ATHABASCA UNIVERSITY

LEARNER-LEARNER INTERACTION IN SELF-PACED STUDY AT A DISTANCE: PERCEPTIONS AND PRACTICE IN MULTIPLE CASES

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The future of learning.

Approval of Dissertation

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Dedication

This work is dedicated to my family, with love and gratitude.

First, to the memory of my parents, who valued education and enjoyed learning. Then, to Jim, whose patience helped me persevere through my doctoral journey. I could not have done this without your unconditional support. Finally, to my children, who encourage and inspire me—Matt, Susan, Claire, and Miles—I hope you will always remember that you can accomplish whatever you set your mind to.

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Abstract

While self-paced study at a distance allows learners to choose the rate at which, as well as where and when, they learn, providing for learner-learner interaction is a challenge. This multiple-case study, framed by the typology of three generations of distance pedagogy, explored how and why in-house learning/teaching specialists and academics at three public universities incorporate learner-learner interaction in self-paced courses. Two cases are located in North America; the third is in Europe. One of the North American cases offers distance as well as on-site courses; the remaining two are single-mode distance universities. Data from interviews with 14 learning/teaching specialists and 12 academics, and from 14 self-paced courses, were analyzed to determine the pedagogies, learner-learner interaction, and use of social media in self-paced courses, as well as course design and development processes. Cross-case analysis synthesized case-based findings and produced four assertions regarding (a) differences between academics' and learning/teaching specialists' perspectives and concerns, (b) influence of implicit cognitive-behaviourist pedagogy, (c) ownership of courses and processes, and (d) non-pedagogical factors' effect on learning design and provision. These assertions represent the challenges of evolving toward more connectivist learning in self-paced study with opportunities of new pedagogies and technologies, as well as pressure to improve course quality and completion rates. Participants suggested that innovation and change within self-paced course design and provision are needed and desirable. However, pedagogical innovation lags far behind adoption of technology tools. To bridge the chasm of innovation in learning and teaching, it is important for course developers to explore their beliefs and ideas about how learning happens. Incorporating learner-learner interaction in self-paced study will call for change

strategies and agents to consider and appreciate the characteristics, needs, and motivations of different types of potential innovation adopters.

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Chapter I: STUDY INTRODUCTION

This dissertation looks at the experience and process of developing distance education at the university level. Distance education, and especially that provided online, is increasing in popularity. Distance education is, however, not a single model of education provision, but rather is made up of a family of design, distribution, and support systems. The interdependent activities and relationships within these systems and throughout distance education organizations are changing and, as such, warrant in-depth study.

Most distance learners are free to determine the time and place for their studies; those engaged in self-paced study may also choose the rate at which they proceed through their courses. Concepts such as independence, autonomy, and self-direction have an established place in the distance education literature (Moore, 1972; Wedemeyer, 1971). Providing students with the opportunity to take personal responsibility and make choices regarding aspects of their learning journey has long been an important consideration for distance educators. Self-paced study at a distance maximizes adults' flexible learning options and opportunities for independence, while offering educators means to reach a large audience of learners and reduce per-student costs (Annand, 2007). However, it is difficult for course developers to incorporate purposeful learner-learner interaction into self-paced study at a distance (Anderson, Annand, & Wark, 2005; Anderson, Poelhuber, & McKerlich, 2010).

Much self-paced study is designed according to what Anderson and Dron (2011) call the cognitive-behaviourist pedagogy of distance education. However, new pedagogical generations such as constructivism as well as connectivism, associated with

Web 2.0 and network-based technologies and activities, may have particular value in addressing the challenges and opportunities of self-paced learning (Anderson, 2009). This study explored the reasons why distance educators value, or do not value, learner-learner interaction, how course developers purposely incorporate learner-learner interaction into self-paced undergraduate distance education courses, as well as how connectivist pedagogy is or is not being used to open up self-paced learning designs to new opportunities for learner-learner interaction. The use of a multiple-case study design resulted in descriptions of case-specific issues and strategies as well as a portrayal of broad themes and assertions across cases. Further, by exploring how practitioners cope with the challenge of incorporating learner-learner interaction into self-paced study, this investigation addressed the gaps in our knowledge and practice adding to existing theory about self-paced study, while also providing recommendations for more effective practice.

Exploring the tension between interaction and independence in the context of self-paced study at a distance is at the heart of this study, and is briefly introduced next. Chapter One includes an overview of the need for this research, the specific research questions that guided this study, and the ontological and epistemological assumptions upon which this study was based.

Tension Between Interaction and Independence

Discussions about getting the mix of independence and interaction right in distance education (Anderson, 2003; Daniel & Marquis, 1979) have grown into a debate about the relative importance of these two critical concepts. In the view of some theorists (Holmberg, 1989; Keegan, 1990) learner independence inherent in approaches such as

self-paced learning is a critical characteristic that distinguishes distance education from conventional education. However, Garrison (1997a) suggested that opportunities for interaction between and among instructors and learners as offered by computer-mediated communication represent a new and "very different approach to the educational transaction" (p. 4). More recently, this debate has assumed the proportions of a theoretical and, perhaps, ideological divide (Annand, 2007) between the ideals of interaction and independence. In the midst of this divide is the issue of whether or not imposed pacing is necessary for effective learning, despite the inevitable restrictions placed on learner freedom as a result (Annand, 2007).

The implementation of interactive communications technologies has yet to realize the potential for interaction envisioned by Garrison (1997a), who stated that such technologies would create a virtual classroom quite different from the conventional lecture hall. Despite this vision, educators are still less likely to use new information and communication technologies to increase learner interaction (Laurillard, 2007), and are more likely to simply replicate aspects of typical lectures and face-to-face seminars via digital means (Dehoney & Reeves, 1999; Mioduser, Nachmias, Oren, & Lahav, 1999). Frank and Barzilai (2004) found that instructors use course websites predominantly to present static course content, and rarely for interaction. As well, Levin-Peled, Kali, and Dori (2007) reported that university course websites are most often used for presenting content and collecting assignments, rather than for interaction. More recently, Shamir-Inbal, Dayan, and Kali (2009) noted that online technologies are more often used for traditional transmission pedagogies rather than for interactive or collaborative learning.

Restricting learner independence in order to impose a lock-step pace makes distance courses more amenable to peer interaction (Anderson et al., 2005). Even when interaction is asynchronous and students can learn at a time and place they choose, imposing strict scheduling and a learning pace facilitates the design of group interaction activities such as discussions and collaborative assignments that are closely tied to course topics. However, according to Anderson et al. (2005), there is little evidence to show that groups of students working in a "strict temporal sequence" (p. 236) are necessary for learning, though these authors also concluded that providing structured activities accompanied by chances for meaningful interaction with others may enhance the social learning experience as well as improve course completion rates.

Self-Paced Study and Need for Research

In self-paced courses, individual learners determine the rate at which they work through course content, as well as when they will complete learning activities and assessments. Self-paced study at a distance offers educational providers a way to realize economies of scale, and enables them to reach large audiences of learners and reduce per-student costs (Annand, 2007). With self-paced study it is possible for educational institutions to offer multiple start dates per year (e.g., monthly or continuous intake) and so accommodate students' availability and individual schedules, thus increasing students' access to learning (Anderson et al., 2005).

Self-paced study also has benefits for individuals, as it is consistent with adult learners' capacity and need for self-direction (Knowles, 1984) and also offers learning opportunities for adults who face increased pressure to be lifelong learners (Portugal, 2006). From 1990 to 2002, Industry Canada (2010) reported the creation of over 3

million net new jobs requiring post-secondary education—most of these (81.7%) were full-time jobs. Meanwhile, the costs of conventional higher education are steadily increasing. According to Industry Canada, from 1982 to 2002 the tuition fee component of Canada's Consumer Price Index (CPI) grew an average of 8.1% per year, compared to 3% for the all-items CPI. In households that paid tuition fees in 2002, average spending for such fees exceeded expenses for food (Industry Canada, 2010). As the need for learning across the lifespan increases, self-paced distance study is one way to provide education outside the walls of more expensive and less convenient conventional educational institutions. As early as 1994, Twigg advocated an "information age pedagogical model in which . . . semesters and fixed class meetings will be a distant memory" (Just-in-time learning section, para. 1).

Much of today's online self-paced study at a distance exhibits the one-to-many characteristics of earlier print-based individualized study (Lowenthal, Wilson, & Parrish, 2009). While the expected learning outcomes of distance courses often call for various pedagogies, cognitive-behaviourist pedagogy, a vestige of self-paced study's individualized study heritage, predominates in self-paced courses (Anderson & Dron, 2011). According to Mayes and de Freitas (2007), cognitive-behaviourist pedagogies are associated with courses developed through use of linear approaches such as instructional systems design, with carefully sequenced instructional events as well as clear, measurable objectives that describe demonstrable behavioural change.

Learning designs based on constructivist pedagogies, on the other hand, often call for cooperative and collaborative learning activities (Anderson & Dron, 2011). However, including such features in self-paced study is problematic. Providing purposeful learner-

learner interaction by incorporating collaborative activities or interactive communication technologies such as discussion forums usually increases teacher workload (Annand, 1999; Weller, 2004). Such collaborative and interactive features in courses also impose scheduling and pace requirements on learners, and can have undesirable effects such as students colluding on assignments and exams. Finally, many students come to self-paced learning with expectations that they will not be required to interact, having deliberately chosen a mode that does not require collaborative work with other students (Anderson, 2006b).

In 1991, Bates suggested that research was needed to resolve the important issue of balancing individual independence and interaction, and researchers still continue to heed this advice (Chow & Sharman, 2007). Bonk and Dennen (2003) called for in-depth research and actual studies of those teaching at a distance in order to address the "pedagogical void" (p. 332) within our efforts to design rich online learning opportunities. This study investigated multiple cases of in-house course design and development for self-paced study in order to look broadly at how pedagogy influences course design, and how course designs reflect pedagogical options. The pedagogical approach in a course is often implicit and may not be evident. The place and purpose of interaction in a course should support expected learning outcomes and be congruent with the pedagogy inherent in the design of the course. The following section describes the study in detail.

Overview of the Research Study

This study used multiple-case study methodology to describe and analyze examples of how and why in-house course developers incorporate learner-learner

interaction in self-paced learning. Case study aligns with interpretivist epistemology (Cohen, Manion, & Morrison, 2007) and is suited to studies that seek to understand such "how" and "why" questions in complex situations where context is relevant to the phenomenon being studied (Yin, 1994). This study examined three cases of distance universities with in-house course design and development. Data were collected by way of in-depth interviews with academics and learning/teaching specialists (e.g., instructional designers, educational technologists, learning designers) who design and develop self-paced distance courses, as well as through analysis of course materials and related institutional documents. Data analysis consisted of concurrent "data reduction, data display, and conclusion drawing" (Miles & Huberman, 1994, p. 10). The analysis produced a number of assertions and insights regarding learner-learner interaction in self-paced study, which was the "binding concept or idea that holds the cases together" (Stake, 2006, p. 9).

By describing and analyzing learner-learner interaction in self-paced learning, this study sought to understand the pressures practitioners face, and their responses, as well as innovations and emergent models in the field. This study focused on the pedagogies and processes that are evident as self-paced institutes evolve from or choose to retain distance education approaches with limited opportunities for learner-learner interaction. Understanding how those in the field are addressing these challenges contributes to theory related to self-paced learning and enables practitioners to enhance their provision of self-paced distance study.

Distance education researchers have recently examined learner preferences and readiness for interaction in self-paced study (Anderson et al., 2010; Rhode, 2009).

However, it is not clear how practitioners can enable learners who are interested in interaction to collaborate "directly or indirectly with peers or tutors, while preserving their individual preferences" (Poellhuber & Anderson, 2011, p. 121). If educators who develop self-paced courses are looking beyond cognitive-behaviourist pedagogy to what Anderson and Dron (2011) have described as connectivist pedagogy, it is not yet apparent how, or if, this shift is influencing the design and development of self-paced courses.

Developing self-paced courses involves a process of learning design. According to Beetham and Sharpe (2007), learning design entails planning or structuring for a specific learning intention, and includes design of learning resources, environments, activities, tools, and curriculum. Visscher-Voerman and Gustafson (2004) suggested learning design is not a homogeneous process, and that "additional field-based research on how design practice actually takes place would benefit both theorists and practitioners" (p. 87). The goal of this study was to explore how and why learner-learner interaction is incorporated into self-paced distance courses, investigate the pedagogies and learning designs currently used in self-paced courses, and understand the factors that influence design decisions and choices.

Research Questions

This study was guided by the following three research questions. All of these questions address the main research concern of designing and developing effective self-paced courses, and more specifically if, how, and why learner-learner interaction is incorporated into self-paced undergraduate distance education courses.

1. How does choice of pedagogy affect the incorporation of learner-learner interaction opportunities in self-paced distance courses?

2. In what ways is connectivist pedagogy enabling learner-learner interaction in self-paced course designs? (How are Web 2.0 and network-based technologies and activities being incorporated to provide for learner-learner interaction in self-paced courses?)
3. What processes are involved in designing and developing for learner-learner interaction in self-paced courses? (What aspects of the industrial model of distance education production are evident?)

These research questions are discussed in detail in Chapter Three, as are the multiple-case study methodology and procedures for this research.

Guided by a theoretical framework depicting key aspects of generations of distance education pedagogy (Anderson & Dron, 2011) this study sought to illuminate and articulate self-paced distance education theory and explore how learning/teaching specialists and academics view their own practice. In this study, pedagogy is defined as bridging practice and theory. As a way of "knowing as well as doing" (Beetham & Sharpe, 2007, p. 3), pedagogy provided a compound lens of practice and theory through which to examine the challenge of designing for learner-learner interaction in self-paced study. Through describing three cases as well as conducting cross-case analysis regarding practitioners' experience of strategies, pedagogies, and processes from the field, this study addressed the gaps in our practical and theoretical knowledge in order to provide recommendations for more effective practice and add to existing theory about learner-learner interaction in self-paced study at a distance. The following section presents an overview of the theoretical perspective on which this study was based.

Theoretical Perspective and Assumptions

This study was inspired by my experiences of over 12 years as an instructional designer/editor working with undergraduate business faculty to design and develop self-paced online courses. The underlying theme of this study, that of addressing the challenge of incorporating learner-learner interaction in self-paced study, was shaped by my personal conviction that it is possible to serve the needs of many adult learners through learning designs that incorporate elements of independence as well as opportunities for interaction with learners' peers.

This study was designed to complement a relativist ontology in which "there are multiple realities" (Denzin & Lincoln, 2005, p. 24). From the point of view that knowledge is developed through individual perceptions and understandings, this study was based on an interpretivist/constructivist paradigm, in which "reality is assumed to be constructed by the knower" (Driscoll, 2005, p. 12). Research within an interpretivist paradigm is "a powerful shaper of knowledge about the world of lived experience" (Garrick, 1999, p. 147) as researchers seek to interpret and understand the world from the perspectives of individuals (Cohen et al., 2007). Miles and Huberman (1994) cautioned against posing "abstract epistemological arguments that do not connect operationally with the actual research practices used to gain knowledge" (p. 4). The instrumental, multiple-case study methodology of this research is consistent with interpretivist epistemology. Through inductive inquiry, this study explored specific instances of individual understanding and investigated a range of responses to provide insight into issues and contribute to theory associated with learner-learner interaction in self-paced study at a distance.

Thesis Organization

Chapter One has introduced and briefly outlined the concepts that formed the basis of the research design, as well as the rationale and goals for this study. The remainder of the dissertation is organized into seven chapters. Chapter Two reviews the literature on the key concepts for this research, namely interaction, independence, and self-paced study. A theoretical framework based on distance education pedagogy is proposed. Chapter Two also reviews the literature on distance education production models and multiple-case study methodology. Chapter Three discusses the multiple-case study methodology for this study in detail, and outlines data collection and analysis methods. Chapters Four to Six present the individual case analysis reports and Chapter Seven addresses the cross-case analysis. Chapter Eight presents conclusions, implications, and recommendations for further research. There are several appendices, including:

- definitions of key terms in a glossary (Appendix A)
- interview guide (Appendix B)
- rubric for analyzing course materials (Appendix C)
- worksheets for multiple-case study data analysis and report writing (Appendices D to G, adapted from Stake, 2006)
- summary of research design, activities, and associated details (Appendix H).

Chapter II: LITERATURE REVIEW

Overview and Background

This chapter begins by reviewing key literature related to interaction, independence, and self-paced study, the main concepts on which this study was based. While the tension between interaction and independence formed the conceptual foundation for this study, interaction in self-paced study was the key research concern. The concept of independence was not directly investigated in this study, but literature on independence was reviewed for two reasons: to highlight the tension between independence and interaction, and to introduce the aspects of learner control depicted in both autonomous (Dron, 2007) and self-directed learning (Candy, 1991). In this study, aspects of personal control are assumed to be inherent in self-paced study at a distance.

Once the conceptual foundation of interaction, independence, and self-paced learning has been laid, this chapter then reviews literature relating to the theoretical framework for this study, namely pedagogy, and Anderson and Dron's (2011) three generations of distance education pedagogy in particular. Literature related to the industrial model of distance education course development and production is also reviewed, as this was a secondary theoretical interest. After literature related to the key conceptual and theoretical concerns has been reviewed, a conceptual matrix for this study is presented. This matrix provides detail on various attributes of each generation of distance education pedagogy and indicates how the research questions for this study are related to these attributes. Literature describing multiple-case study methodology and its appropriateness for this study concludes this chapter.

Defining Interaction

As noted in the Introduction, Annand (2007) suggested that there is a theoretical divide between independence and interaction. It is important to define these terms and clearly outline the aspects of both as they apply to this study. The first of these terms, interaction, is defined in The *Canadian Oxford Dictionary* as "reciprocal action or influence" (Barber, 2004, p. 785). In 1994, Wagner echoed the notions of reciprocity and influence by defining interaction as "reciprocal events that require at least two objects and two actions. Interactions occur when these objects and events mutually influence one another" (p. 8). Wagner's definition was more inclusive than earlier definitions (e.g., Daniel & Marquis, 1979) that limited interaction to activities involving persons.

Nearly 20 years have passed since Wagner's (1994) publication; it is prudent to also examine a more recent definition. In his introduction to an entire book on interaction in online education, Juwah (2006) defined interaction as "dialogue or discourse or an event between two or more participants and objects that occurs synchronously and/or asynchronously mediated by response or feedback and interfaced by technology" (p. 1). Like Wagner, Juwah included participants interacting with objects as well as people, and also addressed reciprocity and influence in the form of mediation and feedback. Juwah added dialogue and discourse to Wagner's "events," as well as a temporal component by specifying synchronous and asynchronous occurrences. Finally, Juwah added the aspect of a technological interface. However, these additional details do not serve to clarify interaction for the purposes of this study as much as they add a layer of complexity that Wagner's straightforward and time-tested definition avoids. Since Wagner addresses the essential elements of interaction "without compromising or restricting the wide range of

possible types of interaction" (Anderson, 2003, p. 130), this study relied on Wagner's definition of interaction.

In the literature, there are many efforts to describe and analyze interaction in distance education. Rhode (2008) reviewed several taxonomies, including (a) Moore's (1989) three types of interaction, namely learner-instructor, learner-content, and learner-learner; (b) categories of interaction, including academic, collaborative, and social (Jung, Choi, Lim, & Leem, 2002); (c) Hannafin's (1989) functions of interaction for confirmation, pacing, inquiry, navigation, and elaboration; and (d) Wagner's work (1997), in which she identified a long list of possible outcomes of interaction.

Hirumi (2006) developed a three-level framework for planning e-learning interaction. Within his level II: learner-human and non-human interactions, learner-interface interaction (Hillman, Willis, & Gunawardena, 1994) supports six other classes of interaction including: (a) Moore's (1989) three types; (b) learner-tool and learner-environment interaction; and (c) learner-other human interactions. This latter class includes exchanges with educators, including subject matter experts, tutors, and support staff, and in the case of workplace training, with managers or supervisors. Moore's (1989) three types of interaction are common parlance in distance education. Of particular interest in this study is learner-learner interaction, which Moore (1989) defined as taking place between learners, "alone or in group settings, with or without the real-time presence of an instructor" (p. 4). On the surface, Hirumi's (2006) learner-other interaction is an appealing way to extend Moore's learner-learner interaction to include interaction with others who are not fellow classmates. However, Hirumi restricts the definition of "other humans" to educators and workplace managers, which was too

narrow for this study, with its more inclusive perspective on who might be considered to be participants within learner-learner interactions.

Anderson (2006b) offered a definition of learner-learner interaction that addresses the connections among learners and learning communities, including fellow classmates as well as "professionals, former students, supporters, family members, informal lifelong learners, mentors, and others interested in the content and in each other" (p. 151). This broader, more inclusive definition of learner-learner interaction was used in this study. Anderson (2006b) also noted that learning communities are supported by an environment of "exchange, acquaintance, encouragement, and query" (p. 151) created by a range of social software, defined as applications for group communications (Shirkey, 2003). Of particular interest in this study was the possibility for social software to extend learner-learner interaction to include informal collaborators within a learner's workplace, social network, and other non-classroom contexts.

Learner-learner interaction is often associated with collaboration (Rhode, 2008) as well as with reducing learners' sense of isolation and fostering feelings of being part of a learning community (Thurmond & Wambach, 2004). However, requiring learners to take part in collaborative activities can also reduce students' perceived levels of satisfaction with a course (Thurmond & Wambach, 2004). According to Anderson et al. (2005) "we know very little about the effects of introducing peer collaboration in independent study environments" (Introduction section, para. 6). For distance education institutions, efforts to increase interaction are "constrained by economics" (Annand, 1999, p. 48), with increased costs per student enrolment and increased instructor workload among the challenges learning/teaching specialists and academics must contend with (Annand,

1999). Literature on academics' perceptions of interaction in self-paced distance education, particularly at single-mode distance universities, is scant (Yick, Patrick, & Costin, 2005), though one study of undergraduate faculty attitudes toward interaction suggested that there is only a moderate level of value placed on learner-learner interaction (Thiessen, 2001).

Compared to the 1980s, when interaction was largely limited to postal mail, distance educators now have many tools for supporting interaction, particularly between and among students. Even so, it cannot be assumed that learning will happen simply because interaction is taking place (Larreamendy-Joerns & Leinhardt, 2006). Anderson (2003) suggested that debates about the role of interaction may be related to issues of definition and educators' vested interests, but are more indicative of epistemological assumptions about the function of human interaction in learning and education. While different learning theories emphasize different types of interaction, "organizational issues rather than learning theory significantly determine practice" (Annand, 2007, p. 2). Depending on the type and specific activities involved, interaction can make education costly for the institution (Annand, 1999) and inconvenient for the student (Daniel & Marquis, 1979).

Educators have long been concerned with defining, describing, researching, and developing ways to incorporate interaction into students' learning experience. Learner-learner interaction is generally seen as a positive attribute for an online course (Thurmond & Wambach, 2004). However, many of the approaches to this type of interaction require that learners sacrifice some of their freedom to choose, control, and

take responsibility for aspects of their learning. These and other features of independence are examined next.

Features of Independence

Independence is defined as the state of being independent, which in turn is defined as "not depending on authority or control" (Barber, 2004, p. 769). Independence, associated with concepts such as freedom, autonomy, and self-direction, has long been a defining characteristic of distance education. Delling (1968; 1978; cited in Keegan, 1990) theorized that there is a small role for teachers and institutions in distance education; he placed more emphasis on learner autonomy and independence. Wedemeyer (1971) advocated freedom and choice, and labelled university-level distance education as independent study, in which teachers may act as guides, while learners "are not dependent on them" (Wedemeyer, 1973, p. 73). However, Moore (1972) noted that in most teaching and learning, including at a distance, learners are not autonomous, but passive, while teachers set goals for instruction. Even so, unlike conventional educational settings, learners in distance education contexts are "compelled by distance to assume a degree of autonomy that might be uncomfortable in other circumstances" (Keegan, 1990, p. 67).

Dron (2007) suggested that within the series of choices that make up educational transactions, autonomy is essentially a form of learner control. This notion of learner control, which varies from situation to situation, is also apparent in discussions of self-directed learning, which describes aspects of an approach to education as well as characteristics of learners, particularly adults. Garrison (2003) suggested that self-directed learning is "an intuitively appealing concept" (p. 161) with roots in informal

learning settings. Rogers (1979) is often credited for outlining the idea of self-direction, which grew from his strong belief in personal responsibility and individuals' freedom to choose.

Knowles (1975) defined self-directed learning as a process in which individuals take the initiative in a range of activities from determining needs to evaluating outcomes. Self-direction, a central tenet of adult learning, is associated with the theory and practice of andragogy and is crucial to the psychological definition of what it is to be adult (Knowles, 1975; 1984). "Adults have a self-concept of being responsible for their own decisions. . . . [and] need to be seen by others and treated by others as being capable of self-direction" (Knowles, 1984, p. 56). Schapiro (2003) sought to broaden the definition of self-direction beyond the personal and psychological to include "a set of knowledge and skills about how to go about learning things for oneself" (p. 155).

Learners may be inclined toward self-direction without having the skills to direct and manage their own learning, or may be capable of self-direction but not be inclined toward taking responsibility for setting and achieving their own learning goals. Questions have also been raised about the role of culture in definitions and theories of self-directed learning. Some authors have suggested that self-direction, highly valued in North America, may not be valued as highly in other cultures (Nah, 1999). More recently, Boucouvalas (2009), in a 20-year retrospective piece, cautioned that differences related to self-direction may exist in individuals as well as within and between cultures. According to Garrison (1997b), "the fundamental argument for understanding and facilitating self-direction is its potential to improve the quality of learning outcomes in the short and long terms" (Discussion section, para. 1).

Despite having been extensively researched, there is a lack of consistent theoretical foundation for self-directed learning (Candy, 1991; Garrison, 1992). In particular, Candy (1991) highlighted the conceptual ambiguity surrounding self-directed learning, and pointed out that the term refers to four specific phenomena (also referred to as dimensions), namely, self-direction as (a) personal autonomy; (b) self-management; (c) autodidaxy, defined as individual pursuit of noninstitutional learning; and (d) learner-control. Garrison (2003) suggested that this lack of clarity regarding the concept of self-direction led to diminished use of self-directed learning to guide distance education practice in the 1990s. Even so, Garrison (2003) suggested that self-directed learning could span the continuum between fully autonomous informal learning and formal learning, and noted that "the challenge for distance educators is to integrate opportunities for dialogue and collaboration into any concept of [self-directed learning]" (p. 165). There may be a renewed interest in self-directed learning in light of emerging Web 2.0 applications and environments in which learners have new ways to "retrieve, share and evaluate information, and create knowledge" (Benson & Brack, 2009, p. 74). As resources and activities for learning have expanded to include social software and learner-generated content, and since learners have opportunities to explore diverse virtual worlds and personal learning environments, it is time to once again consider the importance of aspects of self-directed learning.

Boucouvalas (2009) pointed out that self-direction is "less about independence per se and more about taking responsibility for one's learning" (p. 2). Candy's (1991) depiction of self-direction as learner control is the dimension most closely associated with self-paced study. This dimension of self-direction shares some features with Dron's

(2007) portrayal of autonomy as learner control. Self-directed learning is closely associated with distance education, as defined by geographic and temporal separation between learner and teacher (Keegan, 1980; 1990). Removing the constraints of time and place gives distance education students freedom to choose and control when and where they study. Further control and responsibility is afforded those students who engage in self-paced study at a distance. In this research study, independence was represented by the notion of learner control, which is a common thread in both autonomy and self-directed learning. Self-paced study enables learners to take a measure of control, and is addressed in the following section.

Self-Paced Study

Wedemeyer's (1973) discussion of independent learning, long a hallmark of distance education, highlights several key ideas associated with self-paced study at a distance—learners determining the place and time for their studies, and also accepting "responsibility in initiating and carrying out the activities that lead to learning" (Wedemeyer, 1973, p. 73). Building on his work defining distance teaching and learning in 1972, Moore (1977) identified the responsibility for determining the pace or sequence of learning activities and experiences as a key variable in independent distance study. There are several advantages to distance study set to a learner's own pace, including freedom and responsibility (Moore, 1972; Wedemeyer, 1971) as well as flexibility of time, place, and pace as portrayed by Peters (1967). While most definitions of distance education recognize learning at any time and any place, many distance and online courses do not permit learners to set their own pace, despite theories that have long recognized

flexible pace as a key component of distance education (Holmberg, 2005; Keegan, 1990; Wedemeyer, 1973).

