging Expectations of Gaining Work Experience.” The question, “How do participants think about the experience of integrative learning?” framed discussion of the second superordinate theme, “Forming Meaning Connections in Due Course.” And finally, the question, “How do participants think about how to be competent at integrative learning?” framed discussion of the third superordinate theme, “Supposed Challenges to Becoming a Competent Integrative Learner.” Comportment was cited in comparisons between selected theory and/or constructs and almost all of the study’s findings; in only a few instances was conflict noted in these comparisons.

**Considerations for Cooperative Education Practice and Research**

**Practice considerations.** The finding that participants privileged expectations of gaining work experience highlighted how concerns about occupational motivations and preparation were important to them. Responses from participants also suggested how integrative learning was seen as a process that is presumed to happen in the unfolding of social learning situations—that opportunities to apply and understand meaning relations are afforded in due course. Supposed challenges to intentionally seeking to become competent as integrative learners were also conveyed in the commentary. Together these findings revealed the following considerations for
formulating a course of instruction or counseling-support for co-op students on the topic of integrative learning. First: How might a practitioner help students recognize the distinction between learning about learning versus learning about a chosen discipline or career? Second: In what ways might a co-op practitioner help students strive to balance social learning with the personal learning routine of contemplation/reflection? Third: In what ways might a co-op practitioner help students reflect on what it means to be intentional in seeking to discover and construct meaningful understandings from different sources and experiences? And fourth: In what ways might a co-op practitioner help students conceptualize what it means to be a competent integrative learner, and then to identify and resolve perceived challenges to attaining such competency? These considerations are modeled below in Figure II.

Figure II. Considerations for Fostering the Development of Student Integrative Learning Skills
**Research considerations.** Research that continues to explore what integrative learning competency means to co-op students is recommended. For example, in what ways do students identify with or prefer different conceptions of integrative learning (e.g., integration of knowledge content vs. integration of situated processes). More can be learned about factors that pertain to how best to teach integrative learning as a metacognitive skill. For example, what forms of orientation or instruction about integrative learning competency are most conducive for demonstrating it? How early and often in their time at college should student engagement with forms of integrative learning orientation/instruction occur? How might timing of these engagements inform/affect what students conceive integrative learning to be, and, ultimately, how they assess its inherent value? What differences in the development of students’ integrative learning agency might be found with and without such interventions?

How the overall aim of cooperative education as an integrative learning opportunity is explained to students is also recommended as a topic of further study. Professionals should question, for example, the ways that the work-integrated learning format of co-op might, at times, be understood by students as merely a path to gainful employment, or attainment of professional status, with little attention or emphasis given to questions of the fulfillment of a calling or vocation. Vocation is a commitment to meaningfully align one’s deep sense of purpose in the world with situations that call out a need for that purpose. It’s not just a job or profession; it’s being attuned to one’s beliefs and values, and how one sees them as guiding what one wants to contribute to, and how one wants to be integrated (as it were) with the world. Arguably integrative learning practices applied to these considerations serve aims for life-fulfillment and happiness. Research that can support a reimagining of cooperative education as a way toward vocational path on these terms is also a worthy avenue of inquiry.
Conclusion

This study explored and analyzed how co-op students with experience in a co-op work-integrated education program made sense of their beliefs about integrative learning competency. Inductive analysis of the questionnaire and interview texts revealed that participants expressed beliefs about integrative learning competency primarily from the perspective of their expectations to gain workplace experience. The analysis revealed that participants believed that integrative learning was fostered in the due course of their school and work experiences without having to intentionally aim to become competent at it. Participants supposed that certain challenges would need to be overcome in order to become competent integrative learners; these challenges reflected themes of needing to be capable of being open-minded, meeting higher performance demands, deepening discernment of meaning relationships, resituating knowledge and/or skills across situations, and owning the development of one’s meaning-connecting capacity. Comportment of these beliefs with select formal learning theories and/or constructs was discussed. Considerations for fostering the development of student integrative learning skills through a course of study or counseling-support were also posed.
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APPENDIX
Introduction Email to Co-op Advisor about Nominating Potential Student Participants

Subject: Information about my research project

Thanks for taking the time to help me identify some students who are interested in volunteering to take part in my doctoral research project.

Specifically I’m looking for 2-3 nominees who are:

- At least 18 years old;
- Are undergraduates enrolled in a full time academic program;
- Have completed at least two 6-month co-op work assignments;
- Are clear and effective communicators (in your judgment);
- Provide a mix of men and women;
- Have signaled that it is OK for me to contact them about the project.

Here are some details that will be helpful if they have questions when you mention the project to them:

TITLE  Co-op Student Beliefs About Integrative Learning Competency

RESEARCH GOAL

To provide co-op education practitioners with insight into how some co-op students make sense of what it means to be competent integrative learners.