The advantages of self-paced study are often balanced against a number of disadvantages, including difficulty incorporating learner-learner interaction and low rates of course completion (Anderson et al., 2005). The development of digital tools and telecommunications technology has expanded opportunities for interaction, particularly in paced settings. However, Annand (1999) suggested that such interaction can make self-paced courses less cost-effective for providers. The presence of faculty moderating online discussions and the small optimum class size for effective online discussion conversations is bound to result in increased costs. Annand (1999) estimated that providing interaction through electronic communication such as computer conferencing would double the per-enrolment costs of course delivery and support for self-paced learning in an industrialized call centre model. More recently, Weller (2004) asserted that interaction such as that available in computer conferences results in higher variable costs for educational institutions.

Learning pace may be imposed through means such as mandatory group assignments, selectively releasing course resources to prevent students' accessing information until they complete a required activity, or applying time limits to some activities (Wells, 1992). In the absence of such constraints in a self-paced course, meaningful group communication is a pedagogical challenge (Paulsen, 2003). When learners are not required to follow an imposed schedule, and particularly if they may start or end their course at any time, individual students within a single course may be at

different places at any particular time. Opportunities for learner-learner interaction have been studied far less in self-paced than in imposed-pace settings (Anderson et al., 2005).

Learners have opportunities for self-paced study in a range of settings, including higher education. Self-paced study is common in military training (Dolan, 1996) and in the corporate sector (Dobrovolny, 2006; Strother, 2002). It is often part of professional development such as teacher education, as it enables learners to complete requirements and build credentials while still engaging in their ongoing professional responsibilities (Johnson, Birkeland, & Peske, 2005).

Knowles' (1984) model of andragogy suggests that adults' need to know and their reliance on background experience are powerful incentives and enablers for self-paced learning. Self-paced approaches make it possible for students to work quickly through familiar topics or slow down to focus on new material, which is especially useful when learners have a "wide range of knowledge and skills" (Paranto & Neumann, 2006, p. 4).

Much of the research into self-paced study has focused on learners' experiences, including studies comparing learner achievement in self-paced environments to that in group- or cohort-paced environments (Carey, Kleiman, Russell, Venable, & Louie, 2008; Ostiguy & Haffer, 2001). When Carey et al. (2008) compared self-paced and cohort approaches to delivering online professional development for algebra teachers, they found comparable positive outcomes and no significant differences between self-paced and cohort delivery. Similarly, Ostiguy and Haffer (2001) found no significant differences in learner achievement in an introductory college-level science course whether students learned in a traditional classroom, through synchronous television broadcasts, or at their own pace online.

Of particular interest to this study is research into learner perceptions and preferences for learner-learner interaction within self-paced courses. In their survey of 388 experienced self-paced learners, Anderson et al. (2005) found that almost all, about 95% of respondents, were interested in being able to view the contributions of other students in their courses, both those of current students as well as from those students who had already completed the course. Over three-quarters of respondents were willing to interact and collaborate with others, as long as they were still free to move through the course at their own pace. The one-quarter of respondents who were not interested in interacting or working with classmates reported they already had a strong network of support outside the class. A mixed methods study of collaborative learning activities and peer interaction in self-paced study (Poellhuber, Chomienne, & Karsenti, 2008) combined quasi-experimental treatments and two surveys (n=308) as well as semi-structured individual interviews (n=22) to investigate learner self-efficacy beliefs and persistence. While persistence was found to be higher in the control groups without collaboration or interaction interventions, qualitative analysis of interview data indicated that some students in the collaborative activities group viewed peer interaction positively.

Some studies of self-paced learning have suggested the need to research emerging social software and network-based learning. Poellhuber et al. (2008) recommended future research into the potential for social software and Web conferencing to address the challenge of facilitating interaction within self-paced study. By way of in-depth interviews with 10 participants enrolled in a self-paced professional development program, Rhode (2009) studied learners' preferences for Moore's (1989) three types of interaction. While interaction with course content and instructors occurred most

frequently and was perceived as most important, Rhode noted that learners also rated blogging and social bookmarking as moderately important. Rhode called for further research into the ways in which emerging social software can contribute to interaction in self-paced courses.

Recent research has explored possibilities for using social software in self-paced courses. Anderson et al. (2010) surveyed 967 self-paced learners to explore their attitudes and experience regarding collaboration, social networking, and communication tools. They concluded that while half the participants were interested in collaborative activities, overall their "knowledge and expertise with various social software [was] relatively low" (Conclusions section, para. 1). In addition, Poellhuber and Anderson (2011) conducted a survey with a systematic sample of 3,462 self-paced learners from four Canadian distance education institutions. The purpose of the study was to determine distance learners' readiness for using social software for collaboration and informal learning. Once again, many students were interested in peer collaboration, but for the most part, the experience of those learners who used social software involved the use of tools, such as video and photo sharing, that require minimal participation.

These studies indicate that self-paced study is as effective as group- and cohort-based approaches. While learners in self-paced courses may not value forms of learner-learner interaction as highly as they do learner-content and learner-instructor interaction, many students who choose self-paced study are interested in collaborating with others. While research into social software and self-paced study is relatively new, it is apparent that learners are moderately interested in blogging and social bookmarking, and are very interested in being able to view archived work by other students. Even so, research into

the potential for social software and network-based learning to provide new forms of interaction in self-paced study is still in its early stages.

To this point, Chapter Two has reviewed literature related to interaction, independence, and self-paced study in order to lay the main conceptual basis for this study. Literature related to distance education pedagogy as the theoretical foundation for this study is examined next, followed by literature related to the secondary theoretical concern of the industrial model of distance education course development.

Pedagogy as a Theoretical Foundation

The term *pedagogy* is defined, and thus perceived, in various ways. Critics of the use of the term for adult education point out that its etymology derives from the Greek word for a slave charged with educating children, and thus, pedagogy is the "art and science of teaching children" (Knowles, 1984, p. 52). Knowles coined the term *androgogy* for adult education; however, since this study of self-paced learning was less concerned with learners' ages than with the theory and practice of teaching and learning, the term pedagogy was used here rather than the narrower term andragogy. This study relied on terminology from Beetham and Sharpe (2007) who used the term pedagogy to refer to teaching activities that provide guidance to learn through a combination of theory (understanding of practice) and practice (how theoretical understanding is applied). Pedagogy describes the process of thinking about teaching and learning activities, as well as planning and structuring these activities, even when "we are not actually engaged in them" (Beetham & Sharpe, 2007, p. 2). In this study, the use of the term pedagogy was used to refer to how practice is understood, as well as the application of "that theoretical understanding *in* practice once again" (Beetham & Sharpe, 2007, p. 3, italics in original).

While Beetham and Sharpe noted that some educators find the distinction that pedagogy is the art and science of *teaching* to be contrary to a learner-centred perspective, they also defined pedagogy in its "original sense of leading, or guiding to learn" (p. 1), and pointed out that "even the most self-directed of adult learners can benefit from the support of others" (p. 1).

Discussions about pedagogy are invariably tied to aspects of learning theory. Mayes and de Freitas (2007) emphasized the natural and interdependent link between learning theory and pedagogy. Educators cannot escape "the need to adopt a theory of learning, and to understand how the pedagogy that is suggested by the theory follows naturally from its assumptions about what is important" (Mayes & de Freitas, 2007, p. 14). This critical relationship between learning theory and pedagogy is elaborated in Anderson and Dron's (2011) typology of three generations of distance education pedagogy, namely cognitive-behaviourist, constructivist, and connectivist. The label for each generation of pedagogy clearly indicates an association with a body of theory, and by implication, assumptions about how learning happens. Though these three pedagogies emerged in different eras, none has disappeared and all are still present in education today. Rather than entrench educational practice in a particular learning theory or pedagogy, Anderson and Dron (2011) emphasized the place of each generation of distance education pedagogy in a "well-rounded educational experience" (p. 92). The following is an overview of the theoretical and practical aspects of each generation of distance education theory.

Over time, fine distinctions within schools of thought about learning blur and the broader strokes remain. What were once clear depictions of specific branches of

behaviourism, such as Thorndike's view that association is related to action (Driscoll, 2005), Watson's concern for the objective data of behaviour (Watson, 1919), as well as Skinner's early operational behaviourism and later radical behaviourism (Amsel, 1989) are now all labelled behaviourism. Simon (1980) characterized behaviourists as "predominantly positivist and operationalists . . . [preoccupied] with laboratory rats rather than humans engaged in complex thinking and problem-solving tasks" (p. 76). For behaviourists, the key to improving educational processes is to adjust the stimulus learners are exposed to in order to change learners' responses or outputs, and the role of the teacher is to identify learning goals and implement a program of behaviour change (Driscoll, 2005).

According to Amsel (1989), as humanist phenomenologists, cognitive psychologists reacted to the environmentalism and determinism of behaviourists such as Skinner. However, Amsel also pointed out several areas in which some branches of behaviourism were concerned with issues often associated with cognitivism, such as cognitive maps, reasoning, and insight. The difference, according to Amsel, was that behaviourists were not concerned with "concepts related to higher mental function" (p. 27). Cognitive theorists such as Piaget, Vygotsky, and Bruner were among those who focused not on learners' behaviour but, rather, on the mental processes involved in learning (Driscoll, 2005). Even so, Amsel (1989) noted that the "cognitive revolution that began in the 1950s and early 1960s . . . was not so much a revolution in theorizing as it was a revolution in subject matter" (p. 14). Learning was still perceived as an individual process, with changes in knowledge evident in memory and thought processes.

The influences of behaviourist theory on instruction include Fred Keller's personalized system of instruction and Skinner's programmed instruction (Driscoll, 2005). Gagne's linear events of instruction were rooted in behaviourism but brought together cognitive information-processing and research on teaching (Driscoll, 2005). From cognitive theory, Piaget's views on development contributed to instructional approaches such as asking probing questions within a rich learning environment. Bruner's and Vygotsky's interactional theories of cognitive development, in which "learning serves to pull development along" (Driscoll, 2005, p. 262), led to an emphasis on discovery, inquiry, problem-solving, and scaffolding (Driscoll, 2005). The locus of control in cognitive-behaviourist pedagogy is the teacher or instructional designer (Anderson & Dron, 2011). Educational technologies are used to deliver instruction; their role is as a substitute for the teacher (Jonassen, Peck, & Wilson, 1999). The predominant model of instruction in cognitive-behaviourist pedagogy is knowledge transmission via the teacher, emphasizing the information to be learned rather than the context in which it is to be applied (Jonassen, 1991). According to Jonassen (1991), "knowledge transmission tacitly assumes that (1) we all agree on what reality is, and (2) we all use essentially the same process for understanding it" (p. 8).

The key differences between cognitive-behaviourist and constructivist pedagogy are based on their contrasting ontological assumptions as well as beliefs about the nature of the mind and thought (Jonassen, 1991). Cognitive-behaviourism is primarily objective, in which the mind processes symbols, and thoughts are disembodied and governed by and reflective of external reality. In constructivism (and related pedagogy), reality is determined by the knower, whose mind is a builder of symbols. Thoughts are embodied,

grounded in perception and construction, and grow out of social experience (Jonassen, 1991).

In constructivism, “learning is a process of building up structures of experience” (Cunningham, 1991, p. 13). Rather than a single theory, constructivism is a collection of approaches based on the perspectives of a number of theorists, including Piaget, Bruner, Vygotsky, and Dewey (Driscoll, 2005). According to Perkins (1991), constructivism has multiple roots in Piaget’s developmental perspective and Bruner’s cognitive psychology. Dewey’s experiential learning process (Lombardi, 2011) and Vygotsky’s perspective on the social origins of cognition (Driscoll, 2005) are also evident. Constructivism represents a shift away from cognitive-behaviourist approaches in which knowledge is transmitted and decontextualized, toward knowledge as constructed and emergent (Jonassen et al., 1999).

According to Driscoll (2005), the goals of constructivist approaches include “problem solving, reasoning, critical thinking, and the active and reflective use of knowledge” (p. 393). Therefore, in constructivist pedagogy, learning goals and objectives are negotiated rather than imposed. Instead of providing instructional treatments, teachers and designers are apt to supply tool kits applicable to multiple purposes. According to Jonassen (1991), evaluation processes in constructivist pedagogy recognize a wide “variety of response options . . . less of a reinforcement or control tool and more of a self-analysis tool” (p. 12). Jonassen (1994) described constructivist learning environments as providing multiple representations of reality, and thereby,

- avoiding oversimplification by representing the natural complexity of the real world

- focussing on knowledge construction, not reproduction
- presenting authentic tasks
- providing real-world learning rather than pre-determined instructional sequences
- fostering reflective practice
- enabling context- and content-dependent knowledge construction
- supporting collaborative construction of knowledge through social negotiation (p. 35).

Educational technologies are used as tools rather than teachers, and for learners to represent what they know and to teach each other (Jonassen et al., 1999). The role of the teacher is to "challenge learners to identify and solve problems . . . [and] support learners' efforts and encourage them to reflect on the process" (Driscoll, 2005, p. 409). There is a shift from the teacher as transmitter of knowledge to the teacher as a facilitator or guide (Anderson & Dron, 2011), who creates settings where learners explore, collaborate, and reflect upon their understanding. Fundamental to constructivism is Vygotsky's view in which the teacher "changes from authority figure who presents knowledge to students, to one of senior partner" (Cunningham, 1991, p. 16).

In their typology, Anderson and Dron (2011) identified epistemological assumptions of the three generations of distance education pedagogy. Cognitive-behaviourist pedagogy reflects two major theories of learning, and its focus on changes in behaviour or knowledge reflects the view that learning consists of individual development. Constructivist pedagogy draws from a number of learning theories and "acknowledges the social nature of knowledge and its creation in the minds of individual learners" (Anderson & Dron, 2011, p. 84). As opposed to regarding teaching as

transmitting content to passive learners, a perspective inherent in cognitive-behaviourist pedagogy, constructivist pedagogy supports a teaching role of guiding learners to actively integrate prior knowledge and construct new knowledge.

Kop and Hill (2008) attempted to clarify the relationships among various learning theories and their associated epistemologies, aligning behaviourism as objectivist, cognitivism as pragmatist, constructivism as interpretivist, and connectivism with an epistemology they labelled as distributed knowledge. It is through this epistemological lens that connectivism becomes most distinct from cognitive-behaviourist and constructivist pedagogies. These latter pedagogies clearly place knowledge in the mind of the learner/knower, whether knowledge is, for behaviourists, gained through experiences, or for cognitivists, negotiated through experience and thinking, or for constructivists, part of an internal, constructed reality (Driscoll, 2005). With connectivist pedagogy, on the other hand, while learning starts with the individual (Siemens, 2004), "knowledge does not exist in individual minds but is a product of participation in cultural practices, and learning is embedded in multiple networks of distributed individuals" (McLoughlin & Lee, 2008, p. 14). Furthermore, a key principle of connectivism is that "learning may reside in non-human appliances" (Siemens, 2004, Connectivism section, para. 3).

Connectivist pedagogy, reflecting emergent theories of knowledge, departs from the tidy links between pedagogy and learning theory that are evident in cognitive-behaviourist and constructivist pedagogy. Anderson and Dron (2011) acknowledged that this makes connectivist models "hard to translate into ways to learn and harder still to translate into ways to teach" (p. 90). For a decade, connectivism has been described, variously, as a learning theory (Siemens, 2004), or as an instructional theory or a

curriculum theory (Bell, 2011; Kop & Hill, 2008). Despite this inherent fuzziness, connectivism is clearly distinct from cognitive-behaviourist and constructivist pedagogies.

Connectivism is often associated with work by Stephen Downes and George Siemens. According to Downes (2012), "connectivism is the thesis that knowledge is distributed across a network of connections, and therefore that learning consists of the ability to construct and traverse those networks" (p. 85). Downes suggested connectivism shares with constructivism the view that knowledge is not acquired. However, unlike previous theories in which knowledge is transferred or built, connectivism views knowledge and learning as a "set of connections formed by actions and experience" (p. 85) rather than grounded in language and logic. Networks exhibit the properties of diversity, autonomy, openness, and connectivity; connectivist pedagogy "seeks to describe the practices that lead to such networks, both in the individual and in society" (Downes, 2012, p. 85) through learners' practice and reflection, supported by teachers' demonstration and modeling.

Siemens (2005) described networked learning as a subset of connectivism, related in particular to connectivism's key principle of network forming, with reduced emphasis on "presenting information, and more emphasis on building the learner's ability to navigate the information" (Siemens, 2005, Implications for Higher Education and Corporate Training section, para. 2). Technology "plays a central role in our distribution of identity, cognition, and thereby, knowledge" (Siemens, 2008, The Unique Ideas in Connectivism section, para. 4). In particular, blogs, wikis, and other collaborative tools with which learners create, connect, and share knowledge replace the sequential

presentation of content and activities typical of earlier generations of pedagogy (Siemens, 2005). According to Kop (2011), in the connectivist view, learning is enhanced by four types of activity: (a) aggregating resources, (b) relating new resources or experiences to what one already knows, (c) creating something new, and (d) sharing with others. In connectivist pedagogy, teachers create a healthy knowledge ecology in which networks can thrive, enabling learners to develop connections and links themselves (Siemens, 2005).

Anderson and Dron (2011) examined issues related to interactions inherent in each of cognitive-behaviourist, constructivist, and connectivist pedagogy. Cognitive-behaviourist pedagogy focuses on learners as individuals, "learning to do" (Anderson & Dron, 2011, p. 84) with little acknowledgement of learning within a rich social context. Interaction is largely learner-content, with some learner-teacher interaction in the form of one-to-one communication as needed for learning support. Constructivist pedagogy often focuses on learners in groups. There is rich interaction, usually in the form of many-to-many communication via conferencing technologies such as asynchronous discussion boards and synchronous web conferencing (Garrison, 1997a). Connectivist pedagogy focuses on learners in networks, with interaction that is "peripheral and emergent . . . on networks in which alumni, practicing professionals, and other teachers are able to observe, comment upon, and contribute" (Anderson & Dron, 2011, pp. 87–88). Many authors have defined forms of distance education according to generations of particular technologies for delivery (Garrison, 1997a; Nipper, 1989; Taylor, 2001). There may not be a strict and direct relationship between a generation of pedagogy and a generation of technology. However, it is not difficult to see the link between cognitive-behaviourist

pedagogy and print and broadcast technologies, between constructivist pedagogy and conferencing technologies, and between connectivist pedagogy and networked technologies such as Web 2.0 and social software.

Web 2.0 tools may be used to support both constructivist and connectivist pedagogies. By definition, Web 2.0 tools are new; their use in both connectivist and constructivist contexts is somewhat unclear at present and still evolving. For example, Hicks and Graber (2010) described Web 2.0 as having "created many opportunities for constructivist learning" (p. 625), while Aramatas, Spratt, and Vincent (2014) pointed out that "Web 2.0 technologies are key to connectivist pedagogical practice" (p. 83). The different philosophies inherent in these pedagogies mean that, in practice, the use of similar learning tools is often manifested in different ways or for different purposes. Compared to constructivist pedagogy, the structure and assessment of connectivist learning experiences are "emergent from the experience itself [rather than] scaffolded by the instructor" (Barnett, McPherson, & Sandieson, 2013, p. 688). Minocha (2009) described how the use of blogs varies between connectivist pedagogy in which blogs "build a body of interrelated knowledge" (p. 357) and constructivist pedagogy in which blogs resemble private reflective journals.

Web 2.0 technologies for constructivist learning emphasize collaboration (Bofill, 2013) whereas connectivist pedagogy is associated with characteristics such as aggregation/sharing, artifact creation, and remixing (Wang, Chen, & Anderson, 2014). Connectivist pedagogy is supported by open and permeable environments in which individual engagement is visible and transparent (Blees & Rittberger, 2009). Particularly in complex connectivist learning "students use and develop their own resources to prompt

connection building and network formulation that is distributed" (Wang et al., 2014, pp. 123–124). Barnett, McPherson, and Sandieson (2013) summarized the key differences between the use of Web 2.0 learning technologies for different pedagogies in their statement that connectivist pedagogy is concerned "with the integration and critical analysis of, and contribution to, disparate resources [rather] than simple existential constructions of meaning" (p. 685).

Connectivist pedagogy was of particular interest in this study. McLoughlin and Lee's (2008) *pedagogy 2.0* represents a learning-as-participation metaphor that focuses on learning process more than on learning outcomes. The links from pedagogy 2.0 to theory and beliefs about knowledge and learning are reflected in the view that "knowledge does not exist in individual minds but is a product of participation in cultural practices, and learning is embedded in multiple networks of distributed individuals" (McLoughlin & Lee, 2008, p. 14). The key elements of the pedagogy 2.0 paradigm are personalization, participation, and productivity. Within these, we see outcomes and principles that are consistent with self-paced connectivist learning, including (a) learner choice, (b) learner agency, (c) self-regulation and management, (d) connectivity, and (e) learner-generated content (McLoughlin & Lee, 2008). This study explored whether or not these and other connectivist approaches and principles are present in the three cases of self-paced study investigated in this research.

Anderson and Dron's (2011) three generations of distance education pedagogy each have different levels of affinity with self-paced study. The attributes of each generation of distance education pedagogy, and their compatibility with self-paced study, are explored later in this chapter in the section dealing with the conceptual framework for

this study. Anderson and Dron's (2011) typology is a critical part of the conceptual matrix within this framework.

To date, most descriptions regarding those who provide self-paced study at a distance have consisted of single-case reports of specific institutions (Davis, 2001; Paulsen & Rekkedal, 2001). There appear to be few multiple-case investigations of how and why pedagogy influences the design and development of self-paced courses to incorporate learner-learner interaction. One goal of this study was to explore the possible presence and influence of relatively new pedagogical models for self-paced learning. However, it was also important to recognize more traditional models of distance education course design and development, as well as course production, since these models are part of the background of current self-paced study at a distance and it is likely that aspects of these models are still present in self-paced offerings. The following section describes the traditional industrial model of distance education, as well as changes and challenges to the model coming from new technologies.

Industrial Model of Distance Education

Garrison (2003) linked independence, an aspect of self-paced learning, to the industrial model of distance education. This model, associated with the work of Otto Peters, provided self-definition for distance education to help differentiate it from conventional education, and was described by Garrison (2000) as "the most coherent, rigorous and pervasive example of distance education theory to date" (p. 6). While Garrison (2003) acknowledged that the industrial model increased access to education, he also noted that it isolated learners and reduced the role for teachers in the learning process. For many years, and particularly during periods of great growth, the industrial

model of distance education was the major theoretical framework in the field (Keegan, 1983).

In the late 1960s, as theorists began to grapple with the task of defining distance education and developing theories of practice, organization, and learning, Peters (1967) identified over a dozen structural features of industrial processes present in distance education. Commonly known as the industrial model of distance education, these industrial processes were largely organized by the principles of division of labour, assembly line, mechanization, and mass production, while relying on formalized processes to create standard products. Garrison (2000) described a shift from preoccupation with structural issues, typical of the industrial model, to a focus on transactional concerns. Saba (2005) suggested that the industrial model was out of touch with technological and social trends. Annand (2007) called for balance, and suggested that the future of distance education may include "technologically-enabled, industrialized, yet responsive" (p. 6) systems and structures.

The emergence and mass availability of digital technologies have challenged several features of the industrial model. According to Guri-Rosenblit (2009), despite its economies of scale, distributed teaching typical of the industrial model is a major obstacle to employing digital technologies. For two decades, production tools (including those for mass production) have been moving out of the distance education institution's central mechanized print shop and onto individual educators' electronic desktops. Accessible tools for online course authoring and production may enable individual artisan approaches to distance teaching as described by Howell, Saba, Lindsay, and Williams (2004) and Tait (2008). This study sought to explore changes to course design and

development that may have resulted from shifts away from the sorts of processes linked to the industrial model. A major challenge in the midst of this change is, as Peters (1993) argued, that while the educational mindset is shifting, organizational structures will still need the efficiencies offered by the industrial model. As Peters noted, “the shift from industrial to post-industrial distance education will be a Copernican one. Slight and superficial alterations will certainly not do” (p. 239). It remains to be seen how distance institutes offering self-paced study are managing the challenges and opportunities resulting from changes to previously industrial processes.

According to Annand (2007), “organizational issues rather than learning theory significantly determine practice” (Theoretical divide over the role of interpersonal communication section, para. 2). Beliefs about the balance and relative importance of interaction and independence are informed by our experiences with organizational structures. Hence, group- and cohort-based models (which are more congruent with the on-campus practices of many new ‘dual mode’ distance education providers) predominate, with resulting emphasis on “adult learning theories predicated on paced learning” (Annand, 2007, p. 2). Annand asserted that efficacious educational theory needs to consider pedagogical benefits, balanced against learner preferences and relative cost.

The conceptual framework for this study, presented next, illustrates how relationships among key concepts are related to the theoretical foundation for this study.

Conceptual Framework

As discussed earlier, the challenge of balancing learner interaction and independence is a recurrent theme in distance education. Ideally, learners should not be

required to forfeit the benefits of one in order to gain the advantages of the other. Daniel and Marquis (1979) discussed the practical challenge of mixing interactive learning activities and independent learning strategies, and Annand (1999) noted the increased cost of distance learning approaches that focus on interaction. Paulsen (2008) suggested that independence in the form of choosing where, what, when, and how to learn also "tends to add costs, administrative difficulties and pedagogical challenges" (p. 7). Distance education theorists continue to be divided on the issue of balancing independence and interaction (Annand, 2007). Interaction is a significant component of learning (Garrison, 1997a); independence is central to being a mature learner (Keegan, 1990; Knowles, 1984). Distance education providers, including course developers, must therefore make choices about the mix and types of interaction and independence. This challenge is particularly complex because, according to Anderson (2003), interaction and independence have differing economic, social, and pedagogical characteristics.

Baxter and Jack (2008) used the term *conceptual framework* to describe the basic concepts and relationships inherent in a study. The conceptual framework for this study takes the form of a model that depicts the relationships among interaction, independence, and a form of self-paced study, as well as a matrix that explains how these relationships relate to Anderson and Dron's (2011) three generations of distance pedagogy and issues of distance education design and development models. This matrix also provides supporting detail on what is known and not known about the main attributes of the three generations of pedagogy, as they relate to the conceptual model. Distance learning organized for individual study exemplifies independence, while distance learning organized for groups or cohorts exemplifies interaction. This research study explored the

area where independence and interaction intersect, referred to here as self-paced study with learner-learner interaction, as illustrated in Figure 1.

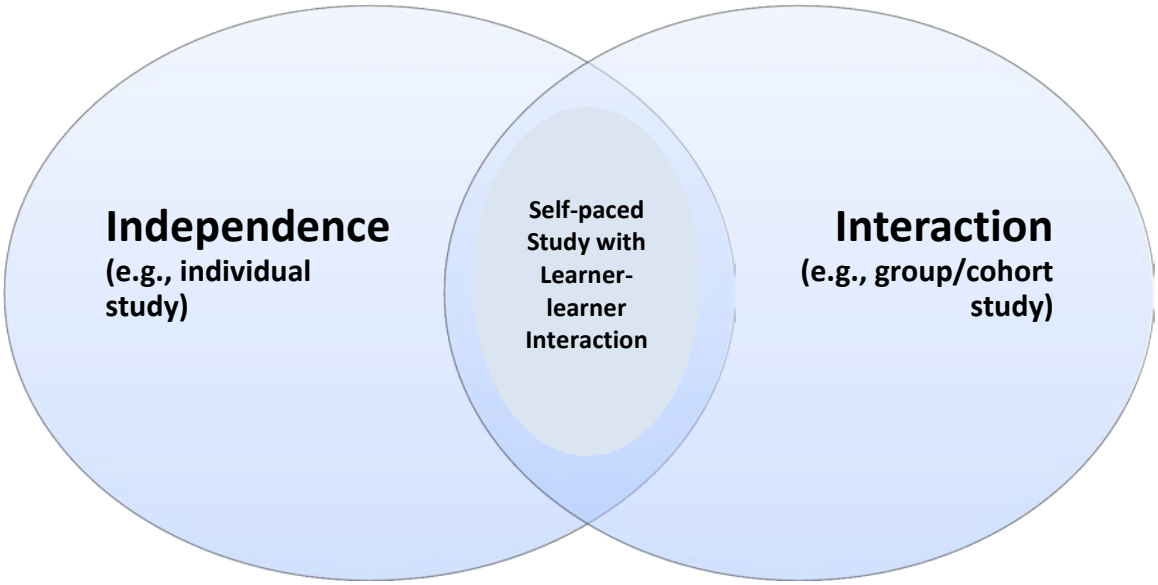

Figure 1. Self-paced study as an intersection of independence and interaction

The challenge of incorporating learner-learner interaction into self-paced study embodies the tension inherent in the theoretical divide between independence and interaction (Annand, 2007). This study looked at specific attributes within the intersection of the spheres of interaction and independence. Figure 2 is a conceptual matrix based on Anderson and Dron's (2011) three generations of distance education pedagogy. This conceptual matrix depicts the attributes of independence and interaction, and the distance education pedagogies associated with them. As well, Figure 2 presents issues of interest regarding the possible attributes of the intersection of these two ideals, namely, self-paced study with learner-learner interaction. The cells in the shaded bottom row of Figure 2 are of particular interest, as these indicate how the research questions for this study are related to the attributes of self-paced study with interaction.

*Generation of DE pedagogy	Main Attributes			
	*Technology	*Learner-learner interaction	†Learning activities	Course design and development
		Independence (e.g., individual study)		
Cognitive-behaviourism	Print and online media	One-to-one	Individual	Industrial
		Interaction (e.g., group/cohort study)		
Constructivist	Conferencing	Many-to-many	Collaborative	‡Instructor-led/artisan
		Self-paced study with learner-learner interaction		
Connectivist? Need to learn more (RQs 1 and 2)	Web 2.0, networks? Need to learn more (RQs 1 and 2)	Open, distributed? Need to learn more (RQs 1 and 2)	Need to learn more (RQs 1 and 2)	Need to learn more (RQ 3)

Note. RQ = research question
* These categories and their attributes from Anderson and Dron (2011)
† This category and attributes adapted from Anderson and Dron (2011)
‡ Howell, Saba, Lindsay, and Williams (2004); Tait (2008)

Figure 2. Conceptual matrix: Attributes of independence, interaction, and self-paced study

Digital technologies for interaction and communication may serve to simply replicate activities already present in conventional group-based learning (Dehoney & Reeves, 1999; Laurillard, 2007; Mioduser et al., 1999). However, social software tools such as (a) blogs, (b) wikis, (c) social bookmarking, (d) web conferencing, (e) social networking, (f) photo publishing, (g) video sharing, (h) podcasting, (i) immersive 3D software, and (j) e-portfolios may have the potential to transform self-paced study (Anderson, 2009; Anderson et al., 2010). Connectivist pedagogy, possible with Web 2.0 and networked technologies, may enable learners in self-paced courses to meet others within and outside their course, form communities, and support each other in their varied

learning activities (Anderson, 2006a) without relinquishing the freedom to study at their own pace.

As references to the specific research questions in Figure 2 indicate, this study explored multiple cases of self-paced study at a distance to describe whether or not the given attributes are present, as well as to determine what attributes might fill the gaps in our knowledge. The resulting interpretations and understanding of pedagogy, learner-learner interaction, and course design and development addressed the gaps in our practice and theoretical knowledge, and so added to existing theory about self-paced study and provided recommendations for more effective practice. The following section briefly describes the methodology for this study.

Research Methodology

Minnis (1985) encouraged distance researchers to conduct case studies as one way to "improve the quality of conceptualization and theoretical development" (p. 189) in the field. According to Yin (2009), case study "investigates a contemporary phenomenon in depth and within its real-life context" (p. 18). Stake (1995) described two broad types of case study, namely intrinsic and instrumental. Researchers design an intrinsic case study not because it will help them learn about other cases or a general concern, but because the given case itself is of primary interest. According to Stake (2006), an instrumental case study is appropriate when the research purpose is to go beyond an individual case to understand the *quintain* (a reference to the target used by knights as they trained for jousting), which Stake pointed out is "a target, but not a bull's eye" (2006, p. 6). This study, reflecting an instrumental design in Stake's terms,

investigated three cases of self-paced study in order to examine broadly how pedagogy influences course design, and how course designs reflect pedagogical choices.

This study did not seek to focus on a narrow view of learner-learner interaction within a single instance of self-paced study at a distance, because the context of rapidly changing pedagogy, technology, and emerging models called for a broader investigation in order to examine a range of approaches to the phenomenon of learner-learner interaction in self-paced study. Individual cases, their contexts, activities, issues, and experiences were examined in depth, but all in an effort to find patterns that enhance our understanding of the larger interest or quintain. Multiple-case study researchers are simultaneously interested in the particular and general. Once individual cases have been analyzed, cross-case analysis builds abstractions across the cases (Merriam, 1998). During cross-case analysis, themes, preserving the main research questions, met the most important findings from the cases, and thus provided the basis for cross-case assertions (Stake, 2006).

Chapter Two Summary

The challenge of incorporating learner-learner interaction into self-paced study exemplifies the tension inherent in the theoretical divide between independence and interaction. Pedagogy bridges and relies on theory and practice, and offers a set of theories and concepts for exploring learner-learner interaction in self-paced study. Furthermore, this research study was set against a backdrop of changing distance education pedagogy and models of course design and development. Chapter Three describes the multiple-case study methodology called for by this context and associated research questions, and also provides details on specific procedures for this study. The

concepts of learner-learner interaction and pedagogy, particularly three generations of distance education pedagogy (Anderson & Dron, 2011) served to illuminate and articulate distance education practice within three different cases of self-paced study in action.

Chapter III: METHODOLOGY AND PROCEDURES

Research within the interpretivist/constructivist paradigm strives to "understand and interpret the world in terms of its actors" (Cohen et al., 2007, p. 26). Accordingly, this study recorded and examined the ways people talk about issues and problems (Carter & Little, 2007). Case study researchers "assist readers in the construction of knowledge" (Stake, 1998, p. 95) by describing and interpreting particular cases through a respectful curiosity and "empathic representation of local settings . . . within a constructivist epistemology" (Stake, 1998, p. 98). The research design for this study conformed to case study methodology that does not "require the identification of a rigidly pre-formulated list of variables to test" (McGuinness, 2006, p. 576). Even so, as a result of knowing about some of the critical issues in advance, the design of this instrumental case study took "advantage of already-developed instruments" (Stake, 1998, pp. 99–100), including semi-structured interview questions, a set of basic initial codes, and worksheets. A key characteristic and strength of qualitative research such as that described here is that it "engages with people's subjectivity" (Carter & Little, 2007, p. 1319), so the researcher must be transparent about her own subjectivity "to enable readers to make judgements about it" (p. 1319).

This chapter is divided into two sections. The first section provides the rationale and general outline for the case study research design. The second section describes in detail the research procedures for this multiple-case study's sampling, data collection, and analysis.

Case Study Research Design

Several research methods are possible to address the research questions posed in this study. For example, a large survey of distance education practitioners would be one way to gather quantitative and qualitative data on specific strategies used for incorporating learner-learner interaction into self-paced study. While a large sample survey could provide controlled reliability, a survey is only a snapshot in time (Schramm, 1971) and more accurately assesses what is, rather than why a situation is as it has evolved or been constructed. Survey methods would not produce a rich description of how pedagogical and other choices are made designing and developing self-paced courses, or the nuances of the processes involved. In addition, using a survey would be a difficult way to explore how pedagogies influence decisions regarding how and why learner-learner interaction is incorporated into self-paced courses. Distance education is a complex system with many actors. Creating mass survey instruments that are relevant for each of these roles was not feasible for this inquiry.

According to Schramm (1971), case study research has the advantage of applying a wide-angle lens that covers a sweep of time as well as place, and can describe various relationships and situations over a span of time. Schramm conceded that case studies in instructional projects cannot deliver precise descriptions of a population or conclusions on causality, but they can document and analyze how educational projects are organized and operated. Case studies are ideal for situations concerned with "why a given decision was taken, how it worked out, and what happened as a result" (Schramm, 1971, p. 5). Such information is important for others faced with the challenge of incorporating learner-learner interaction into self-paced study. According to Merriam (1998), case

study research "offers insights and illuminates meanings that expand its readers' experiences" (p. 41), so this methodology is particularly relevant to a study of highly contextual research terrain in which there is a "theoretical divide" (Annand, 2007, p. 2).

According to Yin (1994), existing theory can provide a framework within which a case study is designed. The typology of three generations of distance education pedagogy (Anderson & Dron, 2011) provided such a framework for this study. While individual cases are important on their own, together the three cases provided a rich description of pedagogy and learner-learner interaction in self-paced study at a distance.

Research Issues and Questions.

According to Yin (1994), case study is appropriate for investigating "how" and "why" questions that capture the central concerns of interest. However, such questions do not target what precisely should be studied. Yin (1994) suggested that researchers formulate propositions (what Stake, 2006, calls "issues") in order to clarify where to look for relevant evidence. Since this study used tools developed by Stake (2006) for multiple-case study research, the term "issues" was used. Issues and their associated meanings help the researcher stay within feasible limits by articulating the beginning and end points of the cases in question (Stake, 2006). The following issues that framed this study came from the literature, theories, as well as personal and professional experience (Baxter & Jack, 2008).

- Learner-learner interaction is often incorporated as optional or supplemental rather than integral to the learning design of self-paced courses.

- Many self-paced courses are based on or have evolved from cognitive-behaviourist pedagogy, though aspects of constructivist and connectivist pedagogies may also be evident.
- Industrial models of self-paced course design and development may be more compatible with cognitive-behaviourist pedagogy than with constructivist and connectivist pedagogies.

Reflecting on these issues, I developed three research questions to guide this study. These questions all address the main research concern of design and development of self-paced courses, specifically how and why learner-learner interaction is incorporated into self-paced undergraduate distance courses.

1. How does choice of pedagogy affect the incorporation of learner-learner interaction opportunities in self-paced distance courses?
2. In what ways is connectivist pedagogy enabling learner-learner interaction in self-paced course designs? (How are Web 2.0 and network-based technologies and activities being incorporated to provide for learner-learner interaction in self-paced courses?)
3. What processes are involved in designing and developing for learner-learner interaction in self-paced courses? (What aspects of the industrial model of distance education production are evident?)

Selecting Cases.

Stake (1995) advised researchers to select cases that (a) provide an opportunity for maximum learning, (b) are accessible, and (c) are sufficiently unique to aid our learning and not restrict our ability to learn. According to Stake, the first criterion is the

most important. Stake noted as well that "good instrumental case study does not depend on being able to defend the typicality of (the case)" (p. 4). Later, Stake (2006) suggested three questions to guide the selection of cases for multiple-case study research.

- "Is the case relevant to the quintain?
- Do the cases provide diversity across contexts?
- Do the cases provide good opportunities to learn about complexity and contexts?" (p. 23).

Ethics permission does not allow naming specific case locations, but they were deliberately selected according to specific criteria. The three cases for this study share many important similarities, and a few key differences. All three cases represent established, public, not-for-profit, distance universities. Since this study focused on the experiences of learning/teaching specialists and academics, course design and development in each case occurs in-house rather than through course packages developed outside the institution. Self-paced study is a major activity in all three cases.

For this study, case selection was intended to achieve a complementary balance between two concerns of project scale. The first concern is the recommendation that novice researchers such as doctoral students study major concepts within projects that are both in-depth and small in scope (Morse, Barrett, Mayan, Olson, & Spiers, 2002). Therefore, this study included the perspectives of just two groups, namely, academics and learning/teaching specialists. The second concern is the suggestion that, within reasonable limits, "the greater the variation across the cases, the more compelling an interpretation is likely to be" (Merriam, 1998, p. 40). While the three cases for this study were all universities providing self-paced study at a distance, they varied regarding

numbers of courses, learner registrations, and staff. As well, two of the cases were single-mode distance universities and the third was dual-mode, offering courses on-site as well as at a distance. Finally, the three cases were geographically located in different areas of North America or in Europe. These factors resulted in sufficient variations in approaches to self-paced course design and development in each case (e.g., policies, processes, pedagogies) so as to enable compelling and useful interpretations of practitioners' experiences and perspectives.

Case A, a single-mode distance university in North America, offers undergraduate courses as self-paced study. As the most accessible of the three cases, Case A was chosen as the initial site in which to pilot the interview and case study protocols (Yin, 1994). Case B, a dual-mode university in North America, was also geographically accessible. Case B was selected to ensure the resulting interpretation was not narrowly confined to single-mode distance universities. It also fit the key criteria of having a significant number of self-paced courses and students, as well as in-house course design and development. While similar to Case A as a single-mode distance university, Case C, located in Europe, had fewer staff, students, and courses. Participants there were fluent English speakers. Table 1 presents key information about each case.

Table 1

Distance Universities with In-House Course Design and Development

Case A	Case B	Case C
Single-mode distance university	Dual-mode university	Single-mode distance university
Public, not-for-profit	Public, not-for-profit	Public, not-for-profit
Established in 1970	Established in 1971	Established in 1984
850 courses, most self-paced	590 distance learning courses	400 self-paced courses
1,350 faculty and staff	Nearly 2,100 faculty and staff	600 staff [a]
Over 40,000 student registrations annually	Nearly 12,000 distance students; 13,072 on-campus	Over 17,000 students

Note. Data taken from institutional documents and websites

[a] Data unavailable on English language site, so provided from Case C's Wikipedia page

Specific information on the case boundaries is provided in the following section.

Case Boundaries.

According to Stake (1988) case studies are more likely to be useful when researchers give careful thought to the boundaries of the case; what is inside those boundaries depends on what you want to find out. Figure 3 depicts the boundaries for the cases in this study.

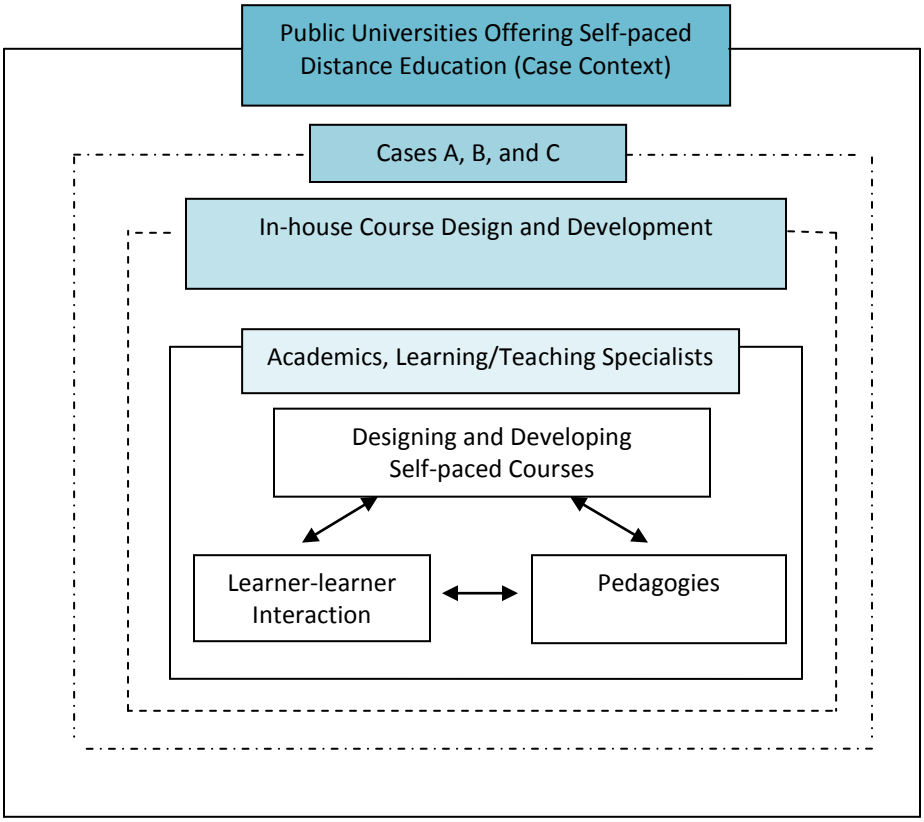

Figure 3. Case boundaries

Baxter and Jack (2008) suggested researchers define the boundaries of a case by applying the criteria of activity, time, definition, and context. In this study, the boundaries for all three cases consisted of (a) in-house design and development of self-paced courses (activity); (b) a seven-year period dating back from when the research study began (time); (c) pedagogy and learner-learner interaction in self-paced courses (definition); within (d) public, not-for-profit universities providing self-paced study at a distance (context). A variable context factor is that one dual-mode and two single-mode distance universities were included.

Research Strategies.

The criteria that determine the quality of a research inquiry are linked to the paradigm that frames the research design. Guba and Lincoln (1994) describe as post-positivist the criteria suggested by Yin (2009) and common for case studies, namely internal validity, external validity, and reliability. Since this multiple-case study was framed by the interpretivist/constructivist paradigm, Guba and Lincoln's (1994) alternate terminology for Yin's (2009) criteria were more applicable. Accordingly, the trustworthiness of this research study was shaped by the design's credibility, transferability, dependability, and confirmability, to ensure the plausibility of the multiple-case study findings.

Credibility was enhanced by deliberate sampling decisions (Marshall & Rossman, 2006), to be described in the procedures section, as well as through member checks (Janesick, 1994) in which all participants reviewed their interview transcripts for accuracy and completeness. A key procedure for this study, and one that contributed to the credibility, dependability, and confirmability of the research design, involved triangulation in the form of reliance on multiple sources of data collected via multiple methods (Huberman & Miles, 1994). Of particular relevance to a study framed by the interpretivist/constructivist paradigm, triangulation through the use of multiple sources and perceptions served to "clarify meaning by identifying different ways the phenomenon is being seen" (Stake, 1998, p. 97).

Particularly in a multiple-case study in which institutional and other cultural differences were present among cases, reflection was an important part of the research process as I clarified my personal assumptions and theoretical orientation (Creswell,

1994; McGloin, 2008; Merriam, 1998). Reflexivity was crucial to ensuring dependability and confirmability, and spanned all phases of this study. I began a personal research journal at the start of my doctoral journey, and during this study I documented the processes of data collection and analysis (Miles & Huberman, 1994) as well as my reflections on research decisions and events. Stake (1998) noted that on the surface, the work of case study research appears observational, but it is essentially interpretive and reflective. Carter and Little (2007) recommended making detailed records of "participation, reactions, and experiences . . . as an important data source" (p. 1322). Lincoln and Guba (1985) suggested that a reflection journal is a place for documenting schedules and logistics, storing personal reflections, and tracking methodological decisions. In this study, keeping a reflective research journal, similar to what Eisenhardt (1989) calls field notes, was a way to concurrently document and explore the process of interpretation and the influence of personal positions, essentially collecting data on personal experiences and responses through the course of the research study. This process of reflection and documentation contributed to an audit trail and the dependability of the research design.

External validity concerns the extent to which research findings can be generalized to other situations. The question of generalizability in a traditional sense is a challenge for case study researchers (Yin, 1994). Merriam (1998) suggested that concern for the particular rather than the general is inherent in qualitative research, and according to Stake (1995) "the real business of case study is particularization, not generalization" (p. 8). Guba and Lincoln (1994) suggested transferability as an alternative to external validity, achieved when research findings are "useful to others in similar situations"

(Marshall & Rossman, 2006, p. 201). This study made use of two approaches to enhance transferability, namely the use of multiple-case study design, and generating deep data through an in-depth focus on a small sample (McGloin, 2008). In addition, triangulation as well as multiple data sources in the form of several informants and more than one data-gathering method contributed to transferability and served to "strengthen the study's usefulness for other settings" (Marshall & Rossman, 2006, p. 202).

Finally, according to Merriam (1998) the quality of an inquiry also depends on conducting research in an ethical manner. While this study posed minimal risk to participants and did not involve examining emotional or traumatic events, deliberate and consistent steps were taken to protect participants' identities. These steps included (a) informed consent, (b) keeping personal identities anonymous, (c) identifying courses under investigation only by general area of study, and (d) secure storage measures to protect data. Ethical approval for the study was obtained from the Athabasca University Research Ethics Review Board before data collection began. In all three cases, this ethics approval was deemed to be sufficient, though it was necessary to also obtain written permission to conduct the study from each university's executive or upper management. Such permission was granted in each case.

Procedures

This multiple-case study began with a pilot study at Case A to refine data collection tools and processes, and develop a case study protocol (Yin, 1994). Once the pilot study was complete, the full study of all three cases proceeded. Table 2 indicates the three main data sources, and how these related to the three research questions that framed the study.

Table 2

Data Sources Related to Research Questions

	In-depth Interviews	Self-paced Courses	Institutional Artifacts
Research Question 1: How does choice of pedagogy affect the incorporation of learner-learner interaction opportunities in self-paced distance courses?	√	√	√
Research Question 2: In what ways is connectivist pedagogy enabling learner-learner interaction in self-paced course designs?	√	√	√
Research Question 3: What processes are involved in designing and developing for learner-learner interaction in self-paced courses?	√		√

To some extent, data collection and analysis took place concurrently (Merriam, 1998; Miles & Huberman, 1994; Saldana, 2011), though it also followed a series of overlapping phases, case-by-case. While the cases selected for this study all provide self-paced study, there are differences in features of their organizational structures and processes. As a result, it was important to collect and analyze data for each case, prepare single-case reports, then engage in cross-case analysis (Stake, 2006).

Sampling Strategies.

For each case, "sampling is crucial . . . [because] you cannot study everyone everywhere doing everything" (Miles & Huberman, 1994, p. 27). Even so, Stake (1998) advised that researchers strive for variety but not representativeness, because the "primary criterion is the opportunity to learn" (p. 102). In this study, sampling strategies

formed the basis of selecting participants for interviews and choosing self-paced courses for learning design analysis.

In-depth interviews were conducted with two groups of participants in each case, namely, learning/teaching specialists and academics. In Cases A and B these participants were selected in two phases. The first phase identified a convenience sample of learning/teaching specialists (e.g., instructional designers, educational technologists, learning designers) who were interested in participating in the study. A key contact at each case site helped identify learning/teaching specialists, presented them with information about the study, and facilitated delivery of my invitations to participate. In the second phase, academic participants were selected through purposive criterion sampling. According to Cohen et al. (2007) purposive sampling is a common feature of qualitative research and is used to identify people most likely to be knowledgeable and informative regarding the research questions. In this study, purposive sampling involved all learning/teaching specialist participants from Cases A and B identifying academic faculty members most likely to offer insight on the issues of learner-learner interaction in self-paced courses, as well as incorporation of Web 2.0 tools and social media. These academics were then invited to participate in the study. In Case C, the key contact there was provided with an outline of the purpose of the study and the criteria for selecting participants. This key contact then arranged and scheduled interviews for the time of the on-site visit. Table 3 summarizes the attributes of the study participants for each case.

Table 3

Characteristics of Study Participants

	Number of participants	Participants' Education	Participants' Experience at Case	Academic Discipline
			Case A	
LTS	5	Doctoral: 3 Master: 2	4 to 7 years	—
FAC	4	Doctoral: 3 Master: 1	3 to 13 years	psychology, science, English literature, language and writing
			Case B	
LTS/ Admin	4	Doctoral: 1 Master: 3	5 to 22 years	—
FAC	2	Doctoral: 1 Master: 1	5 to 8 years	English, journalism/media, human services
			Case C	
LTS/ Admin	5	Doctoral: 5	15 to 30 years	—
FAC	6	Doctoral: 6	8 to 28 years	psychology, science, literature, education, computer science, education, business

Note. LTS = learning/teaching specialist; FAC = academic

In all cases, participants were willing volunteers. At Cases A and C, the learning/teaching specialists represented more than half (and at Case B nearly all) the learning/teaching specialists on staff; the academics who participated were those identified by learning/teaching specialists who participated in the study as innovative and engaged in incorporating learner-learner interaction into self-paced study. The academic participants comprised a small portion of each case's faculty, and as they were purposively chosen as innovators, did not represent the majority faculty opinion. Since this study was primarily concerned with how and why course developers incorporate

learner-learner interaction (rather than how not and why not) such sampling was deliberate and purposeful.

A sample of self-paced courses was analyzed for aspects of learning design in order to determine dominant pedagogy, learner-learner interaction, and features of pedagogy 2.0 (McLoughlin & Lee, 2008), namely, (a) personalization, (b) participation, and (c) productivity. For Cases A and B, a dimensional sampling strategy (Cohen et al., 2007) was used to identify the courses for analysis. Since scaleability was a factor of interest for this study, the attribute of course enrolment (high enrolment or low) was one of the two sampling dimensions. In order to ensure a cross-section of academic disciplines, the second dimension was formed by differences among academic disciplines. According to Biglan (1973) and Becher (1994), hard disciplines include pure sciences such as physics, and applied technologies such as computer science. Soft disciplines include pure social sciences and humanities such as anthropology and history, and applied social sciences such as education and communication.

Data Collection.

Interviews.

In-depth interviews with learning/teaching specialists and academics who design and develop self-paced courses addressed all three research questions for this study by focusing on participants' experiences and views regarding (a) the predominant pedagogy in their self-paced courses, and the purposes for incorporating learner-learner interaction; (b) the influence of connectivist pedagogy and network-based technologies; and (c) design and development processes and models. These semi-structured interviews explored anticipated as well as unexpected topics; an interview guide (Appendix B)

provided “a degree of structure on the participant-researcher conversation, in the form of key topics or questions” (McGuinness, 2006, p. 576). According to Meyer (2001), when interviews are the primary data collection method, “the issue of building trust between the researcher and the interviewees becomes very important” (p. 336). One indication of trust in this study was that during our interviews, several participants shared their experiences of interpersonal tension and power struggles at work, noting that they felt comfortable relating these experiences because, since data would be reported in aggregate form, they knew our conversations were confidential.

Informed consent was sought at the beginning of each interview. An initial interview of about 45 minutes was conducted with each participant. Follow-up interviews were conducted with almost all learning/teaching specialists at Cases A and B, and with two learning/teaching specialists at Case C, to discuss additional issues or questions. Participants determined acceptable times for interviews, and could choose to discontinue their involvement at any time. If they chose to do so, their data were deleted. Each participant was referred to by a pseudonym, and any identifying characteristics were edited out of reports. Research data were kept in a locked cabinet and in password-protected directories on a secure server, accessible to me only. Digital audio files and transcriptions for each interview were coded to eliminate personally identifying information. Data not protected by a pseudonym was accessible to me only and was not shared with any other individuals. There were potential risks as well as benefits for participants, as our conversations sometimes revealed weaknesses and strengths of their work. Initial invitations and informed consent materials acknowledged this possibility and emphasized that this research was intended to better understand design and

development of self-paced courses, not to evaluate individual participants, courses, or cases.

In both Cases A and B, I completed the interviews with learning/teaching specialists before those with academics, since the sample of academic participants came from recommendations made by learning/teaching specialists. This also allowed me time to reflect in preparation for the interviews with academics, which was especially useful since the study was in an early stage. By the time I visited Case C, I was better prepared to interview all participants during the course of a nine-day visit. This was challenging, but also enabled me to immerse myself in the unfamiliar setting. All interviews were recorded using the DropVox iPhone application with a back-up copy recorded on an iPad, and I used F4 transcription software to transcribe the interview recordings. All 26 participants reviewed their individual transcripts for accuracy and completeness. Table 4 summarizes the number of interviews and total duration of interviews for each case.

Table 4

Number of Interviews and Duration, Case by Case

	Participants	Number of interviews	Total Duration
Case A	LTS (5 participants)	9	8.8 hours
	FAC (4 participants)	4	3.5 hours
Case B	LTS (4 participants)	7	6.1 hours
	FAC (2 participants)	2	1.8 hours
Case C	LTS (5 participants)	7	7.4 hours
	FAC (6 participants)	6	6.9 hours

Self-Paced Courses.

The second source of data at each case consisted of websites and resources for self-paced courses. These were analyzed to address the first and second research questions, and to determine the distance education pedagogy, learner-learner interaction, and pedagogy 2.0 features—namely, personalization, participation, and productivity (McLoughlin & Lee, 2008)—evident in each course. At both Case A and B, I examined four self-paced course websites and materials. At Case C, course websites and materials for self-paced courses were not available in English, so during the in-depth interviews, several participants showed me six self-paced course websites and materials while we talked about the learning design features related to dominant pedagogy, learner-learner interaction, and pedagogy 2.0 evident there. The six courses represented a range of academic disciplines. These conversations were recorded and transcribed as part of individual interviews. A learning design rubric (Appendix C) facilitated analysis of all 14 courses and a learning design summary was written for each. Table 5 presents the types of self-paced study courses that were examined in Cases A, B, and C. All courses exhibited some form of learner-learner interaction, and had been designed or revised in the last five years. This ensured that both course content and learning design were current.