WHAT THE STUDENT WILL BE ASKED TO DO IF THEY COMMIT TO THE STUDY

- In January, meet with me at an on-campus location of the student’s choosing (say the Library, or Campus Center) for approximately 90 minutes; in that meeting sign a consent form, fill out a background questionnaire, and be interviewed one-on-one on recorded audio about his/her experiences as a co-op student, and beliefs about integrative learning competency;

- Within a month of the interview review and affirm the accuracy of how I have transcribed and interpreted the questionnaire and interview responses; this is anticipated to take less than 45 minutes for the student to complete, and will be done by email.

Let me know if you have any questions.

Appreciatively,
Anthony P. Armelin
Doctoral Candidate in Higher Education Administration
Northeastern University, College of Professional Studies
Boston, MA 02115
(phone & email)
Email to Prospective Student Participant

Subject: Information about the Co-op Student Research Study

Dear (student first name)—

Your co-op coordinator, (name), has informed me that you have expressed an interest in possibly participating in my doctoral research study, “Co-op Student Beliefs about Integrative Learning Competency.” To familiarize you with the study, attached are two documents: the participant consent request form, and the participant background questionnaire form; together these offer some details about what is involved with participating. Please don’t fill out these documents now. I am asking interested students only to read them over ahead of time to have a chance to formulate any questions they might have about becoming involved with this research. I’ll follow up with you by email in a couple of days to answer any questions you may have. If you are still interested, we would then arrange a time to meet on campus in person at a location of your choosing (say, for example, at the campus center or in the library) for approximately 90 minutes; in that meeting, you would be asked to reread and sign the consent form, fill out the background questionnaire, and be interviewed by me about your co-op experiences.

Thank you.

Anthony P. Armelin
Doctoral Candidate in Higher Education Administration
Northeastern University, College of Professional Studies
Boston, MA 02115
(phone & email)
Participant Background Questionnaire

1. Date:

2. Your full name:

3. What is your expected graduation year?

4. How long have you been a college student?

5. Age?

6. Did you transfer from another university to your current university?

   6a. If you did transfer, how many other universities had you previously attended?

7. Describe why you chose to enroll at your current university:

8. Describe the first understandings/expectations that you had as an entering freshman of the impact that enrolling at a university with a cooperative education program would have on your college experience:

9. Name your academic major or majors.

10. Describe the factors that led to the choice of your current academic major. Note any changes of major you made:

11. Describe any life goals that you currently have:

12. Describe your career goals:

13. How many co-op work placements have you had? (include placements while attending other colleges/universities and the one you may be presently on:

14. Describe any non-co-op experiential education placements that you have had both at your present university/college or those you previously attended:
15. For each of the co-op work placements you have completed or are about to complete, provide the following information: Co-op #1, #2, #3, #4 Organization Name, Job Title, Term/Year, Paid or Unpaid

16. Describe the overall nature, quality and impact of your academic study as a college student:

17. Describe the overall nature, quality and impact of your workplace-based experiences as a college student:

18. What is your perception of the term “integrative learning”?

19. Imagine that you are advising a fellow student who is about to begin a first co-op work placement. How would you define for that student what constitutes integrative learning competency? What particular challenges to developing an understanding of integrative learning competency, if any, would you alert the student to be prepared for?
Discussion Prompts for In-Person Individual Student Interview

The researcher will first confirm his understanding of the participant’ responses to the questionnaire.

Describe what you believe integrative learning is. Can you break it down?

What do you believe it means to be competent as an integrative learner? Can you break it down?

Describe how your understanding of integrative learning competency has or has not developed.

What particular challenges to becoming a competent integrative learner if any, have you experienced?

Evaluate your competency as an integrative learner.

Prior to and during the course of your co-op experiences, in what ways, if at all, did you become aware of integrative learning as an aspect of participation in cooperative education?

Were you instructed or had you researched in any way the meaning of integrative learning as a particular method of critical thinking and learning? If so, please describe your experience of this.

How do you think about what motivates your intention to integrate learning between academic and practice settings, if at all?

During your co-op school and work experiences, were there particular experiences that made you aware that you were engaging with integrative learning? If so, describe one.

During your co-op school and work experiences, in what ways, if any, did your understanding of the integrative ways of thinking and learning develop? Describe how, if at all, your experiences contributed to that development.

Was there any point in your overall co-op school or work experience that you began to think of integrative learning as a competency that can be learned in and of itself? If so, describe.

Share more about how you would advise a fellow student who is about to begin a first co-op work placement. How would you define for that student what constitutes integrative learning competency? What particular challenges to developing an understanding of integrative learning competency, if any, would you alert the student to be prepared for?