Table 5

Self-Paced Courses as Data Sources

Category of Discipline	Subject Area (and Enrolment Level)	
	Case A	Case B
Hard discipline	science, high (> 95 students)	science, high (> 100 students)
Hard discipline	computer science, low (< 50 students)	health science, low (< 45 students)
Soft discipline	psychology, high (> 95 students)	social science, high (> 100 students)
Soft discipline	English, low (< 50 students)	cultural studies, low (< 45 students)
	Case C	
Hard discipline	computer science, psychology	
Soft discipline	business, education, law, literature	

Interview transcripts and learning design summaries were coded and analyzed with Atlas.ti qualitative analysis software. Details on coding and analysis are provided in the next section of this chapter.

Artifacts.

The third data source was institutional artifacts and documents. I asked all participants to suggest policies, procedures, models, and documents they felt would help me better understand their work in course design and development as well as pedagogy and learner-learner interaction in self-paced courses. Participants were generous; Table 6 summarizes the artifacts from each case. Data from these artifacts were useful in

triangulating and adding richness to the findings from analysis of the in-depth interviews and the self-paced distance learning courses.

Table 6

Institutional Artifacts, Case by Case

Case A	Case B	Case C
- course development policy and procedures - learning design models - course design templates and course maps - learning/teaching specialist's advice to an academic about learning design - participant's conference presentation - discussion paper proposing a new model for online undergraduate courses	- organizational chart for distance learning division - course design templates and sample course blueprints - newsletters and a student handbook produced by distance learning division - agendas from initial course planning meetings - course development checklists - results of search for "social media" on institutional website	- public report produced to commemorate Case C's 25th anniversary (2009) - five academic articles - institutional course development and design guide - two institutional research project reports (2008; 2009) - in-house handbook for developing courses in a particular learning management system (LMS) - internal report on an institutional research program (1998)

Data Analysis

According to Cohen et al. (2007) data analysis for qualitative research involves "organizing, accounting for and explaining the data; in short making sense of data in terms of participants' definitions of the situation, noting patterns, themes, categories and regularities" (p. 537). This study called for multiple layers of analysis, including transcribing and coding interviews and learning design summaries from self-paced

websites and course materials. While transcribing interviews, I reflected on each conversation. Early in data collection and analysis these reflections were concerned with the interviewing process; later I reflected on possible case-based issues and multicase themes, and recorded these reflections in my research journal. Interview transcripts and institutional artifacts were analyzed through qualitative thematic analysis, which Seale (2004) noted is "based on the identification of themes in qualitative material, often identified by means of a coding scheme" (p. 509). In order to "separate participants' categories (emic analysis) from [the researcher's] categories (etic analysis) and from the views of other authors" (Li & Seale, 2007, p. 1446), transcript data were coded and analyzed separately from internal memos and reflective journal data. This served to distinguish what Priest, Roberts, and Woods (2002) describe as manifest content, in which participants' words form concepts, from what they call latent content, in which "concepts are derived from the interpretation and judgement of participants' responses" (p. 36). Self-paced course materials were analyzed through application of a learning design rubric (Appendix C).

Coding

Li and Seale (2007) defined coding as a process of identifying "a chunk of data which relates to research questions" (p. 1445). In a qualitative thematic analysis approach such as for this study, Tonkiss (2004) suggested that codes often emerge from a combination of two processes. Some codes were pre-set to reflect the aims and theoretical framework of the research, while further categories emerged "from detailed reading and coding" (Tonkiss, 2004, p. 369) of text data. This study began with main coding categories taken from the three research questions and conceptual matrix including (a)

cognitive-behaviourist, constructivist, and connectivist pedagogies; (b) learner-learner interaction; (c) open, networked learning approaches; and (d) self-paced course design and development roles and processes. Coding categories were developed and refined as the research progressed. I used a combination of what Gagnon (2010) calls top-down and bottom-up approaches. In a top-down manner I began with preliminary codes based on key concepts related to my research questions. In a bottom-up manner I added codes and categories that helped describe and explain how and why learning/teaching specialists and academics incorporate learner-learner interaction into self-paced study.

I followed Saldana's (2011) advice and kept an open mind during initial data collection and review before deciding which coding methods would be "most appropriate and most likely to yield a substantive analysis" (p. 47). Saldana also suggested combining a range of first-level coding methods with a second-level method to come up with an overall approach. My first-level coding methods consisted of (a) attribute coding (a grammatical method); (b) descriptive, process, and structural coding (elemental methods); and (c) values coding (an affective method). Saldana recommended attribute coding as a data management technique, particularly for studies with multiple sites and participants. For this study, attribute codes were developed to sort and analyze data related to (a) each participant, (b) each self-paced course, (c) each institutional document, and (d) my reflective journal and memos. My choice of elemental methods combined descriptive, process, and structural coding to capture basic topics (descriptive) and what people are doing (process) in relation to the main concepts of the study (structural). Descriptive coding is useful for summarizing "the basic topic of a passage of qualitative data" (Saldana, 2011, p. 70) for a range of data sources, including interview transcripts,

learning design summaries, and artifacts (as was the case in this study). Process coding was helpful as a way to explore participants' actions in response to situations (Saldana, 2011). Structural coding was used for "all data as a grand tour overview" (Saldana, 2011, p. 48) and was especially useful as this study was "framed and driven by a specific research question and topic" (p. 70). According to Saldana, values coding is useful for "qualitative data that reflect a participant's attitudes, values, and beliefs, representing his or her perspectives" (p. 89). As the final first-cycle method for this study, values coding helped me explore "intrapersonal and interpersonal participant experiences and actions" (Saldana, 2011, p. 90). I used a type of focused coding for the second cycle (Saldana, 2011) in the form of querying my research database and writing. Details on this analysis are provided later in this chapter in the section that deals with my writing process.

To begin my analysis, I used a strategy recommended by Gibbs (2007) for getting closer to the data. I printed out the transcripts and read them, noting attributes and basic topics, and asking questions as I read: who, when, where, what, how, how much, why, and so on. After reading transcripts and making notes in the margins, I coded with Atlas.ti. I named each primary document in order to facilitate sorting by case, participant role, and type of document. Working with one research question at a time, I reviewed the transcript data line-by-line. Segments that related to the research question under consideration were tagged with a code. Through constant comparison, I applied codes to text segments. As the process proceeded, similarly coded text segments were collected together. According to Priest et al. (2002) such analysis "facilitates contextual meaning in text" (p. 36) and develops emergent themes from text data, by way of "repetition of coding [which] produces the significance of particular themes" (p. 36). An overarching

strategy while coding, and one that has served me well in my work as an editor, was to do multiple passes throughout each transcript, looking for specific issues or topics.

I used my research journal to collect thoughts and decisions on how the coding scheme developed. I started categorizing codes and creating sub-codes after the first-cycle coding of seven interviews. This is consistent with the suggestion from Friese (2012) that after coding three to five interviews, one is likely to reach the "first saturation point" (p. 105) with few new codes being added. At this point I began identifying possible categories of codes, creating sub-codes, as well as codes that could be merged. As I coded, I used the Atlas.ti search field to find codes by key words. When I saw codes that looked similar, needed clarification, or seemed to overlap, I made a note of them as codes to check. At the end of a coding session I looked at these (usually pairs) of codes to see where I could merge them or re-assign quotes from a code to other code(s).

Writing as Data Analysis

The concepts in the three research questions for this study served as typologies (Hatch, 2002) within which categories and codes were developed. I followed the general steps of Hatch's (2002) typological model of qualitative analysis. The process began with reading transcripts and coding text segments that related to the typologies from the research questions, namely, (a) pedagogy, (b) learner-learner interaction, (c) open networked approaches, (d) course design and development roles, and (e) course design and development processes. Details about the coding process have already been described, but this early stage of analysis involved what Saldana (2011) called first-cycle methods. As I neared the end of the first cycle of coding, I began working on the stage of typological analysis in which I looked for patterns and themes within the typologies. For

me, this process involved querying the research database for quotes related to specific typologies and sorting quotes according to the patterns that emerged. As I discerned relationships among patterns, I began to write about these patterns in narrative form, progressively developing statements, positions, and arguments as these concurrently emerged from and were supported by the data. This process is similar to Saldana's (2011) focused coding, a second-cycle method in which "data similarly (not necessarily exactly) coded are clustered together and reviewed to create tentative category names" (p. 156).

Second-level coding was essentially a writing process in which I queried the research database for codes related to each research question and created narratives from the quotes associated with particular codes and topics. This analysis involved interpreting, commenting, synthesizing, and sorting, in the process of writing about what people seemed to be saying. Specifically, case-by-case I sorted the codes by research questions, then queried the research database and pulled the codes and quotes for each research question into separate documents. Then, I started working quotes into a narrative by clustering the quotes into groups. I took clusters of quotes and created summaries that captured what that group of quotes was about and what participants were saying, including (a) their views on the topic, (b) the positions they took on issues, and (c) how they described the impact of that topic on their work. In the process, I was interpreting the meaning of each topic and creating summaries. I further worked these summaries into commentaries, which were organized into a sequence that told a story and contributed to the larger narrative of the case. Combined, the narrative commentary on the research questions formed a major part of each single-case report. This commentary provided extensive description to further define the cases and their contexts, and also included

supporting detail from documents, quotes, and triangulation (see Chapters 4 to 6). Finally, I developed key issues for each case to communicate the complexity of the case and describe findings. By summarizing what I understood about the case and how my understanding of the case changed conceptually or in level of confidence, these key case-based findings provided information to allow readers to reconsider their knowledge of the case and similar cases (Stake, 2006).

The process of writing and reporting research was integral to data collection and analysis. Carter and Little (2007) recommended that researchers think of their audience as "active interpreters" (p. 1322). As described by McGuinness (2006), reporting research results from this study involved exploring key themes and using participant quotes as illustrative examples. The single-case reports each contain (a) a description of the case context, (b) results of qualitative thematic analysis of interview transcripts and institutional documents, (c) summaries of the learning design analysis of course websites and resources, and (d) discussion of findings that emerged from transcripts, course websites and resources, and institutional documents.

Cross-Case Analysis

Once the single-case reports were prepared, cross-case analysis was conducted to explore and understand the commonalities and differences of how and why learner-learner interaction is incorporated into self-paced distance courses across the various cases (Stake, 2006). To prepare for cross-case analysis, a summary of each case report was prepared and recorded on Worksheet 3 (Stake, 2006; see Appendix D). Each of these summaries included a brief synopsis, as well as a summary of situational constraints, uniqueness, prominence of each theme associated with the quintain, and the expected

utility of the single case to support the development of particular themes. The expected utility of each case for each theme was then rated (Worksheet 4; see Appendix E). Where the utility of single-case findings clustered around various themes, cross-case assertions began to emerge and were mapped on Worksheet 5 (Appendix F). Assertions and associated sources of evidence were recorded on Worksheet 6 (Appendix G).

According to Stake (2006), cross-case analysis consists of reading the reports of each individual case, then applying findings "from situated experience to the research questions" (p. 47). Stake provided detailed guidance on three alternative tracks by which to conduct cross-case analysis. Just as issues shape the analysis of specific cases, assertions are developed from the cross-case analysis of multicase themes (Stake, 2006). I developed tentative assertions from insights and ideas I recorded in my research journal as I worked with my data, through immersion in and reflection on the data. The choice of which track to follow in cross-case analysis was made after the single-case data had been collected, analyzed, and reported. The choice of track depended on several factors from the single cases, namely, (a) expected utility, (b) ordinariness, and (c) prominence of specific themes. Details on the cross-case analysis process for this study are provided in Chapter 7.

Limitations and Delimitations

Case study research is accompanied by a number of potential limitations (Merriam, 1998). Resources, including the researcher's time and energy, were finite. There was a large volume of material and data to be collected and analyzed. A multiple-case study may be mistaken for presenting the whole picture when in fact it is "but a part—a slice of life" (Guba & Lincoln, 1981, p. 377). While all three cases in this study

are universities, there are distinct differences in how each was established. Cases A and B are North American universities, while Case C is located in Europe. The three cases were chosen deliberately to represent a range of contexts, but this may have influenced the degree to which results from this study can be interpreted for other self-paced university study at a distance. Even so, this study did not seek to be generalizable as much as transferrable, in that readers may make use of findings in their own settings, and illustrative, thereby contributing to the development of professional practice (Stake, 2006). Since the three cases are distributed across two continents, there were limited face-to-face opportunities to member check and re-visit participants after the scheduled round of face-to-face meetings, particularly with the participants in Europe. It was important to maintain contacts and relationships with participants in order to continue to correspond after data collection was complete. In addition, not all institutional documents from Case C were available in English; I used Google Translate to provide rough translations. Finally, the feasibility of a study is determined by the degree to which the researcher has the resources and skills necessary to complete the proposed research. My learning design skills and expertise include the ability to analyze course materials and interview people about course design, development, and pedagogy; extensive experience in self-paced learning course design and development was both an asset and a bias.

Chapter Three Summary

The research design for this study was comprehensive and addressed the key components of research questions, case boundaries, sampling, participants, and methods. There was a consistent thread from the interpretivist/constructivist paradigm, to the research design, and through to the specific methods and procedures. Appendix H

summarizes the research design, and provides an overview of the activities involved in the study.

Chapter IV: CASE A

There are three sections in this chapter, which reports on the first of the three cases in this study. This first section presents a brief overview of the Case A context as well as the method in this particular case. Then, the Case A findings are described, with observations and issues supported with detail from the data associated with the case. The final section develops key case-based issues to convey the complexity of the case, and summarizes my interpretation and understanding of Case A. This final section is also intended to give readers an opportunity to consider their knowledge of similar cases (Stake, 1995).

Overview and Context of Case A

Case A, a single-mode distance university in North America, was established in 1970. According to its public website, as of 2013 Case A had 1,350 faculty and staff, and over 40,000 course registrations among students from 87 countries enrolled in over 850 courses. Case A accepts registrations for undergraduate courses from anyone over the age of 16. There are no other entry requirements for learners, though some upper-level and graduate courses have course prerequisites. Case A offers a form of continuous enrolment in which students may start an undergraduate course on the first day of any month. Undergraduate courses at Case A are self-paced; students work through courses at their own rate within a six-month contract. Case A strives to offer university education to adults regardless of age, gender, culture, income, disability, career and family obligations, geographic location, or educational background. The pilot phase of this study, intended to refine data collection tools and processes, took place at Case A, a location that was easily accessed. Once the pilot phase was complete, data were collected

from three sources: (a) in-depth interviews with learning/teaching specialists and academics who design and develop self-paced undergraduate courses, (b) course websites and materials for four self-paced courses, and (c) artifacts and institutional documents. Table 7 summarizes these data sources as they relate to the three research questions for this study.

Table 7

Data Sources (Case A)

Data Source	Details	Research Questions
In-depth interviews [a]	- 5 learning/teaching specialists - 4 academics	1 to 3
Self-paced courses	- pure science - computer science - psychology - English	1 and 2
Institutional artifacts [b]	- course development policy and procedures - learning design models - course design templates and course maps - a learning/teaching specialist's advice to an academic about learning design - a conference presentation - a discussion paper proposing a new model for online undergraduate courses	1 to 3

[a] In-depth interviews totalled 12.3 hours
[b] Documents were developed in the five years prior to this study, during the period when self-paced courses at Case A were going through a major transition from print to online media

One of the limitations of this study in terms of Case A is that it only included learning/teaching specialist participants from the central department responsible for most undergraduate course design and development activity. At Case A, some learning/teaching specialists are not part of this main department and make use of slightly different models. As well, some academics do not work with learning/teaching specialists

from the main department. Had this been a single-case study of various processes among different departments, it would have been important to include representation from all areas. However, this study focused on course design and development as it takes place in most areas at Case A; there was no intent to generalize across all of Case A.

This concludes the overview of the general data collection strategies for this study. The next section describes the findings from Case A as they relate to answering the three research questions for this study.

Case A Findings

Pedagogy and Learner-Learner Interaction.

From participants' descriptions of the courses they design and develop, it is evident that cognitive-behaviourist pedagogy is prevalent. For example, one participant suggested that courses focus on "not as much collaboration and knowledge building but more delivering information to students" (FAC-1). For another participant, course design choices are "dictated by the kind of information that has to be transmitted" (FAC-4). Introductory courses in particular reflect cognitive-behaviourist pedagogy, as they cover a "broad spectrum of information" (FAC-4). In addition, "some professors think their courses don't need any interactivity; if students get knowledge that's good enough" (LTS-4). Another participant described Case A courses as transmitting content; learners "are like a repository and prove that they know this or that" (LTS-7). Learning is designed according to "very much the transmission model [and] interaction with content" (LTS-5). However, some participants suggested that skill development or knowledge construction is also present. In some courses students are "getting some skills, not just static knowledge" (LTS-4). An academic participant reported developing courses with a

mixture of the principles of "transmitting and constructing knowledge" (FAC-2). It appears that introductory courses focus on "knowledge transmission and acquisition" (LTS-3), while advanced courses that focus on research and writing may be described as "knowledge constructivist-type" (LTS-3).

Factors and influences.

Various issues shape participant's efforts to design and develop courses with different pedagogies and to incorporate learner-learner interaction. In some cases courses are "prescriptive and inherited; you're dealing with stuff that's already there" (FAC-4). Inheriting courses created by others may explain the perception that some academics do "not have a very solid sense of their course objectives" (LTS-2). It appears that some academics are willing to innovate as they design courses, others "want traditional course design [similar] to textbooks; they are not interested in interactivity" (LTS-4). According to one participant, some course developers see constructivist pedagogy as the future of education, while for others "the core of educational practice is knowledge transmission" (LTS-5). It is a challenge to "capture the learning that we do by interacting with each other in the structured situation we have to work with" (LTS-5).

Some participants reported that logistical factors influence their efforts to incorporate learner-learner interaction. Such factors include their own workload, learners' workload, and issues related to enrolment numbers that may affect students' availability for learner-learner interaction. One learning/teaching specialist suggested that some academics are reluctant to put learner-learner interaction into a course because tutoring time will be taken up "to see what students are doing" (LTS-5). Participants are aware that learner workload is also an issue when designing for learner-learner interaction.

LTS-3 said, “I can imagine students not wanting to go through the hassle and preferring to learn on their own.” According to LTS-5, “there are quite a few stressed out adults who don’t really want to do anything extra.” Several participants noted that enrolment numbers and learner availability in a self-paced course may mean learner-learner interaction is best incorporated as an optional activity. With few students in a course, there may not be the “minimum threshold of enrolment that would allow peer-to-peer design” (LTS-3). Even so, a large number of students in a course also presents logistical problems for course developers, who must then create and organize discussions for multiple sub-groups (LTS-4).

Despite the constraints and limitations, participants reported several strategies they use to incorporate learner-learner interaction. Discussion forums are common, though e-mail is also a way for learners to interact with each other. To overcome logistical constraints related to student availability “we set up a study buddy program in [Case A’s social network] so students with similar study schedules or who hope to finish at a similar time can work together” (FAC-1). In courses with a writing component, students post their writing and classmates “peer review those texts and edit them” (LTS-2).

Several participants raised the issue of potential student misconduct in learner-learner interaction activities. In some faculties, academics worry that “if you give these undergraduates the ability to communicate with each other they will be cheating” (LTS-5). Likewise, “it is difficult to make sure they engage with other students without cheating” (FAC-4). Course developers, particularly academics, are “afraid of cheating; that’s a big concern” (LTS-7). As a result, “I don’t see encouraging or increasing learner-

learner interaction happening without corresponding control or at least monitoring over the whole situation by the instructor" (FAC-2). On the other hand, an academic participant who has successfully incorporated learner-learner interaction in courses reports "they're not cheating; we haven't seen any difference over the three years we've run it [despite initial pressure from tutors who] fought me saying 'oh well they're going to be cheating on that'" (FAC-1).

Perceived value of learner-learner interaction.

Participants in this study perceive the value of learner-learner interaction in various ways. Such interaction may only be appropriate in courses "at the upper level of Bloom's Taxonomy" (LTS-3). Third- and fourth-year courses "should have more peer-to-peer" (LTS-3). At all levels, however, it appears that learner-learner interaction is less important at Case A than is learner-content interaction, as suggested by LTS-5, who asserted that "our sort of official position is that we focus on learner-content interaction." One participant was skeptical about the value of learner-learner interaction, suggesting that if it is necessary, it should focus on discussion "that's important in terms of understanding the course material" (FAC-4). Several learning/teaching specialists reported frustration working with academics whose main interest is learner-content interaction. In order to shift focus from learner-content to learner-learner interaction, learning/teaching specialists "spend a lot of energy educating, informing, cajoling, [and] convincing" (LTS-3). These efforts are necessary because there is a "gap between what you're trying to design in a course and the real *Zeitgeist* out there" (LTS-3).

Many participants perceive the major benefit of learner-learner interaction is that it offers students chances to support each other. Students may have practical concerns

such as, “Am I clear about the assignments?” (LTS-4). They may also want to connect with others because they feel isolated or alone (FAC-3; LTS-4). Even so, participants wondered how much learners truly value this interaction, noting that some students “will respond to each other but it is very occasional” (FAC-3). Perceptions about students’ readiness or desire for learner-learner interaction range widely. While there may be a “spectrum of interest among students in that kind of interaction” (FAC-2), a “significant percentage of our students don’t want to interact” (LTS-2). Similarly, “I don’t know if they were provided more opportunity for interaction if they would appreciate it” (FAC-1). On the other hand, while flexibility and freedom of self-paced study “is important to all the students, some of them really do want to interact” (LTS-2). Course developers struggle to devise strategies to “really bind those students together in some way” (FAC-3).

Analyzing self-paced courses.

Based on the examination of four courses recommended by participants as examples of self-paced courses that include learner-learner interaction, the primary pedagogy is cognitive-behaviourist (Anderson & Dron, 2011). Learning is generally an individual process of mastering pre-specified facts and concepts that takes place through reading print and watching online media. Most of the learning objectives in these courses are at the knowledge and comprehension levels. There appear to be no aspects of constructivist pedagogy present, as might be evident with negotiated rather than imposed learning goals and objectives, or evaluation processes that are less “a reinforcement or control tool and more of a self-analysis tool” (Jonassen, 1991, p. 12). All four courses contain some elements of connectivist pedagogy, such as networked processes of

building information, contacts, and resources. While the connectivist features in these courses are often represented by activities that contribute to students' final grades, the contribution is small (less than 10% of the course grade) and the activities are peripheral to the main learning design. In all four courses, the connectivist activities take place on Case A's in-house social network.

Learner-learner interaction is present in all four courses in the form of discussion forums in the learning management system (LMS) as well as bookmarking, blogging, and resource sharing in Case A's social network. Two of the four courses require learner-learner interaction and award participation marks for commenting on fellow students' social networking activities. The third course awards a bonus mark for a social networking activity. In the last course, commenting functionality is available, but students are not required to comment on fellow students' blogs. In these self-paced courses, social networking activities are often one-way contributions. There are few comments by fellow students on blogs or bookmarks. In each course, students are assessed through various types of assignments and exams. Most of the assignments require students to respond to short-answer, matching, and multiple-choice questions. Some assignments also call for analysis, synthesis, and evaluation. For example, in the English course, students are assessed through a series of writing assignments. In these four courses, most exams, proctored at testing centres, consist of short-answer and short essay questions.

Analysis of Case A artifacts.

Several artifacts and institutional documents offer insight to this investigation of pedagogy and learner-learner interaction in self-paced courses at Case A. Learning design

maps for two introductory-level humanities courses indicate that, consistent with the analysis of the four Case A course websites and resources, learning activities involve reading print and viewing online media, as well as responding to self-study and quiz questions related to that material. There is no evidence of learner-learner interaction or network-based activities in these learning design maps. In one instance, however, a learning/teaching specialist participant's e-mail to an academic who was developing a cultural studies course suggested use of an annotation tool in discussion forums as a way to encourage learner-learner interaction. This appears to have been a general suggestion, and was not linked to a particular pedagogical or learning purpose in the course.

The website for the central Case A department responsible for course design and development (and for which the learning/teaching specialists participating in this study work) includes a model of a course design and teaching process. This map depicts learning at the centre of a circular process with four components, namely, (a) define the content of the course, (b) determine learning outcomes, (c) develop learning activities, and (d) determine assessment strategies. This concept map does not define or endorse a particular pedagogy. However, course content as the starting point for course design reinforces the predominance of learner-content interaction at Case A. While it is a circular model, influences of traditional instructional systems design are evident. This model may serve to support the status quo of cognitive-behaviourist pedagogy at Case A. There is no evidence of designing for the extensive network-based learning we would expect to see with connectivist pedagogy.

A learning/teaching specialist participating in this study supplied samples of resources used in course development work; two of these items relate to this research

question. The first item is a list of suggested resources to be included in online courses, organized by three headings—multimedia, learning activities, and assessment activities. Most of the resources on this list involve individual activity or address ways to present content, so they align with the predominant cognitive-behaviourist pedagogy at Case A. There are a few suggestions for learner-learner interaction, including discussion boards, as well as peer review and interview as assessment activities. The second item provided by this participant is a checklist for an initial course design meeting between the learning/teaching specialist and academic author. One item on the list recommends learning/teaching specialists demonstrate and discuss the pedagogical approaches possible in various course designs.

A discussion paper prepared in 2009 describes the rationale, principles, and theoretical grounding for a proposed new model of online undergraduate courses at Case A. This document suggests that in the future, Case A needs a flexible learning model that will allow for a variety of pedagogies for, as appropriate, knowledge transmission, independent knowledge creation, and social construction of knowledge. The future envisioned by this discussion paper incorporates learner choice, interaction, and networking opportunities, in a context where knowledge is not simply acquired but is also participatory. Of interest to the question of distance education pedagogy and learner-learner interaction, this paper defined quality self-paced courses as (a) encouraging collaboration; (b) providing student choice of learning activities, subject matter, and interaction with other students; and (c) including individual and/or cooperative assignments. According to this discussion paper, it is important to provide ways for students to connect with other learners, online as well as face-to-face, as study buddies

and study teams. It is unclear if this discussion paper has had any influence on design and development processes or policy at Case A, and participants did not indicate ongoing conversations or commitment to change the current model.

To conclude this discussion of my first research question, it appears from the evidence that cognitive-behaviourist pedagogy and learner-content interaction predominate in Case A's self-paced courses. In that regard, choice of pedagogy does affect the incorporation of learner-learner interaction opportunities in self-paced distance courses. Some academics are intrigued by learner-learner interaction, but most feel a need to learn more about pedagogies and learning designs that incorporate it. There seems to be a gap between what learning/teaching specialists and academics see as important regarding pedagogy and learner-learner interaction. For example, some academics do not provide a clear rationale for why they are using particular course components and resources; it seems these aspects of course development are "only of interest to designers" (LTS-2). Participants report their concern with, as well as their efforts to incorporate, learner-learner interaction; artifacts and Case A course websites reflect these desires. However, it appears that moving beyond cognitive-behaviourist pedagogy and limited learner-learner interaction is more a desired future than a current reality.

Connectivist Pedagogy.

My second research question investigated the ways in which connectivist pedagogy is enabling learner-learner interaction in self-paced course designs. Analysis of interviews, self-paced course sites and materials, and several institutional artifacts contributed to the following description of connectivist pedagogy at Case A.

Readiness for connectivist pedagogy.

Participants use a range of social media for learner-learner interaction in their self-paced courses. Blogging, both by students and teachers, is a common approach. One participant's blog provides regularly refreshed content and activities, combining "several courses in one blog" (FAC-3). Another reports using "blogs not for forced peer-to-peer interaction but [for students] to meet each other" (LTS-3). Blogging can be a way of "teaching and modelling for students to think of writing as audience-oriented and process-oriented" (FAC-2). This participant likes "the rough draft quality of blogging; creating a structurally interactive piece whether or not it solicits concrete interaction" (FAC-2). Wikis are also common (LTS-4; FAC-2). One participant found wikis useful for note-taking "right in the course site" (LTS-5). Most participants reported that they combine social media in courses they develop, including the use of wikis, blogs, and bookmarking.

Case A uses a learning management system (LMS) to provide course materials and learning activities. Blogs in the LMS may be attached to individual students, or to a particular course. However, in the absence of easy ways to find and connect to individuals, LMS blogs are not likely to be accessed by others. As well, blogs attached to courses in the LMS do not have longevity beyond a particular course instance. When participants talked about key characteristics of the LMS, one noted that "the LMS blogs were just horrible" (LTS-3). Another participant reported that "I'm not allowed to do things in the LMS" (FAC-3), since academics' ability to make changes to courses in the LMS is limited during course development and non-existent once courses are signed off and locked down. Case A also has an in-house social network, open to students, staff,

alumni, and invited guests, so course developers have the potential to use this as a platform for learner-learner interaction in their courses.

The Case A social network offers functionality for bookmarking, tagging, uploading files, and blogging, as well as a setting in which learners can find and follow people. According to one participant, courses that include activity in the Case A social network are “the strongest of all my courses in terms of learner-learner interaction” (FAC-1). The openness of Case A’s social network enables learners to “encounter staff and faculty [or] students in different courses” (FAC-2), connecting learners through their use of tags “to identify students who may be in similar programs or with similar interests” (FAC-3). Participants in this study suggest that the social network provides course developers “far more control” (FAC-3) because “you don't have to go through another university department to use it; you can just do whatever you want in there” (LTS-2). Furthermore, Case A’s social network is “a much more creative sort of space than the LMS” (LTS-2) with the benefit of being “easy to navigate and [not] a strain on my time” (FAC-1). According to one participant, “interaction on the [Case A social network] is absolutely essential to the course, but in most courses interaction in the [LMS] discussion forums is supplementary” (LTS-5). Participants also suggested that the Case A social network is a place for people to work together on course design (FAC-2) or for students to “meet the academic or ask questions about their program” (LTS-2). However, there is some concern that “typical of big institutions, [they do] not even recognize the best stuff; there seems to be a very weak commitment to the [Case A social network], even though it is one of the best things we’re doing” (LTS-5).

Social media and self-paced learning.

When designing courses to include social media, one participant is concerned about "which social software platform [to use]" (LTS-3). Regarding the relative merits of the LMS and Case A's social network, "I'm probably more comfortable with the LMS but I find them equally accessible" (FAC-1). One participant appreciates that the Case A social network is "outside of the LMS environment" (LTS-2), though another sees the two spaces as complementary, in which "the LMS is like the virtual classroom and the [Case A social network] is like the virtual campus" (FAC-2). Others regard the LMS environment as "too structured, too closed, and too much like a classroom" (LTS-5). And yet there is also the perception that social networks are not structurally different from a single LMS course instance "in which successive asynchronously paced students come in and leave" (FAC-2). It may be that "inside the LMS there seems to be the illusion of oversight" (LTS-5). The notion of courses as classrooms is reflected in the perception that one drawback of Case A's social network is that it "doesn't have a way to populate groups according to LMS class lists" (LTS-2). It appears that designing for activity outside the LMS means leaving behind some structures or safety nets in order to venture into more open spaces.

Participants use the concepts of inside and outside as they talk about designing and developing courses. For one participant, course activity "primarily stays within the students in the course, the tutors, and the faculty" (FAC-1) and "we don't really encourage them to connect with people outside the course" (LTS-5). One reason may be technical, related to uncertainty about "how to bring learners from outside the course into this learning system" (LTS-4). Pedagogical or philosophical reasons are also apparent

because “if we want students to benefit then we’re gonna have to keep it a closed shop” (FAC-4). Another participant imagines “involving students and others with similar interests might have to be peripheral to course activity itself” (FAC-2). Even so, the public nature of social media is an opportunity for learners “to get out there in the world [and] to communicate their ideas effectively and to a non-expert audience” (LTS-7). Social media is also an opportunity for “students to be co-creators of knowledge” (LTS-3) with potential for “students to be teachers” (LTS-5). Some participants also see the public nature of social media as way to “help people sort of self-monitor their behaviour” (LTS-5). Use of social media “makes learning shared and more public [and may be] one of the only ways to get around that cheating and plagiarism problem” (LTS-5). However, “protection for the student in terms of exposing too much of their personal information” (LTS-7) is one reason why some “professors don’t even introduce social media” (LTS-4). Since there are “concerns that students’ data may be exposed” (LTS-4) it is necessary to “tell students [to] be very careful” about posting personal information (FAC-3). Furthermore, “we cannot have our content hosted on a server in another country” (LTS-4).

The use of social media is particularly “important in self-paced study because you don’t have a community of learners” (LTS-7). In Case A’s social network, students “can see each other’s work and that they’re part of a community; they can click someone's journal to read about what they’re going through” (LTS-3). Sharing is related to forming connections and being open, since when “you write a blog, you give your words, and maybe some others are thinking in this way” (LTS-4). Sharing is also an academic activity, as when students reflect on communicating “information with communities in

my field" (LTS-7). In the networked community of learners "you have this huge group of people you can draw from" (LTS-7). The larger, more open world of social media exposes learners to new ideas, so "having access to that broader community is essential" (LTS-7). A pragmatic purpose for sharing, and one that is facilitated in the larger venue of the Case A social network, is to connect "students with similar study schedules [so they] can work together" (FAC-1).

According to one participant, "there's been a lot of resistance to social media use because academics don't see the purpose of it" (LTS-7). On the other hand, "I was really excited when I got that [blogging] concept" (FAC-3). Social media can also help facilitate changes in teaching and learning as "when academics see their colleagues doing things that can entice them to try new things" (LTS-7). Some participants feel they need more opportunities to share with others and learn about new ideas, since "within my own faculty I don't necessarily know what other people are doing" (FAC-4). Course developers could benefit from "promoting some of this stuff and giving folks access to whatever everyone else is doing" (FAC-4). The idea that increased sharing would be beneficial is echoed in the statement that "the whole silo thing is really a difficulty here" (LTS-2).

Workload, both for students and teachers, is also an issue. In order to make using social media "as seamless and as pain-free as possible, that takes actually a lot of work" (LTS-3). Part of the workload is related to administrative and logistical tasks, such as creating course-based groups for students in the Case A social network, which means "the academic has to manage all that, which is a big headache" (LTS-3). Furthermore,

when designing activities with a networked learning component, “you have to always weigh just how much you’re going to demand of students” (LTS-3).

Analysis of self-paced courses and artifacts.

An examination of four self-paced courses that incorporate learner-learner interaction indicates that aspects of pedagogy 2.0 (McLoughlin & Lee, 2008) and network-based learning associated with connectivist pedagogy are evident. In all four courses, self-pacing provides students with opportunities for personalization as they manage their own learning paths and schedules. All four courses foster participation through learners creating connections in Case A’s social network. In one course, students form small study groups and post their proposed study plan for others to comment on. In another course, individual blogs are used as reflective journals. While most comments on these blogs are posted by the course tutor, student comments provide support about shared challenges. In the last two courses, students participate in group discussions and blogs; they also bookmark resources and make recommendations. To the degree that students’ blogging and commenting activities on Case A’s social network remain available to future students even when a new version of the course is created, there are aspects of productivity associated with pedagogy 2.0. For example, in one course description, a social networking activity is described as making a meaningful contribution through current and previous students adding material to the course site.

When a Case A course is revised, a new course instance is created in the LMS. Newly enrolled students are registered in the new version and do not encounter students from previous versions. One exception to this is when course activities take place in Case A’s social network. This network is open to staff, students, alumni, and invited guests but

generally closed to new contributions from those on the open Internet; students can allow their work to be seen and even commented on by anyone. Groups organized on the social network for course activity remain in place even when LMS versions of courses are revised. As a result, use of this social network is an opportunity for learners to interact with others who are also interested in the subject of their studies, but who come from a larger group, including learners from past and future versions of the course, as well as learners in other, related courses. In this way, the Case A social network is an opportunity to extend learner-learner interaction beyond the confines of a single course and a single-course version. These features of Case A's social network help address one of the issues that all participants in this study raised, that of the logistical challenge of predicting where students will be in a self-paced course at any given point. The use of a social network in which groups are open to past, present, and future students increases the likelihood of finding someone to interact with.

The artifacts relevant to this research question include an institutional discussion paper that outlines a desired future vision for self-paced courses at Case A, a conference presentation by a learning/teaching specialist, as well as checklists and correspondence related to course design and development. As with the first research question, the discussion paper that outlines a desired future vision for self-paced courses at Case A offers a glimpse at the promise of connectivist pedagogy and network-based learning. Case A's desired future calls for a flexible learning model to allow for multiple pedagogies, including connectivist, as well as to incorporate interaction and networking opportunities for learners. Connectivism is specifically cited as a learning process of creating and expanding connections with others, with content, and with social media.

This document suggests that Case A courses be designed for the open and participatory features of the Web, and to consider knowledge in terms of participation, not just acquisition. This resonates with the networked learning aspects of pedagogy 2.0 (McLoughlin & Lee, 2008). In this particular document, quality self-paced courses are defined as including optional networking activities such as student blogs, shared bookmarks and media, personal profiles, and access to interaction beyond the course. The latter is emphasized with direct reference to encouraging connections to broader communities. Fostering student choice includes opportunities for learners to distribute the artifacts they produce through learning, and participate in individual as well as cooperative assignments. Social networking systems are specifically cited as a venue for student feedback and a way to set up alerts when deadlines are approaching. Learning through connections is clearly valued in the suggestion that Case A provide ways for learners to connect with others, online and face-to-face, for study and support purposes. Finally, this discussion paper suggests Case A make it possible for students to control access to their content (e.g., course artifacts, blogs) and make it available for use by others as they, and not the institution, wish.

One learning/teaching specialist participant provided a copy of a conference presentation from 2011 that explored the question of whether increasing learner-learner interaction can result in a more satisfying educational experience. The design intervention reported in this presentation included blogging assignments on various platforms, and explored the issues course developers addressed as a result. A key result is the insight that new approaches to interaction require considerable up-front work to inform and guide students as well as tutors. Several future research questions were raised, including the

need to investigate learner and tutor preferences for various blogging platforms, and the issue of whether it is necessary to provide incentives to learners to participate. This document suggests that there is some interest at Case A in researching ways to use social media to address the challenge of incorporating learner-learner interaction into self-paced study. Another learning/teaching specialist participant supplied samples of resources used in course development work, including suggestions for learning activities using social media, such as blogs, wikis, and collaborative databases.

To conclude this discussion of my second research question, it appears that while course developers are experimenting with network-based and Web 2.0 technologies, connectivist pedagogy is not clearly evident in Case A's self-paced courses. The 2009 discussion paper is evidence of some interest in aspects of connectivist pedagogy at managerial levels, and as a desired institutional direction. However, in practical terms, this ideal future is yet to be realized. Network-based technologies are being used for learner-learner interaction, but within the context of courses that are predominantly cognitive-behaviourist. For now, the potential for connectivist pedagogy at Case A is strongest in its in-house social network, which participants describe as important but not fully committed to by the institution. This message of lack of institutional commitment may have an effect on how course developers design courses.

Self-Paced Course Design and Development.

My third research question investigated the processes involved in designing and developing for learner-learner interaction in self-paced courses. This question was designed to investigate what characteristics of the industrial model of distance education might still be present and to explore emerging models of course design and development

for self-paced courses in general, and for learner-learner interaction in particular. Unlike the first two research questions, self-paced course websites and materials did not relate to the third research question. However, several artifacts and institutional documents were relevant data sources. In-depth interviews produced a great deal of data related to this research question. Conversations ranged beyond the original scope of design and development for learner-learner interaction into the broader territory of general design and development processes. As a result, there is considerable data on the process itself—how and why it should be changed, as well as participants' roles and responsibilities.

Course development processes.

The origins of course design and development at Case A are "embedded in a print model" (LTS-5) with "processes still reflective of that" (LTS-3). Compared to graduate-level courses, the design and development process for undergraduate courses has "formalized protocols; more checks and balances" (FAC-2). Initially set up for printed course content, which stays fixed for long periods, Case A's current linear process does not support creativity (LTS-3), particularly "if ideas occur to you down the line rather than earlier" (LTS-7). It is a challenge to "balance between streamlining and allowing people to grow" (LTS-3). In some cases "it's important to be more iterative; if you have the time, use it constructively and give people an opportunity to explore, [while] the linear approach is good if you need a quick turnover" (LTS-7). One participant suggested that Case A's management is "working hard to really change the process" (LTS-5). Course development "is something that you need to be continuously reviewing and improving" (LTS-2) and one participant believes there are ways to improve course development through "significant efficiencies and not threaten anybody's job" (FAC-2).

Course revisions are typically initiated because “the publisher has pulled the textbook” (FAC-3), though another academic notes that “I keep [my courses] current on probably a three-year cycle” (FAC-1). Other than these comments, academic participants had little to say about how course design and development take place. Learning/teaching specialists talked about the process as a series of steps, typically associated with two key meetings. The first meeting, with just the learning/teaching specialist and the academic, consists of “brainstorming [to create] the course map or design document” (LTS-7). Course maps, something every learning/teaching specialist is expected to create (LTS-2, LTS-5), are a matrix that depicts “the learning outcomes, the activities, the assessment” (LTS-5), as well as “a schedule and resources” (LTS-7). The second meeting includes the full team: “editor, visual designer, learning designer, the professor, copyright, and the library” (LTS-4). After that the course is written, edited, reviewed by the course team, and then published to the LMS (LTS-4). These steps outline an ideal form of the process that generally applies to “major revisions and new courses” (LTS-4). In many cases the learning/teaching specialist and academic author work together as needed. For example, when there is a “draft of assignments, the really good work can be done” (LTS-3). In other cases, there are no partial drafts to review and by the second meeting, the course team has already “received the whole package” (LTS-7).

For most academic participants, the process does not “move as quickly as people would like” (FAC-1) and “the only change I’d want is to speed it all up” (FAC-3). In one case, development of a particular course was “put on hold for two years” (FAC-3), and even once a course is developed “you might get it online six months later” (FAC-4). Delays in opening a course may necessitate making changes very early on (FAC-4).

Learning/teaching specialist participants take a different view. Investigating different course designs can be hampered by time pressures (LTS-7), and "the people who are creative, including faculty, need a chance to implement slowly" (LTS-3). Learning/teaching specialists' main concern is to have input to course design projects in the early stages (LTS-7) because "we cannot do much when the course is written" (LTS-4).Working with academics early in the process enables learning/teaching specialists to provide consultation on key elements, including learning outcomes (LTS-3) as well anything of interest—"not just content" (LTS-4). By getting "in there early you can have more influence on the process; no new course should be developed without interaction between the designer and the professor" (LTS-7). Apparently, Case A has engaged in efforts to clarify the "types of collaboration we need, exploring which way is the best" (LTS-4). For now, it seems, "some detailed steps may need to be changed, but we need some stages" for course design and development (LTS-4) even though currently the process "seems to be very lockstep" (LTS-7).

Course development roles.

In the past, when courses were in print, "editors were in charge" (LTS-2). Now "there's this constant tension between what faculty want to do, what designers want to do, what editors want to do; we're adjusting to make it work for everybody" (LTS-5). Whether it is linear or iterative, course design and development at Case A is not usually an individual activity. To some extent, this work is done by teams, even if only a single learning/teaching specialist and an academic. While one academic tries "to involve the course team [and] work back and forth" (FAC-1), another doesn't "get involved with the team other than the editor mostly" (FAC-4). Despite "frequent pronouncements about

how we should be working together, usually some kind of problem arises" (LTS-5). In some cases there has been "lack of consistency of applying the roles" (LTS-2) or tension as a result of unclear or overlapping roles (LTS-3). To address the challenge and "keep people's roles separate so they didn't step on each other's toes" (LTS-5), a systematic workflow was developed. It appears that these efforts to define roles and workflow were a temporary measure, and having "served a specific purpose at the time" (LTS-5) now "we only roughly follow them" (LTS-3). Working with colleagues calls for knowing "enough about their roles to be able to function well in the team" (LTS-3) as well as "soft and hard skills, smoothing out interpersonal relationships" (LTS-3). Course development involves a number of participants, so issues of roles and relationships are inevitable. The roles of academics and learning/teaching specialists are examined next.

Most academic participants in this study describe their role in design and development as central to the process. According to one participant "my responsibility for course development is pretty much the full meal deal" (FAC-2). The academic plays "the major role, organizing the materials, writing all the information for the study guide; it is mediated through me" (FAC-3). In another case "I take all the stuff that I want, I create the LMS pages, and I submit it to the editor to look at it" (FAC-4). While some "professors are insightful about what's possible online and willing to try things, [others] are neither insightful nor open" (LTS-2). As well, while some "professors are as aware of the pedagogy as anybody, they're not interested or don't have the inclination" (FAC-4). Despite this, a third participant sees "a general trend; most people are willing to adopt new ideas" (FAC-1) and some professors "think it's their job to think about new ideas" (LTS-3).

While the academic's role may emphasize their content expertise "they also have their own understanding of instruction" (LTS-7). As well, academics offer insight on, for example, "what it is to be an anthropologist [and] how anthropologists approach a problem" (LTS-5). Some academics "tend to rely on us pretty heavily; maybe it's more that they are trained not to interfere" (LTS-5). In cases where academics have little involvement with course development there can be "a huge impact if they choose not to engage" (LTS-2). An academic participant suggests that "faculty need to get involved; I think too many are still sitting back" (FAC-4).

When Case A began putting courses online, several learning/teaching specialists were hired to deal with "technology and also the pedagogy" (LTS-2). They focus on new courses and major revisions (LTS-4), working "with the professor, testing technology, and analyzing course evaluation data" (LTS-7). The work is varied, and includes anticipating copyright issues and "reminding course professors of the barriers students face and the need for learning supports" (LTS-7). The learning/teaching specialist helps determine "activities and assignments, the logic and pedagogic appropriateness, making sure that's all aligned" (LTS-2) and anticipates "issues with technology and the LMS" (LTS-7). One participant summarizes the learning/teaching specialists' job as "designing learning experiences" (LTS-5), which calls for people who "don't think A to B; they look at the whole thing, not necessarily sequentially in the conventional sense" (LTS-3). The role has changed from that of the "instructional designer, working in a very linear prescriptive process [to a role with] a lot of facilitation, communication, and diplomacy" (LTS-3). The learning/teaching specialist participants in this study described their role in

course design and development as (a) facilitation, (b) faculty development, and (c) change agent.

Learning/teaching specialists are “an in-house consultant; advising, not prescribing” (LTS-3). They are often proactive, and “as soon as they know I’m doing or planning something they start to send me information on possible resources” (FAC-1). By bringing pedagogical expertise to the process, they help academics design for online learning “because some faculty are not that familiar with the LMS and online learning” (LTS-4). The learning/teaching specialists are practitioners, but they keep current with research and embed learning theories into their recommendations (LTS-3), looking “for peer-reviewed articles on [learning and teaching] approaches” (LTS-7). As a facilitator, “when you’re doing your work well nobody should notice you” (LTS-3). The job includes “facilitating to ensure it’s a smooth process” (LTS-7) in which “you have to see all the variables and determine what is possible” (LTS-3). The learning/teaching specialist “asks questions and influences decisions” (LTS-2) as they “recommend, suggest” (LTS-4) and “add value” (LTS-3). Over time, facilitating course design and development “has become much more complex” (LTS-3). Most learning/teaching specialists at Case A work with a team, but one participant has “ended up being the whole team” (LTS-5). Working alone “doesn’t necessarily produce the best final product” and this individual misses “having feedback from other team members” (LTS-5).

According to one participant, faculty development involves presenting choices so academics can “learn by making the choice, by thinking through the process” (LTS-3). Making course design suggestions involves “packaging my recommendations in a way

that educates but also empowers; if I communicate it properly they might consider it next time" (LTS-3). Reflecting on their place in the process, this participant observed that sometimes it is necessary to "recognize when to get out of the way [and] not be the star" (LTS-3). As change agents, learning/teaching specialists "propose interesting new ideas" (LTS-4) and "try to create some sense of innovation, change, and new processes" (LTS-3). They are not just "a technology evangelist but also an interaction evangelist" (LTS-5). Sometimes the role is "painful because you're aware of the gap between what could be done for interactivity and peer-to-peer and what we actually do" (LTS-3). The learning/teaching specialist can relate to "the student's perspective; always struggling to understand the materials" (LTS-5).

At Case A, tutors are available to provide learning support to students and also have a role in the design and development process. In some cases, tutors are "always consulted before any revisions to see what they would like to see improved" (FAC-1) and they "all have input" (FAC-4), while another academic participant reports that "sometimes I have discussions with the tutors" (FAC-3). Tutors are a valuable resource for course design because many "tutors are working in more than one course" (LTS-7). However, there are concerns that tutors are not compensated for contributing to design and development projects (LTS-4; LTS-5).

Design and development models.

While one participant believes "you're not going to get a model that fits all" (FAC-4), another believes "we need a clear model, a kind of 'how-to' effectively collaborate [with] faculty on course development" (LTS-4). For one participant, "the big question mark [is] wanting to fix processes rigidly in order to manage" them (LTS-3).

The official “ways of doing course development are industrial” (LTS-2), a “football model that we’re trying to overcome” (LTS-5). Design “as an iterative process is just completely at odds with the football model [in which] I have the course for a while then I pass it to the editor who passes it to production” (LTS-5). The football model implies that each step is complete before the course moves on, and consequently, “people get very upset because somebody wants to change something” later (LTS-5). Even though processes “change and evolve, everyone in [our department] is very siloed and I think they try to enforce the pass-along-the-football approach” (LTS-7). Not everyone sees course design and development operating as an assembly line; one participant describes a process in which the course is an “object around which a bunch of different people [gather] in a circle” (FAC-2).

Academics generally do not have direct access to course websites for live courses, and some have reported “that it’s very disheartening” (LTS-2). One academic acknowledges that “with our self-paced courses you can’t just go in and make changes on the fly” (FAC-3). Reservations about opening course sites up to academics are “not about ownership, it’s more about security” (LTS-4) and stem partly from concerns that changing content may create “copyright conflicts” (LTS-7). It may be that giving academics opportunities to “play with the course in development [would] help them invest in their course and feel they’re part of things” (LTS-7). One participant suggests that “faculty want more input; there’s recognition that a more flexible system has to be in place” (FAC-4). Despite the desire on the part of some faculty to be free “to change, innovate, fix things quickly; we can’t just go into a course and do whatever a faculty member wants” (LTS-3). At least in the short term there is the perception that “it will

have to be locked down; it will have to be rigid" (LTS-3). Academics in some faculties "are very comfortable with anything dealing with online teaching and learning" (LTS-5). Others "had a very strong opposition to even using an LMS; they were very attached to the old print model" (LTS-5). This participant also suggests that while some faculty "want to do hands-on stuff on the development server, [management] doesn't want us in there" (LTS-5). This participant suggested that since learning/teaching specialists have limited access to course websites, it "seems odd that [management] would turn faculty loose" there (LTS-5).

Apparently there has been improvement in intra-institutional cooperation, a change from the past when "a disconnect between Case A's design and development practices and what was going on elsewhere in the university in the area of distance education research" (LTS-5). Even so, "it would be nice if there was more communication between us and other Case A departments that design and develop courses" (LTS-5). With no direct access to courses in the LMS, some participants have turned to Case A's in-house social network "as a kind of course sandbox" (FAC-2). Another participant likes the Case A social network "because I can go in and do things with it" (FAC-3); in the LMS "I don't always have access to everything I would like" (FAC-4). Being "responsible for what is in those courses [means that] continued access is an absolute requirement" (FAC-4); "when you've got the control you've got the responsibility as well" (FAC-3). While not all academics may want to create their own course sites (FAC-4), one way to "improve the overall process would be to hand over the driver's keys to the faculty who want them" (FAC-2).

Analysis of Case A artifacts.

Several artifacts and institutional documents provided data that was very helpful to the investigation of this study's third research question. The first is the model that illustrates the course design process at Case A. In this model, course design is depicted as having four components, namely, (a) define the content of the course, (b) determine learning outcomes, (c) develop learning activities, and (d) determine assessment strategies. When working with faculty, learning/teaching specialists begin by talking about course content as a way to identify learning outcomes. Next, strategies for instruction and learning that are appropriate to the content and outcomes are created; assessments that align with the outcomes are then developed. This model depicts a process that cycles through formative evaluation and ongoing revisions. While this model reflects steps similar to traditional instructional systems design, it does not specify an industrial model, or more artisan-based design and development processes. This model leaves the door open for various approaches to self-paced course design and development.

At the time this study was conducted, Case A was revising institutional policies and procedures related to course design and development. As this chapter was being written, this process was still going on and participants were able to share draft policy and procedures documents only. There are two proposed changes that relate to the focus of this study. The first would see a shift from a standardized institutional system of course development to a de-centralized approach with processes determined by and tailored to individual faculties. The second change is that course design, formerly

described as a team activity with delineated roles, would take place through less structured and more collaborative approaches.

As with the first two research questions, the 2009 discussion document that depicts a desired future vision for Case A's self-paced courses includes elements that relate to this study's third research question. For the future, the authors suggest there is a need to balance permanence and emergence in courses, with a consequential need to balance control and adaptability in the processes through which courses are designed and developed. As well, there needs to be a course management process for production procedures with clear distinctions among types of revisions and who is responsible (academics or learning/teaching specialists) in order to accommodate continual course revisions. As well, future processes for course design and development need to enable students to open up as well as control access to their content for use by other students, including course artifacts and blogs.

A learning/teaching specialist participant supplied samples of three resources used in course development work that relate to this study's third research question. The first item is a list of suggested resources to be included in online courses; more important than the content of the list is that it is a planning resource supplied by a learning/teaching specialist to academics in the process of designing and developing courses. This implies particular roles and responsibilities, namely, that the learning/teaching specialist plays a consulting role, responsible to provide choices for the academic. The second and third artifacts are checklists for the initial design meeting and early course team meeting, respectively. Again, the fact that the learning/teaching specialist provides these checklists suggest that at least for this participant, the role is facilitative and also includes project

management responsibilities. According to the first checklist, among other things, the learning/teaching specialist (a) explains the design and development process; (b) demonstrates delivery models; (c) distinguishes among course objectives, unit objectives, and learning objectives; (d) assists the author in framing learning objectives and student outcomes; (e) explains the learning potential of various assessment methods; (f) outlines the early course team meeting; (g) explains and co-develops the course map with the course author; and (h) outlines the paperwork associated with a course design and development. The checklist for the early course team meeting indicates that a course team includes the learning/teaching specialist, copyright personnel, editor, visual designer, and librarian, and also implies that the learning/teaching specialist is the consultant, and the academic is a client. This checklist provides an overview of the design and development process, as well as roles and relationships. It defines areas of collaboration and other expectations. Analysis of this checklist provides insight into the process, and suggests that it is industrial in terms of being teams of specialists, but reflects a more collaborative process than is evident in the assembly line characteristic of an industrial model.

To conclude this discussion of my third research question, it appears that there is no clear consensus from participants about course design and development processes at Case A, consistent with the sense of flux and transition evident from changing policy and procedures at an institutional level. It is apparent that what began as an industrial process is becoming less so, but is still quite structured and centrally controlled. Participants provided little detail about the specifics or possible impact of changing policy and procedures. Learning/teaching specialists as well as academics talked more about their roles than the process itself, which suggests the process is somewhat fluid. This is

consistent with an institutional context in which policies and procedures, and by implication, roles and responsibilities, are in the midst of change.

Key Case-Based Issues

The purpose of this final section of Chapter Four is to summarize my interpretation and understanding of Case A by developing key issues that convey the complexity of the case, and to give readers an opportunity to consider their knowledge of the case or modify their understanding of similar cases. The characteristics of Case A as they relate to this study are summarized here as an overview. Self-paced courses at Case A exemplify cognitive-behaviourist pedagogy, with knowledge transmitted one-way to students, who then complete structured activities and assignments. Learner-content interaction is of central importance; learner-learner interaction is included in the design of some courses at Case A, but it is planned for and supervised or monitored. The course design and development process is in transition, and different aspects of the process exhibit more or less industrial characteristics. The participants in this study play different roles in designing and developing self-paced courses. While they share some concerns, their perspectives also differ in some regards. At Case A there are unresolved issues related to (a) pedagogy and course design; (b) providing for, rewarding, and supporting learner-learner interaction; and (c) control of course design and maintenance.

Self-paced undergraduate courses at Case A are delivered online through an LMS, and make use of a range of digital and print materials. Assessment is typically through assigned activities and proctored examinations. Learner-learner interaction takes place primarily through discussion forums in the LMS, though some courses make use of Case A's social network. Digital materials and technologies are primarily used for transmitting

content, rather than for connecting participants and forming networks. Most of Case A's self-paced courses began as products of cognitive-behaviourist pedagogy, and this is still largely the case. Learner-learner interaction is peripheral rather than central, and does not represent a distinct pedagogical direction. According to one participant, "the actual amount of interaction that goes on is unpredictable and minimal" (FAC-2). Participants raised two types of concerns regarding learner-learner interaction in self-paced study at Case A. The first was the perceived need to script the learning path by structuring, requiring, and monitoring learner-learner interaction. This is consistent with cognitive-behaviourist pedagogy, in which there is a set body of content to be transmitted and a well-defined path by which students are led to acquire this knowledge. The second concern was whether learner-learner interaction would enable or encourage student misconduct and cheating.

Participants in this study suggested that learner-learner interaction needs to be structured and organized as part of a scripted learning path. For learner-learner interaction to be worthwhile, it must also be "facilitated properly [or] it's almost better you not bother" (LTS-2). However, facilitating or moderating learner-learner interaction is labour-intensive and this raises questions of increased workload that may be incompatible or need re-negotiation with some aspects of Case A's scaleable learning model. Case A represents a traditional form of distance education; undergraduate courses are designed as standardized entities. Tutors are available to mark assignments and provide a fundamental level of learning support, but time and resources for facilitating extensive learner-learner interaction have not been built in. Several participants believe that unless learner-learner interaction is a required, graded activity, students will not

actively participate. Assigning marks to interaction activities may be a difficult choice if learner-learner interaction is not valued and assessed properly. However, most participants were in favour of providing incentives for student participation; otherwise, such interaction activities are not likely to be successful.

Many participants reported concerns that if students are free to communicate with each other, they will cheat—by sharing assignment answers, for example. In some faculties, the main objection to learner-learner interaction activities was the result of problems with inappropriate content on discussion forums. These concerns were also raised regarding use of social media. According to one participant, assignments are designed in a way that encourages student misconduct. As a future direction, one suggestion is that learning activities be designed to encourage students to interact in ways that help them to learn and that make copying and plagiarism difficult or impossible.

Concerns about cheating and the belief that learner-learner interaction must be monitored are related to the idea of giving up control and may conflict with more open ideas associated with social media and network-based connectivist learning models. Those course developers familiar with the print model may be “worried about losing control of the learning process” (LTS-5).

Participants are interested in experimenting with social media and some aspects of pedagogy 2.0 (McLoughlin & Lee, 2008). The Case A social network is a platform on which developers can experiment, particularly with network-based learning tools. Where social media is being used it is an add-on interaction opportunity more that an integrated part of the course design or pedagogy. So far, social media and networked-learning tools are not yet having an effect on the dominant pedagogy at Case A, but they are

occasionally taking place in an environment (the in-house social network platform) that is accessible to developers and facilitates connections among learners. However, some participants are concerned that there seems to be only weak commitment to the Case A social network from the university. The perception is that good people are working hard to provide this social network at Case A, and that they are free to experiment because they are outside the main institutional development processes. According to participants who have used the Case A social network, it is a useful approach to learner-learner interaction and students support it. However, until it is built into courses or into ways in which people work together, it will likely continue to be peripheral rather than central to the online learning environment at Case A.

Most participants perceive Case A's social network as a place for providing learning activities and, to some degree, an opportunity for learners to connect with each other. To a few participants, it is a place for collaborative work and activities related to professional practice. Some participants describe it as a type of virtual campus, compared to the virtual classroom of the LMS. However, few participants seemed to see the Case A social network as more than an accessible place for learning and working. There was little sense that courses could be built on networks that rely on connections, and on opportunities to communicate, share, and learn with others. At Case A, connectivist pedagogy has not gained a critical mass of users and institutional support, and learner-learner interaction has yet to achieve the openness associated with what Fiedler and Pata (2010) refer to as supporting "ongoing 'conversations' with self, others, and artefacts" (p. 406).

The changes to the once industrial aspects of course design and development at Case A are primarily in the areas of (a) division of labour, (b) assembly line, and (c) centralization. Participants had more to say about their roles and the roles of others in the course design and development process than they did about the process or model itself. Very few mentioned the word “industrial” and the learning/teaching specialists in particular emphasized that their work is collaborative and facilitative. A few academics would prefer an artisan or do-it-yourself approach in which they take on as many aspects of course design and development as they are willing to assume responsibility for. The state of transition in Case A’s processes may account for the sense that the form of course design and development followed depends on the individuals involved and the demands of the project. There is no consensus among participants on precisely how the process works or what the various roles are or should be. Learning/teaching specialists are able to describe their contribution in detail, but this is not reflected in comments by academics. It appears that each group has different concerns and different priorities. Learning/teaching specialists focus on learning activity, while in many cases academics are more concerned with content and are less interested in interaction, particularly learner-learner interaction. At least one learning/teaching specialist wondered about academics’ readiness to take on full responsibility for their courses, and the level to which “they understand the environment and the possibilities of the environment” (LTS-7). In the recent past, parts of Case A were opposed to “even using a learning management system; they were very attached to the old print model” (LTS-5).

Ownership of or responsibility for courses is an unresolved question, and this issue arises in various discussions. Academics own the course inasmuch as they have the

final say on the content, but it is unclear how much they own the process, and they do not have access to courses between revisions. One participant in this study described a proposed future direction in which academics would be able to "authorize whoever they chose to do whatever they want in whatever course they want to at any time" (LTS-2). Just as this participant advocates giving academics "the keys to the kingdom," an academic participant perceives the presence of "issues of territorial realms; unfortunately people like kingdoms" (FAC-4). As a result, at least one participant believes conversations about pedagogy have been replaced by conversations about protecting territory. Perhaps the solution lies in less of a sense of either individual or department ownership of courses and processes, and more in open, truly collaborative work, to minimize the perception that "even your input is interference in my process" (LTS-7).

Conclusion

At the time this research was conducted, the process of converting Case A courses from print to online media was nearly complete. Case A was also engaged in reviewing and revising policies and procedures related to course design, development, and production. Participants' views and perceptions hint at what they wish their desired future to be like. Glimpses of the future are also evident in institutional documents. It is likely that the course design and development process will be decentralized in some ways. Rather than prescribing a structure for course development, namely, teams made up of individuals with narrowly defined roles, it appears that new policy is likely to suggest collaboration as an approach to course design and development work. This subtle shift in terminology from prescribed structure to suggested approach signals, and will facilitate, changes in how course developers work together. It may be that the current climate of

change at Case A supports discussion of and possible changes to pedagogy and learning interactions, as well as design and development models. This climate, as well as the opportunities inherent in Case A's social network, may contribute to a future in which designing and providing self-paced learning takes place in "technological landscapes that can be described as open, distributed, networked, and publicly accessible" (Fiedler & Pata, 2010, p. 406).

Chapter V: CASE B

This chapter reports on the second of the three cases in this study. The first section presents a brief overview of the Case B context and the method in this particular case. Then, the Case B findings are described, with observations and issues supported with detail from the data associated with the case. The final section summarizes my interpretation and understanding of Case B by describing key case-based issues that convey the complexity of the case, and gives readers an opportunity to consider their knowledge of similar cases (Stake, 1995).

Overview and Context of Case B

Case B is a dual-mode distance university in North America. It was established as a college in 1971; the distance learning unit was created as a separate, single-mode distance education entity in 1978. Case B became a university in 2005, and in the same year the distance learning unit became a division of the new university. The physical layout of the Case B campus is much like a traditional bricks-and-mortar university—a quadrangle bordered by library, administrative, and student service buildings is surrounded by structures for specific academic faculties. Learning/teaching specialists work in the distance learning division, located in a building on one edge of the campus. Academics work from their offices elsewhere on campus or in their homes. According to its public website, as of 2013 Case B had nearly 2,100 staff and faculty, of which just over 1,500 were full-time. There were just over 24,000 students enrolled in both modes at Case B. Of these, nearly 12,000 were enrolled in 590 distance learning courses, and about 800 students were enrolled in both distance and on-site courses. In 2013 there were 55 distance learning programs, compared to 140 on-campus programs.

The distance learning division at Case B strives to remove barriers to quality post-secondary education online and at a distance through continuous enrolment, self-paced scheduling, and minimal admission requirements. Students may register at any time for self-paced distance learning courses and start their course work whenever they receive their materials. Students have 30 weeks to complete a self-paced course. There are no minimum age requirements; applicants for general admission to distance learning do not need a specific grade point average and are not required to submit secondary school transcripts. Students must be proficient in English at a Grade 12 level, but most courses and programs do not require an English proficiency test.

Data was collected from three sources: (a) in-depth interviews with learning/teaching specialists and academics who design and develop self-paced undergraduate courses, (b) course websites and materials for four self-paced courses, and (c) artifacts and institutional documents. Table 8 summarizes these data sources and relates them to the three research questions for this study.

Table 8

Data Sources (Case B)

Data Source	Details	Research Questions
In-depth interviews [a]	- 3 learning/teaching specialists, 1 admininstrator - 2 academics	1 to 3
Self-paced courses	- physical science - health science - social science - cultural studies	1 and 2
Institutional artifacts[b]	- results of a search for "social media" on Case B's public website - organizational chart for distance learning division - course design templates - sample course blueprints - newsletters and a student handbook produced by distance learning division - agendas from initial course planning meetings - course development checklists	1 to 3

[a] In-depth interviews totalled 7.9 hours
[b] These documents were developed in the five years prior to this study, during the period when the learning model for distance learning courses at Case B was in a state of transition from paced cohort to self-paced

There are two limitations to this study of Case B. The first is that I was unable to recruit as many participants, particularly academics, as I had proposed. However, I was able to interview three of the four learning/teaching specialists on staff as well as a course design and development administrator, and these participants were all very knowledgeable about Case B. While I was able to recruit only two academics, these individuals were highly recommended by learning/teaching specialists. I believe this was preferable to having a greater number of reluctant participants who did not fit the selection criteria well. The second limitation is that this study explored only the distance

learning aspects of pedagogy and course design and development at Case B. The distance learning division operates in the context of a dual-mode university, and some aspects of pedagogy and course design may be shaped by this. While gathering data from on-site staff, faculty, and courses might have provided information regarding the context of the entire university, this was beyond the scope of the current study.

This concludes the overview of the general data collection strategies for this case. The next section describes the Case B findings as they relate to answering the three research questions for this study.

Case B Findings

Within the last 10 years, the model for distance learning courses at Case B has gone through a series of changes. According to one participant who has worked there for many years, distance learning courses were originally developed as self-paced via print materials. As the Internet became increasingly available, some courses were also offered as Web-based but retained self-paced structure. A paced online format with more teacher involvement was also developed, in which distance learning faculty managed online discussions and were able to add up to 20% new content over the duration of the course. These courses were not offered in continuous enrolment format. About seven years ago, the Case B executive decided that all new distance learning courses would be developed as problem-based learning via online paced cohort delivery; no new development would be self-paced print or online. As a result, some courses in a program might be available as self-paced and the rest as online paced cohort. This institutional direction has recently changed again, and courses are being revised for use once more in an online self-paced context. However, many courses at Case B are still available in three forms (several

participants refer to these as “modalities”), namely, (a) paced online cohort, (b) self-paced online, and (c) self-paced print. Several participants noted that courses are often designed for online paced cohort, then modified for self-pacing when enrolments are insufficient for a paced offering. Since Case B is a dual-mode university, distance learning courses, as well as being available in multiple modalities, also mirror the content of courses offered on-site. Distance learning courses and the corresponding face-to-face offering “should be very similar [because] it’s the same department that has to give the credential” (LTS-1). This context of various pacing and media options, as well as the requirement to mirror face-to-face course content, are key aspects of the setting in which the Case B participants in this study seek to provide learning opportunities and environments that are pedagogically appropriate.

Pedagogy and Learner-Learner Interaction.

Participants’ descriptions of the self-paced courses they design and develop suggest that cognitive behaviourist pedagogy is prevalent at Case B. The “transmission model is still predominant; [courses are] content, not activity-driven” (LTS-2). Students generally interact with “textual representations of ideas” (LTS-2) in courses that one participant described as “basically paper-based training material” (FAC-2). Introductory-level courses in particular are “in many ways knowledge transmission” (LTS-3). Students expect courses to “be as efficient and straightforward as possible; they just want to get the information” (FAC-2). Similarly, Case B courses focus on “ensuring students understand basic concepts, definitions, [and] perspectives” (FAC-1). According to one learning/teaching specialist, academics do not seemed concerned that “students are doing something rather than just getting content” (LTS-2). Another participant concurs;

academics focus on learning outcomes related to content and are less concerned about how students need to use what they learn (LTS-3).

Factors and influences.

Decisions about pedagogy and incorporating learner-learner interaction generally depend on addressing questions such as "What are the learning outcomes? What are we teaching? How are we going to assess them? What learning activity is best to get them there?" (LTS-1). Learning/teaching specialists tend to favour pedagogies "that allow for collaboration and interactivity" (LTS-1) since "it would be really nice to have the students actually working together" (LTS-2). Despite the predominance of cognitive behaviourist pedagogy at Case B, several learning/teaching specialists advocate a collaborative or constructivist philosophy. Learning/teaching specialists "share a common value that students should be engaged in the material, not just regurgitating facts and knowledge" (LTS-3). One participant prefers "constructivist pedagogy [that relies on students] interacting with each other and with the resources" (LTS-2) while another asserts that "constructivist design is our department's philosophy" (LTS-1).

Learning/teaching specialists report a preference for designing courses to be "activity-based rather than knowledge-based" (LTS-3). A few participants distinguished between knowledge transmission and skill development in self-paced courses. In practical fields, courses are designed to focus on "skills or affective domain, not so much knowledge transmission" (LTS-3). Some courses designed primarily for knowledge transmission "will also be transformational" (LTS-3), whereby students learn to think like practitioners in the field. Still other courses need to prepare students for "working

collaboratively in a team" (FAC-1) since "that's what you're going to have to do in your future work" (LTS-3).

Value of learner-learner interaction.

Participants appear to be divided on the question of whether learner-learner interaction is important, necessary, or even present. According to one participant, self-paced study courses at Case B "by definition don't have student-to-student interaction built into them because they are entirely self-paced" (LTS-4). While they may prefer constructivist pedagogy, learning/teaching specialists also expressed reservations related to learner-learner interaction in self-paced courses. One participant believes that too much focus on learner-learner interaction can be "overwhelming for students" (LTS-2). Other participants agree, suggesting that course activity "doesn't all have to be interact, interact, interact" (LTS-3) and "not every single thing has to be an interactive enterprise" (LTS-1). Similarly, an academic participant reports that not all students "need learner-learner interaction [or are] interested in hearing what other students have to say" (FAC-2). In some courses "there's no purpose to having any student-to-student interaction" (LTS-3). Examples include subjects such as English literature that may not "necessarily lend themselves to providing any learner-learner interaction" (LTS-3), as well as "a straight science course where [learner-learner interaction] is maybe not as important" (LTS-2). One participant pointed out the incongruence of "doing interesting stuff with collaborative work [when] at the end of the day you've got to have a traditional final exam" (FAC-2).

Despite these objections, participants do favour learner-learner interaction in some situations, particularly for building a learning culture. Without "virtual or physical

proximity, and a kind of ongoing interaction, you're not going to develop much of a culture" (LTS-4). Learner-learner interaction is a chance for "students to share their different perspectives, and is quite valuable" (LTS-2). Learner-learner interaction is also desirable if course objectives include exploring "different kinds of problem-solving" (FAC-2) or for practicum courses where students are likely to need mutual support (LTS-2). It is also appropriate in a "field that requires more collaboration and teamwork [or for language learning that] requires communication and interaction" (LTS-3).

Participants reported a range of strategies for incorporating learner-learner interaction into their self-paced courses. At Case B it is "common practice to have discussion forums" (LTS-3) in the LMS to discuss "generalized topics" (LTS-2), "questions about the course procedure" (FAC-2), or as a place "where students could just talk" (LTS-2). Discussion activity is graded through the use of rubrics (LTS-1). Learners are also encouraged to "post milestones so other students could at least see where they are" (LTS-2). Even though "people seeing your comments may be a month ahead of you, you could still have a conversation" (LTS-1). As well, learner-learner interaction may "get people more involved in their own learning in their communities, making it relevant to where they are in their place and space" (LTS-2). Deciding whether learner-learner interaction will be optional or required is a matter of determining if the activity involves "formative versus summative assessment" (LTS-2).

However, the greatest use of learner-learner interaction at Case B is in online paced cohort courses (LTS-1), and the learner-learner interaction in self-paced courses is perceived as "superficial" (LTS-2). An academic participant hesitated to change courses from paced to self-paced because "in my courses there really needs to be some interaction

between students" (FAC-1). For another academic, despite having designed self-paced courses that include learner-learner interaction, "I've never been given the green light to launch any of [the learner-learner activities]" (FAC-2). According to another participant, it is important to look at interaction broadly, rather than have a singular focus on learner-learner interaction. This position is clear in the statement that "Anderson's equivalency theorem is the bottom line; that's the philosophy we work with" (LTS-1).

Analysis of self-paced courses.

Based on the examination of four courses recommended by participants as examples of self-paced courses that include learner-learner interaction, the primary pedagogy is cognitive-behaviourist (Anderson & Dron, 2011). Learning is generally an individual process of mastering pre-specified facts and concepts through reading print and watching online media. Most of the learning objectives in these courses are at the knowledge and comprehension levels, with some emphasis on application objectives in the health science course. In each course, students are assessed through various types of assignments, most of which require them to submit essays, reports, and written projects, as well as write traditional exams. There is potential for constructivist pedagogy in all but the health sciences course, as online discussion in the three other courses is a substantial requirement, and contributes 20% to 25% to a student's final grade. As well, constructivist pedagogy is suggested in the design of self-reflective evaluation processes (Jonassen, 1991) that include journaling, choice of final essay and term paper topics, as well as assignments that combine critical reflections and short essays. However, there is no collaborative or group work, as might be expected with constructivist pedagogy. Of the four courses reviewed, only the social science course contains activities associated

with connectivist pedagogy. In this course, 50% of a student's final grade comes from contributing to a key terms wiki and journaling via individual blogs. Learner-learner interaction is present in all four courses in the form of discussion forums in Case B's LMS. In all four courses, learner-learner interaction is a required activity that contributes to students' final grades. However, a low level of interaction is required to pass these conferencing or discussion activities; at most, two posts or responses in each forum are necessary. In some cases, the requirements for conferencing participation are just one post and one response per discussion.

Analysis of Case B artifacts.

I examined two types of course design templates, one for planning units and the other for lessons. These templates are very similar. Following the list of learning objectives, the activities for the units and lessons are prominent, suggesting that these templates represent activity-based learning design. This supports the comments made by at least two learning/teaching specialists that in response to the university's executive directing them "to do collaborative problem-based learning for every single course" (LTS-2) "we sort of went more activity-based and task-based" (LTS-3). Overall, though, these templates represent a pedagogy based on individual learning through learner-content interaction. There is no specific advice or category for learner-learner interaction activities or strategies.

Similarly, the course blueprint documents do not specify opportunities or strategies for learner-learner interaction. Given that Case B is a dual-mode university, and distance learning courses are designed to mirror their associated face-to-face offerings in terms of content, it is not surprising that course planning documents emphasize course

topics. The learning design model represented by these blueprints appears to be based on linear instructional systems design. There are separate sections for outcomes categorized as knowledge, skills, or attitudes. In most cases, objectives are at knowledge and application levels, with some synthesis and evaluation objectives, particularly in the case of the skills outcomes. The blank blueprint template includes a column for student support, and the draft blueprints describe the tasks tutors will complete at each point in the course. This suggests a concern to ensure learner-teacher interaction in addition to the learner-content interaction evident elsewhere in the templates and blueprints.

The two agendas for course development planning meetings represent paced cohort as well as self-paced courses. In both agendas, the second item, after introducing the instructional design process and before discussing issues of course content, consists of explaining the features of the particular modality for the course. Interaction is not specifically addressed. This suggests that the issue of pacing and media for the course is of prime importance. The course development checklists make no reference to developing or arranging for particular types of interaction, including learner-learner. Much of the checklists are devoted to describing administrative tasks.

The student handbook produced by Case B's distance learning division makes no mention of course pacing. This suggests that there are multiple options for students considering distance learning at Case B—perhaps more variation than can be addressed in a brief handbook. There is a passing reference to learner-learner interaction by stating that learners will be able to meet and interact with fellow students online through Case B's LMS. The newsletters produced by Case B's distance learning division, while largely marketing and communication documents, also make it possible to track some of the

changes in the learning model at Case B. For example, in an interview reported in a 2007 newsletter, a university executive member suggested that online education is usually offered as a structured progression through a course with specific start and end dates. In late 2009 the newsletter announced the introduction of a paced cohort model for upper-level courses with required online discussion. Other than these examples, there is little in these newsletters about models or activities related to pedagogy or learner-learner interaction. Very often, though, there is at least one testimonial from a student, and invariably these stories cite the flexibility of Case B's distance learning courses as contributing to students' satisfaction and success.

Where these documents do provide information on pedagogy and learner-learner interaction, they suggest that Case B courses are designed for individual activity related to knowledge and comprehension objectives within a set of pre-determined topics. This aligns with the predominant cognitive-behaviourist pedagogy. Just as often, however, these institutional documents do not suggest particular pedagogy or types of interaction. This is not surprising, given that participants report a history of changing and variable learning models in recent years. Since several participants pointed out that they design courses to fit multiple modalities in terms of pacing, media, and learning environments, we may expect institutional documents to emphasize flexible options rather than specify particular pedagogy and approaches to learner-learner interaction.

To conclude this discussion of pedagogy and learner-learner interaction, it appears that cognitive-behaviourist pedagogy predominates in Case B's self-paced courses. Learner-learner interaction is not a central component in most courses, and when it is present, learners are not expected to engage in interaction beyond a minimal level.

Learning is largely an individual activity within a knowledge transmission context, consistent with cognitive-behaviourist pedagogy. In this regard, the choice of pedagogy does affect the incorporation of learner-learner interaction opportunities in self-paced distance courses at Case B. However, while cognitive-behaviourist pedagogy is prevalent, potential for constructivist pedagogy is apparent in some courses. In addition, several participants state a preference for collaborative or constructivist pedagogy, while also reporting ambivalence about the value of learner-learner interaction. This may be due to varying institutional directions calling first for collaborative, problem-based learning designs as well as paced cohorts and later, for self-paced designs. Participants are also challenged to design courses for three distinct distance learning situations, namely self-paced print and online, as well as paced cohorts. It appears that several course developers are frustrated in their efforts to create consistency between their preferred pedagogy and Case B's various approaches to distance learning. In the past, participants' efforts have been shaped by mandated and shifting institutional directions. Some participants feel constrained by the self-paced model currently in place. There is a gap between participants' desires for more interactive learning approaches and the cognitive-behaviourist pedagogy with limited opportunities for learner-learner interaction that now prevails in Case B's self-paced courses.

Connectivist Pedagogy.

My second research question investigated the ways in which connectivist pedagogy is enabling learner-learner interaction in self-paced course designs.

Readiness for connectivist pedagogy.

Participants from Case B are interested in social media activities as a way to enable students in self-paced courses to "inquire and explore and critically think with people with a wide range of life experience" (FAC-1), and "share their different perspectives" (LTS-2). Participants described several benefits of social media tools. Many of these benefits are intangible, including "getting different worldviews" (LTS-3) and learning "how to share in this open way" (LTS-1). One participant described the opportunities of social media and connectivist approaches as manifesting the "intersection of social and learning spaces" (LTS-2). The experience of interacting and sharing with others via social media is "another way to find that community of learners" (LTS-1) and "can become part of what's learned" (FAC-2). Even if a social media strategy does not support "in-depth conversation, at least you get to see what your fellow learners are doing" (LTS-2). Social media can enhance this awareness of others in the learning environment by increasing chances to encounter "diverse groups of adult learners in different walks of life" (FAC-2). Social media can create "a virtual campus" (LTS-2), while "new social technologies [make] you feel like you're part of a community learning things" (FAC-2).

Academic participants may be ready to consider approaches such as those offered by connectivist pedagogy since they perceive the current levels of learner-learner interaction in self-paced courses to be "pretty iffy" (FAC-1) and "very limited" (FAC-2). However, there is a perception that some faculty members may not be ready to make use of social media for learning. One participant suggested that if courses were to include a blogging component, "having our [faculty] actually manage that is not really an option"

(LTS-2). This participant is concerned that some faculty may not know "what it would mean to go out and look at [students' blog posts]" (LTS-2). Lack of readiness may be associated with disinterest; an academic participant wonders if learners "really care what other students a month ago or three months ago blogged about the thing?" (FAC-2). However, this perspective may reflect a personal belief that there is more "value in the real-time moment; the kind of energy of the student sharing and learning" (FAC-2). While course developers do make use of social media such as wikis, blogs, and bookmarking, these activities are usually confined to the LMS and single course instances, and are therefore not wholly public. At Case B it "is quite an issue for us to require a student to use a form of social media outside of the course" (LTS-3). While the perception that "we kind of fail miserably on the social media side" (LTS-3) may be overly pessimistic, this participant's frustration is apparent.

Social media and self-paced learning.

The main issues standing in the way of incorporating social media as a strategy for learner-learner interaction are lack of institutional support and the need to protect individuals' privacy. While course developers and students both need support to incorporate and make use of innovation such as social media, at Case B "implementing technology is difficult because our IT department doesn't have resources to provide that support" (LTS-2). Without an "institutional blogging site [using social media] is problematic" (LTS-2) at best, and at worst, social media "is not readily available to us" (LTS-3). Support issues also include workload concerns such as "who will manage and make accounts" (LTS-2). This participant advocates the use of "something like ELGG [open-source social networking engine] and we've investigated that, but nobody's taken

it forward" (LTS-2). Several participants cited concerns for learners' privacy as an impediment to expanding learning into social, more public spheres. The concern is "whether information is stored and what [external sites] do with people's information" (LTS-1). Participants are aware that "there's all these privacy rules" (FAC-2) related to complying with legislation (LTS-3). Since most external social sites are "located in the United States you've got issues with the Patriot Act and Homeland Security" (LTS-3). In order to use a blogging strategy, for example, "it would probably be a closed blog so it wouldn't be public, which defeats the purpose" (LTS-3).

According to one participant, "cohort-based are probably making better use of wikis and blogs" (FAC-2). In self-paced, use of "social media is optional; can you force somebody to join Facebook?" (LTS-1). As a result, "there hasn't been a lot of evidence that there's much uptake [of social media]; I don't know how much initiative students take on their own" (LTS-2). This participant, determined to put an open blog into a course, eventually "just used the LMS blog because any other solution was so problematic" (LTS-2). Case B's LMS includes social tools such as wikis and blogs, but in order to have students interacting within and among personal learning networks, participants would prefer more open tools. The main drawback of the LMS is that it is "behind the wall [whereas] you want students to have control of their own content, because that's a great benefit of social media" (LTS-2). As well, the "tools within the LMS aren't as fully functional or real" (LTS-2). This participant wonders how learners might bring their own content "into the course in a meaningful way when the LMS is so very structured" (LTS-2). Another would like to make use of discussions in which learners' "contributions stay active [but] the LMS would not allow for that" (FAC-2)

Despite the challenges and barriers, participants are interested in a variety of social media strategies, including online forums, bookmarking, and wikis. One participant directs students to “Google Open Study [where] you can meet people from all over” (LTS-1). Other suggestions are to “use social bookmarking” (LTS-2), find a “Facebook group that already exists to discuss topics” (LTS-1), or link learners to “existing online forums” (FAC-2) on specific topics. Several participants cited wikis as a promising tool to (a) create “an annotated bibliography; find online resources, do a review, then share that” (LTS-3); (b) share “learning concepts to build a glossary” (LTS-2); or (c) collect data on an issue “over time and get students to keep adding to it” (LTS-2).

Social media is also seen as a way to bring learner-generated content into courses. The results of more open social interactions can have greater longevity, in that “as students finish the course their contributions stay active” (FAC-2). However, it seems that the idea of personal learning networks has less traction than do specific social media strategies and applications. While one participant suggests that course developers “actually encourage [learners] to form their personal learning network” (LTS-1), another says that “I don’t think we’ve said ‘go out and develop a personal learning network’ within courses” (LTS-2).

Some Case B participants were interested in the ways in which social media activities could open self-paced courses to include learners from outside the course. Since students “may not have a class to turn to, we encourage them to form their personal learning network—family, friends, colleagues, people in the field” (LTS-1). Learner-learner interaction “doesn’t necessarily have to be with just the people in the class; it can

be interacting within their community or in a different course" (LTS-2). Another participant suggested that it could be "family or a community professional worker" (LTS-3) since restricting interactions to classmates "takes so much time for them [learners] to arrange" (LTS-3). During the course of one interview, an academic participant explored the idea of students connecting with online communities of practice as an alternative to bricks-and-mortar agencies in their geographic location (FAC-1). This participant is ready to consider social media as a strategy for learner-learner interaction, stating "I'm going to encourage this for a self-paced course I'm consulting on" (FAC-1). Some participants are keen to include learners from outside the course as a way to "get people more involved in their own learning in their communities" (LTS-2) and "to connect them to a larger community [and] get the energy around a community of learners" (FAC-2).

Analysis of self-paced courses.

An examination of four self-paced courses that incorporate learner-learner interaction indicates that some aspects of pedagogy 2.0 and network-based learning associated with connectivist pedagogy are evident. According to McLoughlin and Lee (2008), pedagogy 2.0 is characterized by personalization, participation, and productivity. In all four Case B courses, students' opportunities for personalization come through self-pacing, which calls for students to manage and regulate their learning path and schedule. In the social science and cultural studies courses, personalization is present when students are able to choose their own topics for assignments and final projects. In the social science course, blogging as a journaling activity also implies an element of personalization. In this same course, participation is fostered through the requirement to take part in a meeting or event related to a student's final project topic. Posting to

Facebook or connecting via Twitter are both suggested as alternatives to attending a local face-to-face meeting. In all four courses, participation is fostered through communication via discussion forums. In the social science course, there is an opportunity for productivity through learner-generated content in the requirement to contribute to a key terms wiki. However, it is not clear whether this wiki lives on when the course is revised. In the remaining three courses there is no evidence of productivity features such as learner-generated content. In the social science course, contributions to the key terms wiki and journaling via individual blogs are integrated throughout the course and these activities account for 40% of a student's final grade. When journaling is combined with the 10% grade for discussion (including contributing to the key terms wiki), this means that 50% of a student's final grade comes from individual activity that is somewhat public, in that it is open to and can be viewed by fellow students.

Analysis of Case B artifacts.

While we might expect to see references to social media strategies in the course planning and development documents, these artifacts, including unit and lesson templates, draft course design blueprints, and course development checklists, make no mention of learner-learner interaction or social media. This is the case even when these documents describe designs for paced as well as self-paced courses. However, these documents represent course planning and development work that took place between 2009 and 2011, so it may be that social media and networked-based learning had yet to become part of course developers' tools and resources for learning. The absence of social media from course design documents may also reflect the impact of issues related to institutional support and concerns for protecting privacy. Another case of an artifact in

which social media is absent is the student handbook for Case B's distance learning division, a document intended to provide an informal overview of administrative processes for distance learning students. There is no mention of social media in general or any of the typical social media sites or services that might be present in more recent promotional or information documents.

Case B's distance learning division has produced newsletters since 2007. Publication rates vary—from twice in one year to six issues in another year. The audience for this newsletter includes distance learners, as well as Case B faculty and staff. In autumn 2010, a news item mentioned the introduction of a wiki for internal communication within Case B's distance learning department. This is consistent with participants' reports of using a wiki for course development work. In the spring of 2011, the newsletter included an article on how Case B might make use of and benefit from learning analytics. The article acknowledges the growing demand for effective ways to increase student retention and degree completion, and suggests that learning analytics may be one way to create a more responsive learning environment online. Even so, the article notes that any implementation of learning analytics should start with a thoughtful and knowledgeable discussion of privacy rights and concerns.

Since the artifacts provided by participants offered scant evidence of the use of social media in Case B's self-paced courses, I conducted a search for "social media" on Case B's public website. I was particularly interested in results related to the distance learning division. Several departments, including the distance learning division, maintain active Facebook, Twitter, and YouTube feeds. An undated announcement described a social media presentation for Case B faculty, staff, and the general community focused

on expanding marketing outreach and building an online audience. While these are promotional and communication uses of social media, not pedagogical applications within formal courses, a news item from early winter 2011 dealt specifically with social media and learning. In this item, a Case B faculty member suggested that education should take place in a space that fosters open debate, and should be free from market pressures rather than connect students with advertisers. Facebook's 'Like' button was cited as an example of the way in which social media can promote interactions that encourage agreement rather than prompting participants to debate and investigate issues. This Case B faculty member planned to explore these concerns, and study how social media are affecting the ways in which people learn.

To conclude this discussion of connectivist pedagogy, it appears that course developers are interested in experimenting with network-based and Web 2.0 technologies. In addition, they are open to the idea of including learners from outside the course into the interactions and learning experiences in their courses. However, connectivist pedagogy is not evident in the course development and planning tools provided by Case B participants and is scarce in the self-paced courses there. Case B's public website provides evidence of social media use at an institutional level for promotion and marketing, and for now, this and the use of open tools for course design and development appear to be the strongest potential directions for social media at Case B. Participants report that their efforts to incorporate social media in learning are constrained by lack of institutional resources and support, as well as concerns for protecting privacy. These constraints clearly have an effect on participants' behaviour in designing courses.

Self-Paced Course Design and Development.

My third research question investigated the processes involved in designing and developing for learner-learner interaction in self-paced courses. This question was designed to consider what characteristics of the industrial model of distance education might still be present and to explore emerging models of course design and development for self-paced courses in general, and for learner-learner interaction in particular. While self-paced course websites and materials did not relate to this aspect of the study, several artifacts and institutional documents provided useful data.

Conversations during the in-depth interviews ranged beyond the original scope of design and development for learner-learner interaction in self-paced study into the broader territory of general course design and development processes. As a result, I was able to gather considerable data on the process itself, how and why it should be changed, as well as participants' roles and responsibilities.

Course development processes.

The process of developing distance learning courses at Case B is currently "a very industrialized process, essentially an assembly line [like] a cascade or a waterfall model; the course moves downward from stage to stage until it is done" (LTS-4). One participant reported that course development follows a "factory model, which is sad because I think things could be more creative" (LTS-3). An academic participant would prefer a process that "is much more collaborative" (FAC-1), and several learning/teaching specialists would like course design and development to be more efficient (LTS-1; LTS-2; LTS-3). One participant described the current process as often "bogged down" (LTS-3).

Distance learning courses at Case B are designed to fit a set of outcomes approved by an institutional committee responsible for programs of study (LTS-2). Each distance course "should be very similar to the on-site course" (LTS-1). Course development teams strive to develop quality courses "acceptable to the academic department; we don't want them to think our online product is inferior" (LTS-1). While it is not possible to make statements about the ways in which on-site courses rely on textbooks for course content and teaching, one participant suggested that distance learning courses at Case B try to "avoid the convenience and seduction of becoming very textbook-centred" (LTS-4). While this participant does not object to the use of textbooks, "overreliance on them [may mean] they become our curriculum; then we don't deserve to be universities any more" (LTS-4).

Participants spoke often about how distance learning courses at Case B are available in three modalities. Their use of the term "modalities" refers to a combination of pacing characteristics and delivery media. Online courses may be paced or self-paced; print courses are self-paced only. The change to online paced cohort courses several years ago "wasn't a pedagogical decision, it was a business decision" (FAC-1) mandated by Case B's executive. At that time "we weren't making pedagogical decisions, we were actually directed" (LTS-2), though more recent decisions have been "based on pedagogical reasons rather than 'we will only do this'" (LTS-2). Even so, courses are often designed for one modality and then delivered in another.

Distance learning courses are developed by teams of three people—a learning/teaching specialist, as well as the main course developer and a consultant , who both have subject matter expertise. Course design and development follows an

established set of steps, but it is also “flexible, as long as you’ve got a map of where you’re going and you’ve thought about the assessments” (LTS-2). According to an academic participant, “the process depends on the style of both the [learning/teaching specialist] and the main course author” (FAC-1). This participant also suggests that learning/teaching specialists “who have been around for a long time are much more flexible in terms of process” (FAC-1). Though several people are involved, the process “is not like an operating table where everyone works on different parts at the same time without talking to each other” (LTS-3). An academic participant reports that “the team process works; I’ve had good experiences with solid project management and group planning” (FAC-2). Case B’s “team process is very good for course quality” (LTS-1) and helps “build relationships and understanding” (LTS-3).

At Case B, course design and development projects begin with the learning/teaching specialist arranging a major planning meeting where “together we go through the learning outcomes; I set out the roles, and we brainstorm the task ahead” (LTS-1). At this initial meeting “we look at learning outcomes, assessments, different tools, and our target audience” (LTS-2). It is important to have the whole team “together at the start because they have different perspectives” (LTS-3). A key result of the initial planning meeting is a course blueprint that “serves as the road map for development” (LTS-3). Learning/teaching specialists have “a very detailed process for developing the blueprint” (FAC-1) and “once we’re all happy with the blueprint we start development” (LTS-2). Planning is an important step; course design and development “works really well when you have the concept for the course designed at the beginning” (FAC-2).

Course development roles.

While the team develops the course blueprint together, the developer is the main course author, with the reviewer playing a smaller subject matter expert role. After the planning meeting the team continues working by way of "a lot of e-mail interaction" (LTS-1) and making use of a variety of tools. While courses are written "mostly in Word documents using commenting and tracked changes" (LTS-2), an internal wiki is used to store forms and documents (LTS-1). Several participants are interested in using open tools for course design and development, such as those associated with WikiEducator and MediaWiki (LTS-2; LTS-4), or using "Skype for synchronous collaboration [as an alternative to] the step-by-step linear process" (LTS-1). Once the course developer is finished writing, the reviewer and the learning/teaching specialist provide feedback (LTS-3). The course is then sent to production services for editing and layout, and finally, the learning/teaching specialist takes a "technical look at the end" (LTS-2).

At one time, learning/teaching specialists were responsible for all aspects of courses in a particular academic discipline, including new courses as well as "major and minor and every little fix" (LTS-1). The learning/teaching specialists all commented that this arrangement did not balance workload well and was stressful. At present they "work on a variety of courses in any subject area" (LTS-3). Learning/teaching specialists "wear two different hats: the project manager, and the coach to give feedback about resources, workload, and learning tools" (LTS-1). They "explain what the LMS can do" (LTS-1) and "do media development, substantive editing, and help build story boards" (LTS-2). From their place in the middle of the process (LTS-1; LTS-3) the learning/teaching specialist "liaises between the subject matter experts" (LTS-2). Their role requires a

"critical flexibility" (LTS-2); rather than an art or a science the work is "very pragmatic and more of a craft" (LTS-2).

Learning/teaching specialists are solely responsible for managing the course design and development process and they devote considerable energy to their project management role. At the start of a course project, they "determine what we need to get moving" (LTS-1) and "get all the resources together" (LTS-2). They also "interview and hire the subject matter experts" (LTS-2). While being able to choose the course team "is a good thing, it is not really design, it's a lot of administration" (LTS-2). Selecting the course developer and reviewer is "getting more complicated, layers upon layers, and forms upon forms. . . [and] there's always politics" (LTS-2). Another participant agreed that "bureaucracy slows us down" (LTS-1). Even after the course is written, the learning/teaching specialists "make sure the warehouse is ready to send students the correct books [and] tutors get everything they need" (LTS-1). In their role as coach, responsible for pedagogy in course design, learning/teaching specialists "pull out what knowledge, skills, and attitudes students should have when they're done" (LTS-1), by providing advice, resources, templates, and ideas (LTS-2; LTS-3). An academic participant notes that learning/teaching specialists help course authors think about "media and resources that can demonstrate what you're saying" (FAC-1). One participant describes the pedagogical role as "a coach and a sculptor" (LTS-3). Refining or sculpting the content from authors serves to "give it more shape and make it more pedagogically sound" (LTS-3).

As project manager, coach, and sculptor, the learning/teaching specialist is a change agent, working with academics to "think about complicated things in a simple

way" (LTS-2), since much of the work "is with people who teach face-to-face" (LTS-3). Learning/teaching specialists have considerable autonomy, managing and handling all aspects of the process. According to an academic participant, the learning/teaching specialist "certainly drives the process" (FAC-1). When the course is ready "subject experts have a look, but I may also just go ahead and sign off" (LTS-1) as the team member who "has final approval" (LTS-3). One participant acknowledges that "probably I do gatekeep; as the hub of the wheel the spokes are all still coming to you; we still approve all the changes" (LTS-3). At Case B, the learning/teaching specialists' work is valued; one participant suggests that after on-site faculty "work with an instructional designer they want help with their face-to-face courses as well" (LTS-2).

Academics' involvement in "design and content development is a key factor" (LTS-4) and those who teach face-to-face at Case B are "often encouraged to take on course development work" (LTS-1). They "create the course, bringing their experience having taught face-to-face" (LTS-3) in order to "help convert whatever is taught face-to-face" (LTS-1). There are two roles for academics on course teams at Case B: as the main course developer or author, and as reviewer. Course developers in particular "relate the course to the real world, choose the resources, [and] finalize learning outcomes, assessment, [and] learning activities" (LTS-1). The reviewer's work takes less time (LTS-3) and may include making "sure the content is accurate and up-to-date" (LTS-3) and looking "at the scope of work for students or tutors" (LTS-2). If the developer is "a junior person they might have a more senior reviewer" (FAC-2). The reviewer may also be "an expert in online teaching" (LTS-2). One participant suggests that academics on the team, particularly the developers, are "driving the bus in terms of creating the content and

choosing resources" (LTS-3). However, "they don't necessarily have the pedagogical background" (LTS-1) and many "come in with no knowledge of learning theory" (LTS-2).

Managing changing processes.

Participants reported two types of issues with the course design and development process at Case B. The first is the result of tension between the design unit, responsible for new course development and major revisions, and production services, which maintains and makes minor changes to courses. While editors and copyright staff in production services have a vital role in new courses and major revisions, one participant raised the issue of "scope creep when editors doing minor revisions [have worked] with subject matter experts so then they decide to do instructional design" (LTS-3). Another believes there is an "inherent conflict; both units being evaluated on how much we produce" (LTS-2). Participants wondered if production services "has as much accountability for what they do" (LTS-3), or perhaps "try to do more than they need to" (LTS-2). As a result, "things are bottlenecked" (LTS-3) and "take a long time because editing is queued" (LTS-2). The speed of the process depends on the priorities within production services and when "nobody was managing that portfolio things could sit for months" (LTS-2). Two participants cited management as a significant issue (LTS-2; LTS-3), and one suggested that "I think our stuff is always seen as lower priority" (LTS-3). When a course goes to production, learning/teaching specialists "lose control and don't get to prioritize" (LTS-1).

At one time, staff in the design and production roles "stopped communicating with each other and those areas became more autonomous, developing their own

priorities" (LTS-4). More than once "we've been working on a major revision at the same time they were doing a minor revision of the same course" (LTS-3). While the cascading waterfall model is linear, "design is not a linear process, it is iterative" (LTS-4). The course design and development process includes "complex dependencies that are very difficult to put into a linear model" (LTS-4). An organizational change at the time this study was conducted will bring the course design and production areas together under one manager. One participant "hopes this will sort of streamline the process; [we] want to have things more efficient again and [as in the past] everybody working more closely as an actual team" (LTS-2).

The second issue is related to different perceptions of overall course design and development goals as well as process at Case B. A learning/teaching specialist wonders if "applying publication standards to something as fleeting as an online course really makes a difference to the learners' experience" (LTS-3). Perhaps the process is "so tied up with making everything look good like we're publishing something that's static forever, we've lost a lot of nimbleness" (LTS-3). At the same time, academics' participation in course design and development, while central to creating content, happens at arm's length from the course itself. According to an academic participant "the developer and the [reviewer] often don't understand the process" (FAC-1). A learning/teaching specialist suggested that academics are disconnected from the process, and some "who develop courses have no idea how the finished product looks" (LTS-1). Authors and reviewers are "developing something that's going into the LMS yet they're not working in the LMS" (LTS-2). At the same time, academics on campus who develop "their own blended courses are putting stuff online; it isn't necessarily pretty but the courses are great experiences" (LTS-3).

Some academics want to become "more involved and work more at the craft level and interact with the LMS" (LTS-4). On the other hand, another participant suggests that "I've never had [an academic] ask to do their own development in the LMS; very few would consider themselves experts in working in a learning management system" (LTS-2).

Participants perceive opportunities as well as challenges in potential future directions for course design and development at Case B. According to one participant, even though it is "a fairly efficient process; we need to think further ahead" (LTS-4). This participant, reflecting on the process as a whole, wondered if there are "different tools or environments that will allow for a fairly structured process, build in all the necessary elements [but] also get away from that linear model where it just gets pushed down from step to step to step" (LTS-4). Reflecting further on the influence of the LMS on course design and development, this participant speculated that "most [educators] look at learning management systems as evil necessities; they have very restrictive, traditional pedagogies embedded in their design" (LTS-4). This participant suggests that in the current "push towards one big learning management system, integrated tightly with the student record system, you feel the death of innovation and creativity" (LTS-4). As an alternative, it is "inspiring to think about how we could use a more open platform and get more student content involved" (LTS-4).

While participants are looking to future opportunities, they also suggest some cautions. Regarding changes to the design and development process, "there's a lot of technical complexity; it's like changing a Boeing 747 engine while it's in the air" (LTS-4). Changes that might "threaten to break the complexity of getting courses through the

process would be frightening for people" (LTS-4). At least two participants suggested that change can cause fearfulness. Staff may worry that "we wouldn't have a job" (LTS-3) or they may fear "having to give up a lot of hard-won gains in some of our processes" (LTS-4). Since there has been enough "disruption in the past few years, it is important we don't make any reckless moves" (LTS-4). Innovating and making fundamental changes for improvement will mean addressing the notion that "it would be much easier just to tinker with this production machine" (LTS-4). Perhaps the biggest challenge is that "a lot of our decisions are not driven by the pedagogy; the organizational constraints, I'd say that's probably the biggest thing" (FAC-2).

Analyzing Case B artifacts.

Among the artifacts that provided data relevant to investigating course development roles and processes was an organizational chart for Case B's distance learning division available from the university's public website. According to this chart, learning/teaching specialists and production staff are in two different departments. Tutors, who work with distance learning students and may also participate on course teams as reviewers or developers, are in a third department. These separate departments with distinct reporting lines to the university's executive have overlapping responsibilities for distance learning design, development, production, and delivery. Such a structure reinforces comments by participants, learning/teaching specialists in particular, who are concerned that lack of portfolio management is making their work unnecessarily complex and inefficient. It also suggests that it may be difficult to change the process for self-paced course development to incorporate new pedagogies. At the time this study was conducted, production services was joining the learning design and development

department, and both groups would soon report to a single manager. Participants hoped this would streamline the process and alleviate delays.

Course design templates, one for designing units and the other for lessons, are essentially a series of headings (e.g., learning outcomes, activities, resources, assessments) with instructions to course developers regarding the sort of content that should be provided under each heading. Blank and sample course blueprints resemble a linear instructional systems design model with categories for learning objectives, assessment, content, resources, and activities. Sample agendas from initial course planning meetings represent two different courses, one being developed for paced cohort and the other for self-paced. Regardless of the learning model, the planning meetings follow identical agendas. Once the design and development process is introduced, and project scope and roles are discussed, aspects of the actual content such as outcomes, activities, and assignments are developed. These agendas are consistent with the descriptions provided by the participants in this study. Course development checklists indicate considerable administrative work on the part of learning/teaching specialists. Overall, the design and development process is linear, and while it is apparent that course design and development work at Case B relies on teamwork, the process represented by these documents appears to be structured and formalized, and managed by the learning/teaching specialist. The use of standardized templates and guides is typical of the industrial model of distance course design and development.

To conclude this discussion, there appears to be consensus from participants about course design and development processes at Case B. The process reflects several characteristics of the industrial model, including assembly line, formalized processes, and

division of labour. Participants agreed that the learning/teaching specialist manages course design and development and directs the work of the team. While some suggested that the process is flexible, the degree and types of flexibility are determined by the learning/teaching specialist. Academics had comparatively little to say about the process, and had few suggestions for change. Most comments regarding problems or need for changes focus on a desire for efficiency, though a few participants see promise in open development tools and processes.

Key Case-Based Issues

The purpose of this final section of Chapter Five is to summarize my interpretation and understanding of Case B by developing key issues that convey the complexity of the case, and to give readers an opportunity to consider their knowledge of the case or modify their understanding of similar cases. The characteristics of Case B as they relate to this study are summarized here as an overview. Self-paced courses at Case B exhibit cognitive-behaviourist pedagogy, with knowledge transmitted one-way to students who then complete structured activities and assignments. While learner-content interaction is of central importance, learner-learner interaction is included in the design of some self-paced courses. A wiki is used for internal communication among course developers. Course design and development exhibits several characteristics associated with an industrial model. Learning/teaching specialists manage and direct course design and development and are responsible for signing off courses, though they have less control during some stages of course production. A common concern of most Case B participants is the effect of changing models of pacing and media on their learning design and pedagogy choices. Renewed emphasis on a self-paced model, after a few years of

imposed-pace cohort designs, raises questions about the impact of designing courses for self-pacing and then re-purposing them for imposed-pace cohort and vice versa. At Case B there are unresolved issues related to (a) learning design and pedagogy, (b) potential ways to make use of social media, and (c) efficiency and control of the course design and development process.

Case B illustrates how institutional strategic directions and administrative policies may affect educators' choices and decisions regarding learning design and pedagogy. The learning model mandated for distance learning has shifted twice in the past decade. Participants in this study spoke frequently about how decisions for course design are not pedagogical, but are driven instead by what they perceive to be business and marketing motivations. An academic participant suggested that economic and administrative factors in the form of "precedent or policy set the limits for designing assessment or covering certain material" (FAC-2). In some instances, what is "economically and administratively desirable is not what you would choose to do when you're designing a course" (FAC-2). Determining which modality to offer is a series of "strategic logical decisions" (LTS-1), with the result that choices about pedagogy are made by management (LTS-2) and may not be what course developers would recommend. Participants spoke about designing courses for one modality only to have these courses "tweaked" (LTS-1) to fit another. Since courses are developed to "be easily structured to be self-paced or paced" (FAC-1), developers design "the paced and the unpaced together" (LTS-2) and both forms are "designed pretty much the same" (LTS-1).

It may be that creating courses to fit three modalities makes it difficult to make optimal use of any particular pedagogy. Different models offer different pedagogical

opportunities and constraints, which raises questions about how designing courses for multiple pacing and media affects pedagogical choices and the provision of learner-learner interaction. When designing courses to meet a broad range of pacing and media options, or designing in order that courses may be re-purposed for multiple modalities, course content becomes the common denominator. It may be that emphasis on multiple modalities, aspects of which may be pedagogically incompatible, results in courses where content and cognitive-behaviourist pedagogy predominate, since constructivist or connectivist pedagogies rely more on learner agency and less on content presentation.

Looking to the future, participants wish to learn more about what works and what does not work for students, including how learners "make choices in terms of which modalities and which media" (LTS-4). According to one participant, it may be time to "re-think the boundaries between paced cohort and independent study" (LTS-4). The participants in this study hope that a process of reflection and planning will address their concerns about pedagogy and interaction, rather than relegate these issues to a place that is secondary to business and marketing goals.

Participants are interested in experimenting with social media and networked approaches, though they report a lack of institutional support and resources. Learning/teaching specialists already use social media tools for departmental workflow and productivity, which suggests a willingness to use networked-based approaches and open tools, but participants have yet to incorporate social media and connectivist pedagogy into many self-paced courses. At least one participant perceives that reliance on the LMS and its structured, traditional pedagogy mitigates against the openness necessary for bringing social media into courses. In addition, incorporating open and

public activity typical of social media for learner-learner interaction in self-paced study is likely hampered when educators are separated from the learning environments and experiences for which they are designing.

It is worth noting that activities such as wikis may support learner-content interaction at least as much as they do learner-learner interaction. While participants in this study value the opportunities for learner-learner interaction inherent in social media, their suggestions of applications and approaches often focus on purposes related to interacting with course content, such as building glossaries and databases. Connecting learners appears to be a secondary reason for using social media. This concern for enhancing learner-content interaction is apparent in an academic's comments that an emphatically open strategy such as MOOCs are valuable for "self-paced learning [as] great resources on the subject that you're studying" (FAC-2). However, the perceived downside to MOOCs is that "there's just so much learner-learner interaction; it's ridiculous" (FAC-2). While participants may be interested in the innovative possibilities of open, networked approaches, their focus on learner-content interaction aligns more closely with cognitive-behaviourist than with connectivist pedagogy.

Participants' hesitation in taking strong positions on incorporating social media may be related to Case B's history of mandating changes to learning models more for business than for pedagogical reasons. There was little sense from participants that courses could be built on networks that rely on connections, and on opportunities to communicate, share, and learn with other people. At Case B, connectivist pedagogy has not gained a foothold. While one Case B faculty member plans to explore ways in which social media can affect how people learn, until networked approaches are built into

courses, social media is likely to remain peripheral rather than central to the pedagogy of Case B's self-paced courses and for learner-learner interaction.

Course design and development at Case B exhibits several characteristics associated with an industrial model. The current process is organized much like an assembly line, with formalized processes and division of labour. It appears that few academics are calling for an artisan approach in which they are responsible for most aspects of course design and development. Academic participants are more concerned about finding ways to incorporate aspects of paced cohorts in their self-paced courses than they are in owning the design and development process. This may be due to the nature of Case B's course design and development model, in which "the course is more owned by the process and becomes an entity in and of itself, not tied to any one individual person" (LTS-4). While this may be compatible with a team approach, it may also result in people looking at "courses the way they look at a brick; it's just a fairly standard manufactured product with maybe minor configurations or differences at the end" (LTS-4). Developing innovative course designs may be a challenge within this sort of industrial approach. One goal of the structural change to bring distance learning design, development, and production sectors together in a single department is to re-imagine course design and development to be more open and collaborative. Whether for reasons of efficiency or creativity, participants are likely to welcome this opportunity.

Conclusion

At the time this research was conducted, distance educators at Case B were balancing the need to design courses that mirror on-site offerings while also providing for multiple pacing and media options. Course developers were not settled into a single or

consistent learning model; providing learners with multiple and flexible options is likely to continue as a key characteristic at Case B. The emergence of online learning could put the distance learning division in a position to offer a strong complement to the on-site side of the university. Faculty and staff from both the distance learning and on-site parts of the university already work together on course design and development teams. The relationships and understanding that come from this work may be an important source of strategic benefits for the university as a whole, as the distance learning division has much to offer in terms of faculty development, innovation, and best practices.

Chapter VI: CASE C

Chapter Six reports on the third and last of the cases in this study. The first section of this chapter provides a brief summary of the Case C context as well as the research method in this particular case. Then, the Case C findings are described, with observations and issues supported with detail from the data associated with the case. The final section develops key case-based issues to convey the complexity of the case, and summarizes my interpretation and understanding of Case C, while also giving readers an opportunity to consider their knowledge of similar cases (Stake, 1995).

Overview and Context of Case C

Case C, a single-mode distance university in Europe, was established in 1984. The main campus looks much like a small, traditional university during a summer or semester break, when no students are present. Several small to medium-sized office buildings are surrounded by green space. As someone familiar with the history of distance education, I noticed that these buildings were named for traditional distance education institutions throughout the world. Other than a main cafeteria, I saw no large gathering spaces, though small groups of people congregated for conversations in central places within each building, around common areas such as coffee rooms. According to its public website and Wikipedia page, as of 2012 Case C had 600 full-time staff, with nearly 300 of these full-time faculty, and over 17,000 students registered in just over 400 courses. Case C accepts registrations for undergraduate courses from any citizen over the age of 18. General knowledge and development at a secondary school level, and good command of the national language (and sometimes English) are desirable. Online tests

for prospective students to assess their language and mathematical proficiency are available on the Case C website.

Case C offers a form of self-pacing for undergraduate study in which learners work through a course at their own rate within a 14-month contract that begins when they register. Case C strives to develop, provide, and foster open and innovative higher education, based on the diverse learning needs of individuals and the demands of the knowledge society as a whole. As a research rather than an applied university, Case C pursues this mission hand-in-hand with conducting research related to academic disciplines as well as in distance teaching and learning. Data for this study was collected from three main sources: (a) in-depth interviews with learning/teaching specialists and academics who design and develop self-paced undergraduate courses, (b) course websites and materials for six self-paced courses, and (c) artifacts and institutional documents. Table 9 summarizes these data sources and indicates how each one relates to the three research questions for this study.

Table 9

Data Sources (Case C)

Data Source	Details	Research Questions
In-depth interviews [a]	- 4 learning/teaching specialists, 1 administrator - 6 academics	1 to 3
Self-paced courses [b]	- business - education - law - literature - computer science - psychology	1 and 2
Institutional artifacts	- public report produced to commemorate Case C's 25th anniversary (2009) - five academic articles - institutional course development and design guide - two research project reports (2008; 2009) - in-house handbook for developing courses in a particular LMS - an internal report on an institutional research program from 1998 [c]	1 to 3

[a] In-depth interviews totalled 14.3 hours
[b] Since online course websites and materials were not available in English, several participants helped me review self-paced courses during our interviews
[c] This document, while dated, provided good background related to pedagogy at Case C

There are two limitations to this study of Case C. The first is that there were no undergraduate-level, self-paced course sites or materials available in English, though several participants did show me course sites and materials during our interviews. While I was able to note some aspects of the structure and content of these course sites, I was not able to conduct the sort of in-depth learning design analysis that was possible with the courses from Cases A and B. The second limitation also relates to language. While all participants spoke excellent English, our conversations may have been more superficial

or less nuanced than if I was fluent in participants' mother tongue, or if English had been their first language. As with Cases A and B, the third source of data consisted of artifacts and institutional documents suggested by participants. Since several of these items were not written in English, I translated them with Google Translate, which can handle large volumes of text and produce a rough but readable translation. Even so, the output of these translated artifacts and documents likely lacks the subtleties of the original texts.

This concludes the overview of the general data collection strategies for this study. The next section provides details on the Case C findings as they relate to answering the three research questions for this study.

Case C Findings

Ten years ago, Case C's efforts to make their in-house online learning environment fully operational shifted toward implementing a single proprietary LMS across the university. Since then, different faculties have followed different paths, with the result that, at the time of this study, self-paced courses were available through three LMSs. In 2012, Case C began piloting a paced cohort model. Some participants described the new model as an important development, since "providing some structure in the form of pacing helps students keep on track" (FAC-4). In the paced cohort pilot, students take four courses per year through "blended learning where people meet" (LTS-1). Others described Case C's self-paced model as "our asset; students can learn any time, any place" (FAC-6) and are not locked into "obligatory interaction" (FAC-2). According to some participants, such a model suits students who "really want to do it in their own time" (FAC-1). In the end, "well-motivated students with a lot of discipline manage; other students need something more" (FAC-3). Feedback from self-paced students

indicates that they are “very satisfied, yet two or three or five years later most of them have stopped [their studies]” (FAC-4). Some learners have difficulty coping with the high level of freedom in self-paced study (LTS-2), since “it’s a lonely experience” (FAC-4) and many students don’t finish the program (LTS-1). Since Case C is funded on the basis of degree completions “we need to have a lot of students who succeed” (LTS-1).

Participants described benefits as well as reservations about paced cohort studies. Students “studying together get more monitoring and tutoring, and will stay in the course” (LTS-1), they “are working harder and with more pride” (FAC-4), “about 80% of students complete” (LTS-1), and “the success rate is really high” (FAC-3). On the other hand, student workload for paced courses was estimated to be “about 30 study hours a week; I think that’s too much” (LTS-1). For now, “students can choose to use [paced learning] or not” (FAC-3). In the future, it is not clear whether both paced and self-paced will be available as options for students; this would mean maintaining “two sorts of programs” (FAC-5). More pilots and further evaluation are planned to “focus on which students would really like more contact” (FAC-1).

Whatever the outcome of pilot programs and research, the context of various learning management systems, experiments with a paced learning model, and potential need to design for both self-paced and paced cohort are key aspects of the setting in which the Case C participants seek to provide learning opportunities and environments that are pedagogically appropriate.

Pedagogy and Learner-Learner Interaction.

From participants’ descriptions of their self-paced courses as primarily focused on transmitting knowledge and skills via print and online media to learners working

individually, it appears that cognitive-behaviourist pedagogy is prevalent at Case C. According to one participant, students “have to consume the knowledge” (LTS-4). Some advanced courses are designed to transfer knowledge as well as skills (FAC-3; FAC-2), primarily soft skills to “fit a future position as a professional” (LTS-3). Skill development in psychology courses enables students to “ask the right questions” (FAC-3) and is useful in “mathematics and computer programming where you can understand everything and still not be able to do it” (FAC-4). Some courses are “60% knowledge-based and 40% problem-solving” (FAC-6) and a few courses are designed for competence-based learning (LTS-4). Participants suggested that “cultural sciences and law are very cognitive” (LTS-2), and educational sciences is more knowledge construction (LTS-2; FAC-2). Even so, cognitive-behaviourist pedagogy is predominant, with self-paced courses at Case C “mostly knowledge-based” (FAC-1) and meant “to transfer knowledge based on our intended learning outcomes” (FAC-3). As well, this participant sees self-pacing as compatible with knowledge transmission (FAC-3).

Factors and influences.

Consistent with cognitive-behaviourist pedagogy, course content and “good course materials are still very important” (FAC-4). Courses are described as “a book and a digital environment to point the way through the book; students acquire the knowledge and pass the exam” (FAC-2). In order to “transfer knowledge you give a lot of theory and course materials” (FAC-3), including a “study guide to explain things that weren’t explained well in the textbook” (LTS-1). Students are required to “know a lot of facts; the knowledge is written on the page” (FAC-4) and to “consume the knowledge in books, audio, and video—‘here’s our stuff; learn it’” (LTS-4). According to one participant,

students are best served when “you put all your knowledge, didactical insights, and experiences into the material” (FAC-4). Apparently a colleague at another university has said Case C’s “course materials are so perfect, students get lazy and think that everything they need to learn is in the materials” (FAC-4). However, one participant asserted that if learners “read the book and are finished learning when they can answer 27 out of 40 questions correctly; that’s not education” (LTS-4). According to another, “the problem is that [academics] focus on the content and want to teach it so students are all filled with content” (LTS-2).

In the past, course materials were mostly print (FAC-4) and “student-to-student and student-teacher interaction wasn’t that important” (FAC-5). Even with online media and opportunities, “there is no interaction” (FAC-1), “no learner-learner communication” (LTS-3), or “some interaction but it’s minimal” (FAC-3). Learner-teacher interaction is emphasized since “students only interact with me” (FAC-5) or with the tutor (LTS-3; FAC-6) and “they come to us, the experts” (FAC-1). Two participants described a course design in which learners work in a virtual “research institute; led along a scripted path” (FAC-1) where “the student sits at his computer but has the feeling of talking to the specialist” (LTS-2). While experiential and interactive, this design reflects cognitive-behaviourist pedagogy in its emphasis on individual learning directed toward a prescribed set of facts.

When learner-learner interaction is present, it is usually through discussion forums or web conferencing. In some courses, students use a “discussion board to provide feedback on each other’s work” (LTS-3) or “place a short thesis into the discussion forum and people have to comment” (LTS-1). Discussion boards are also a

means to provide peer support as students answer each other's questions (FAC-2) or "motivate each other to study" (LTS-2). To encourage learner-learner interaction in self-paced courses, "we tried to couple students on the basis of where they are in the course" (LTS-1) or link students "to someone who had finished one more study task further" (LTS-1). However, with these strategies students may have to wait for a response (LTS-3). Learner-learner interaction is "present in only a few courses" (LTS-4) and "is a permanent point of concern, something we struggle to get well designed" (LTS-3).

Several participants see the need to moderate discussion forums "to monitor what's happening; to see what students do" (LTS-2) and "to see if the right answer comes along" (FAC-2). Discussions also need to be monitored because "if the teacher isn't visible in the fora it drops dead" (LTS-2); while in a "moderated discussion there is much more activity" (LTS-1). However, moderating discussions takes time, and "we have very few staff so that's a big problem" (FAC-5). Increased workload may be a deterrent for academics with "several courses and lots of students and too little time" (FAC-3). According to participants, "we are not quite sure how to use [discussion forums]" (FAC-3) and "to get students involved is probably the biggest challenge" (FAC-2).

In most courses, students' final grades are based on a single final exam. When revising a course, "the objectives [must] stay the same so the exams will be okay" (LTS-1), and exams are only changed through a strictly prescribed process (LTS-1). In only "a few courses the mark that you receive at the end is built on some assignments" (LTS-4). Without graded assignments, there is less opportunity and there may be less incentive for students to interact. Some participants noted that learner-learner interaction should be designed as required and graded (LTS-4; FAC-2). Even so, in most cases "we pose

questions for discussion, tied to a particular assignment that is not mandatory" (FAC-2), such as non-graded activities that help prepare students for their exam. As a result, course developers focus on course content rather than interaction.

Several issues shape participants' efforts to apply different pedagogies and incorporate learner-learner interaction in self-paced courses at Case C, including (a) perceptions about learner's preferences, (b) perceptions about learner-learner interaction, (c) experiences with and awareness of technological affordances for learner-learner interaction, and (d) concern for logistics related to enrolment numbers.

Several participants portrayed Case C students as instrumental and focused solely on the activities that lead directly to completing their courses. Case C "students are very pragmatic, efficient people; they work and have families" (FAC-2). Students are "very busy" (FAC-6), are "directed toward learning as much as possible in as short a time [as possible]" (FAC-4), and are able to spend only "10 or 15 hours a week in their studies" (LTS-4). It may be that students "like interaction [but] in informal ways so they can decide to be active or not" (FAC-3). While participants may "have ideas about interaction, most students don't see the advantage" (FAC-2). Some participants believe learner-content and learner-teacher interactions to be most valuable. For some, learner-learner interaction "isn't strictly important" (FAC-5), as in a course that "had a forum [but] teachers said 'I don't look at it'" (LTS-2). An academic participant suggested that if students "are motivated they can just use [the materials] and you don't really need interaction" (FAC-4). Over time, "communication between students or students with the faculty members was designed out of the courses" (LTS-4). Today, interaction is "not formalized and depends on the initiative of the student and the teacher" (FAC-3). Even

so, one participant asserted that students “could learn more from each other than from mailing their teacher” (FAC-2). Particularly in advanced courses, “it is important for students to work together; to weigh different interpretations” (FAC-5).

Among participants there is a range of expertise related to incorporating learner-learner interaction. Most learning/teaching specialists’ work includes helping academics “get more in touch with each other and with the practice of teaching” (FAC-5). This support is necessary because “there’s a gap between what [academics] are teaching today and what will be possible in the future” (LTS-2). In some cases academics “do what they are used to doing and they don’t know [other possibilities] exist” (LTS-4). An academic participant agrees that not everyone “sees the importance of [learner-learner interaction] so they design the courses the way they have [always] done it” (FAC-3). The scant use of learner-learner interaction does not appear to be associated with an absence of technologies and tools. According to one participant, the “LMS offers tools [for learner-learner interaction]; we just don’t use them enough” (FAC-2). It appears that incorporating learner-learner interaction into self-paced study is not being systematically addressed. In some faculties, course content and materials are in the faculty’s own LMS, while discussion forums are elsewhere in the main institutional LMS (FAC-2) and are rarely used (FAC-1).

In many cases, the presence of hundreds of students in a course means that discussion forums function as “a question and answer for everyone to see but there is no more interaction” (FAC-2). In low enrolment courses “sometimes there’s no other student to give comments” (LTS-1), “there are few students and they’re in very different stages” (LTS-3), and “there is no one to have interaction with” (LTS-2). Logistical factors related

to enrolment levels are complex. With low enrolment levels, when “there are not enough students it comes back to the teacher or lecturer to answer questions” (FAC-2), and with high enrolment “the more students you have the more one-way it will get” (FAC-4).

Analysis of self-paced courses.

In the six self-paced courses I examined while at Case C, the primary pedagogy is cognitive-behaviourist, though there is potential for constructivist pedagogy in three courses. Learning is generally an individual process of mastering pre-specified facts and concepts through reading print and watching online media; all six courses follow a linear learning trajectory in order to achieve knowledge transfer through structured presentation of defined course content. Most learning tasks are not graded, but are intended to help students prepare for the final examination. As with all of Case C’s self-paced courses they are online accompanied by printed material, including textbooks.

In the business course there is one discussion forum which is not very active and is used primarily to provide learning support. The education course has potential for constructivist pedagogy through group work in a discussion forum where students post their work and provide feedback for each other. Students must provide comments in the forum before they can move to the next unit. In the computer science course, students make scant use of a discussion forum in the LMS to ask questions of the teacher. In the law course, there is potential for constructivist pedagogy in a series of practical activities, and an important part of the course is students’ use of discussion boards to provide feedback on each other’s work. Even so, the practice-related study tasks are discrete activities that do not appear to build upon each other. The literature course follows a linear design with guided didactic conversation clearly tied to pre-determined learning

objectives. Described as a "read and study" course, learners are assessed with a 100% final exam. The psychology course relies on print material, but also uses video and cases to apply theory to practical issues. However, this activity does not take place in groups or in authentic contexts. Learner-learner interaction by way of a discussion forum in the LMS is primarily social.

In most courses at Case C—"more than 90%" (LTS-2)—students are assessed with a final exam worth 100% of their final grade. Exams are online; most contain multiple-choice questions (FAC-6) and primarily test knowledge (FAC-3). One participant would like to change the practice of 100% final exams, but "that's a political question" (FAC-2). Assignments are typically optional study tasks that specify "this is the kind of essay that you are expected to write and e-mail to your teacher for feedback; all the interaction is taken out of the digital environment and just steered back to old fashioned e-mail, telephone, and so on" (FAC-2).

Analysis of Case C artifacts.

According to the public institutional report published to commemorate the university's 25th anniversary in 2009, Case C advocates active learning rather than passive knowledge acquisition. At Case C, pedagogy is described as enabling learners to actively acquire and apply knowledge and skills; this report says that students learn from case studies, practical situations, problems, and research through a variety of teaching/learning models. According to results from a 2008 survey referred to in this report, many courses are designed with a fixed structure. Learning is defined by the subject matter; through standard self-assessments at the end of each unit students compare their answers with those of the teacher. In addition, 40% of respondents to the

2008 survey chose teaching/learning models based on principles of guided self-discovery, use of simulated virtual companies, and competency-based practicum.

An internal report on an institutional research program (1998) suggests that pedagogy at Case C has long emphasized competency-based learning in which learners interact with real events or simulations to develop competencies rather than learn facts or procedural skills. This document describes an instructional design focus on developing didactic models, scenarios, and learning tasks. Constructivist theories are cited as the basis for emphasizing the importance of sequencing learning tasks and providing adequate scaffolding, noting too that there is a trade-off between independent learning and the amount of scaffolding that can be provided.

An academic article from 2009 reports on an innovative design for learning through role-playing in a collaborative distributed learning environment, developed for the Business faculty in the late 1990s. An article from 2007 describes courses developed in the Science faculty that make use of role-playing in a scripted collaboration environment. These initiatives were built on principles of competence-based learning, referred to throughout institutional documents from Case C, and represent opportunities for constructivist pedagogy. As well, the institutional research project report from 2008 describes Case C programs as competency-based, focused not only on knowledge but also on the acquisition of competences and academic attitudes. The starting point for educational design is reported to be a constructivist perspective with authentic contexts, tasks, and assessment. The goal is for students to solve meaningful problems in an authentic setting, consulting with authentic sources, and interacting with colleagues and experts.

The institutional research project report from 2009 describes ways in which Case C enables competency-based learning. Practice is brought into the curriculum through a mix of conventional media and advanced technology in an educational setting where freedom of place, time, and tempo are highly valued. This report notes that multimedia and highly interactive scenarios require that students switch between or within media, and can make it difficult for them to attend to their own learning process. Advanced technology makes it possible to build interactive scenario-based courses that simulate complex everyday situations, while presenting real and meaningful problems in authentic contexts. However, this report notes, developing such courses requires considerable time and can be costly.

The 2008 institutional research project report includes issues related to interaction in Case C courses. While learner-teacher interaction is described as vital to promote learner motivation and provide guidance, the report also suggests that the use of high-quality course materials means there is little need for students to interact with others. In addition, this report notes that most students choose Case C because interaction with other students is not required. This report suggests that while Case C students may recognize the added value of cooperation, they also see collaboration as infringing on their freedom of time and pace.

According to the public institutional report from 2009, Case C has had two major developments in its history. The first was the introduction of competency-oriented forms of learning, which shifted the emphasis in courses from explaining concepts to helping learners apply concepts in realistic situations. The second development was to adapt the form and content of courses to the requirements of life-long learning. According to this

report, at that time Case C was on the verge of a third development. The explosion in information was perceived as limiting the usefulness of knowledge from books in the context of practical situations. Instead, knowledge would be perceived as dialogue, with Case C courses as places where knowledge would be shared and made rather than transferred. In 2009, courses in the future were described as including a wide range of knowledge producers, and teachers would help students relate their own experiences to new ideas. Transferring knowledge would no longer be central.

In contrast to the research articles and reports, the in-house handbook for course development in a particular LMS makes far less mention of competency-based learning or constructivist pedagogy. This handbook depicts a linear instructional systems design model influenced by cognitive-behaviourist pedagogy. Course developers are guided to base a scripted path along a linear learning trajectory. Course elements should (a) address a substantive point, (b) have a clear beginning in the form of a concrete target, (c) have a clear end in the form of a test, and (d) clearly relate to what has preceded and what is to come. This handbook is concerned with ensuring course components are ordered correctly, implying a pre-determined path and set of objectives rather than open exploration and problem solving.

To conclude this discussion of pedagogy and learner-learner interaction, participants describe Case C's self-paced study courses in terms consistent with cognitive-behaviourist pedagogy, with learner-content and learner-teacher interactions most prominent. Institutional artifacts indicate an emphasis on competence-based education at Case C, which, like cognitive-behaviourist pedagogy, focuses on individual knowledge acquisition and skill development. Institutional artifacts make little mention

of learner-learner interaction, giving it similar minor attention, as is evident in the interview and learning design analysis data. In that regard, choice of pedagogy does affect the incorporation of learner-learner interaction opportunities in self-paced distance courses. While some participants report their concern with as well as their efforts to incorporate learner-learner interaction, artifacts and Case C course websites do not reflect these desires. It appears that within self-paced study, movement away from cognitive-behaviourist pedagogy and increasing opportunities for learner-learner interaction is more a desired future than an imminent development at Case C.

Connectivist Pedagogy.

My second research question investigated the ways in which connectivist pedagogy is enabling learner-learner interaction in self-paced course designs.

Readiness for connectivist pedagogy.

Participants suggested that in self-paced courses, students writing blogs could serve to "bring in their knowledge and get knowledge from people outside our university" (LTS-2) and "to provide good examples for things that are commonly misunderstood" (LTS-3). Even so, most faculties make little use of social media in self-paced courses (FAC-4), though student blogs are included in the paced cohort courses being piloted (LTS-1). In one faculty, students "see blogs created by experts, but not [academics'] blogs or students' blogs" (FAC-6). One participant reported the use of social media such as Facebook, Twitter, and LinkedIn for "public relations, not yet in any courses" (FAC-1). Another participant agrees, that "we use social media for announcements, for marketing" (FAC-6). At one time a course did have "students work with Delicious [a web service] for bookmarking but when the course was revised that part

was skipped" (LTS-4). One participant suggested that courses in an LMS may not be the best place to incorporate network-based learning approaches, since learners do not have access to the system after their course ends and new students are unable to benefit from the expertise of learners who have finished the course (FAC-2).

Incorporating social media or networked learning approaches typically involves technological capacity such as an online learning platform or LMS. Case C has used a range of such systems; as early as 2004 the "virtual learning environment developed in-house really was ahead of its time" (LTS-5). Today there are three platforms. The institutional LMS acts as a portal and "includes an online cafe for all students" (LTS-4), as well as basic course information (FAC-2). The Psychology faculty uses a different LMS for course websites and course materials (FAC-2; FAC-3), though one participant described the difference between this LMS and the institutional one as "only a thin line" (FAC-2). The Education faculty uses a third LMS, built on an open-source portal and collaboration platform (LTS-2) that may also be used in the Psychology faculty (LTS-1) if they are unable to maintain in-house expertise with their current LMS.

Learning/teaching specialists had the most to say about the issues associated with having three online learning platforms. Course developers wonder whether they should "go further with our own work or shall we switch?" (LTS-1). Decisions about online learning platforms are "a struggle" (LTS-4), and "it's very difficult to get everyone to agree" (LTS-5). One participant suggested that the key issue is "politics; some people don't like one LMS or another" (LTS-4), while another stated that "you have to invest in one good virtual learning environment; somebody has to decide" (LTS-1). This

participant suggested that the institutional LMS will likely remain in use "because we have so much material in there" (LTS-1).

Efforts have been made to create a networked community across Case C. In the institutional LMS portal, "people are piloting community sites" (FAC-4) and building functionality similar to Facebook there" (LTS-1). As well, "a social media platform, a bit Facebook-like but strictly for Case C students to meet, make friends, debate, write blogs" (FAC-2) has been developed and tested in the open-source collaborative platform used in the Education faculty. This project, described as effective for "contact and communication between students; they have a kind of wall where they can write to say things to each other and everybody can read it" (LTS-1), has been "running for about two years" (FAC-2). Students made less use of the "tools we thought would be handy for exchanging knowledge and learning from the opinions of others [and more use of] lists of friends and personal messages" (FAC-2). The idea of "an expanding network of students helping each other never really took off" (FAC-2). It seems that students "perceived [our] social media platform not as a place where you learn from each other but rather as a place where you support others" (FAC-2).

Meanwhile, in some faculties, learners are organizing their own social media strategies and opportunities. Several participants cited a Facebook group initiated and moderated by and for psychology students (LTS-1; LTS-2; LTS-4; FAC-3). Some academics have "joined this flourishing Facebook group and we look around" (FAC-2). Though "we don't organize it, we say we can't forbid it so better to join them" (LTS-1). In the search for ways to incorporate social media, "we have been trying to build that structure and it doesn't work and somehow it does when they do it themselves" (FAC-2).

Social media and self-paced learning.

An academic participant reflected on the role of learners as nodes in a network, and noted that this aspect of the interview was "probably the core insight of our discussion" (FAC-2). This participant described the results of a network analysis in which "five or ten students were connected to a lot of others; they are spiders on the web; a lot of students float around and don't interact with anyone but the spider" (FAC-2). This participant believes that "Case C needs to identify those spiders so they can be a bridge between my desk and those other students" (FAC-2). These connected students are able to "integrate their private life with their life at Case C and their working life" (FAC-2) while most students just "leave a few trails, make a few friends, and only come back once in a while" (FAC-2). This participant suggested that "there are students who are interested in fulfilling a network function; I think we are not doing enough to identify them and pat them on the back" (FAC-2).

In order to achieve networked approaches to learning, one participant suggested that "you've got to take away the barriers between courses and probably also between faculties and create a digital environment in which the entire Case C community meets" (FAC-2). One participant noted that "we should use the things people use already, but some people use Facebook or Twitter and others don't; you have to find one thing that puts all the things together; maybe this will happen but it's not the situation now" (LTS-4). Likewise, an academic participant noted that "I have to be active in Facebook, on Twitter, on LinkedIn; I think we have to focus on one or two and use them in the best way to stimulate our students in learning and in exchanging" (FAC-3). Another participant cited examples of online communities of interest, observing that when there

are “real issues, you can get a community discussing [issues] and those communities work; in education we are pulling the strings” (LTS-2).

Participants shared several perspectives on Case C learners that may influence their efforts to incorporate open social approaches into their courses. Participants suggested that some students “are not really willing to open up” (FAC-2), “don’t like to be forced to work with each other” (FAC-3), and “prefer to learn passively and not actively” (FAC-4). However, the approach in which “we produce and you consume” (FAC-4) may need to change in order for students to be “more producers of knowledge” (FAC-4). Students as “prosumers rather than consumers” (FAC-1) may be the “perfect way to get students more motivated” (FAC-4). Another participant noted that efforts to incorporate social media and networked approaches to learning should acknowledge the so-called 1-9-90 rule (FAC-2). If this rule applies, only 1% of users will actively create content. Another 9% will comment, rate, or share content, while 90% will watch, look, or read without responding. In the end, for connectivist pedagogy and networked approaches, “the biggest challenge is still to get students involved; we have a lot of ideas, but most students don't see the advantage” (FAC-2).

Some participants see potential benefit in academics’ participation in social media. According to a learning/teaching specialist, “students say ‘you have professors but where are they?’ They are not in the media they aren’t on Twitter; students want to see and meet academics” (LTS-2). In turn, academic participants are aware that social media may enable them to be “more active, more visible, more accessible; we need the knowledge of which strategies are the best to use” (FAC-3). Presence and activity via social media could “bring the attention of the world to what the university does” (FAC-6)

and “let the world know that we do really interesting things and that we are experts” (FAC-1). However, one participant noted that “at one time we were pushed to be very active in blogging but I have questions about the usefulness of blogging; it conflicts with my academic writing” (LTS-3).

Speaking generally of Case C’s capacity to innovate, including in using social media, one participant expressed concern that “our staff has declined; many young people who had new fresh ideas are now gone” (FAC-1). While “people are expected to integrate new developments into their courses” (LTS-3), “there are things academics aren’t aware of or don’t even want to look at” (LTS-2). It is “difficult to get my colleagues into action; [but] it’s a bit strange; you think ‘why did they move to Case C?’” (FAC-1). One participant believes that successful initiatives “come from the bottom, from people who try to do things a bit differently; enthusiastic newcomers coming with new ideas pushes the entire faculty” (FAC-2).

Analysis of self-paced courses.

An examination of six self-paced courses that incorporate learner-learner interaction indicates that there are few aspects of pedagogy 2.0 (McLoughlin & Lee, 2008) and network-based learning associated with connectivist pedagogy evident. In all courses, self-pacing provides students with opportunities for personalization as they manage their own learning path and schedule. Otherwise, there is little use of social media tools. The business course has one discussion forum, which learners use infrequently for general queries. In the computer science course, there is no evidence of connectivist pedagogy or social media. According to one participant, computer science students are “not as social as psychology or education students; [they are] more directed

toward learning as much as possible in as short a time [as possible]" (FAC-4). The literature course makes no use of social media tools.

Rather than use Case C's institutional LMS, the education course is in an open-source virtual learning environment. This environment resembles a social network, with opportunities for learners to connect in ways similar to Facebook, and apparently "contact between students has been more effective and efficient" (LTS-1). However, the course I reviewed does not make use of the social learning potential of the environment; instead, one participant prefers to use the environment's "monitoring function; it is explicit and easy to see what a student has done" (LTS-1). This course does include an RSS feed for making announcements. In the law course, there are links to blogs for students to read and reflect on as they study particular concepts. In the psychology course, LMS forums are available for open discussion, such as for learners to provide encouragement to each other. There is little activity in the forums; instead, psychology students interested in using social media seem to prefer their own Facebook group. Discussion is active there "with comments on resources and advice on preparing for the exam" (FAC-3). Academics are active participants in the Facebook groups, but in the course itself, there is no use of social media.

Analysis of Case C artifacts.

Analysis of several artifacts and institutional documents suggests a willingness at Case C to adopt approaches associated with connectivist pedagogy. The institution's public report (2009) commemorating Case C's 25th anniversary contains several references to networked strategies for learning and use of social media. For example, Web 2.0 applications are described as opportunities to communicate directly with

students as well as establish a virtual academic community. This report acknowledges that in a networked world, knowledge is no longer fixed but dynamic, with teachers as well as students generating information and fulfilling active roles contributing to the development of courses.

An entire chapter in the 2009 institutional research project report deals with ways in which Case C might address the opportunities and challenges of Web 2.0 and its user-generated content paradigm by adopting the concept of the personal learning and working environment (PLWE) as the future delivery platform of its educational services. The PLWE concept would have called for Case C to develop new educational services in which users would access Case C's information and services through different technologies that support open standards. Three pilot projects were planned. In the first, individuals would organize personal workspaces, plug in and share personal data and widgets, or plug in Case C data and services. The second pilot involved Google Apps. Case C had its own Google Apps domain in 2008; by 2009, only the mail application had been made available for students. With Google Apps available for free within the public domain, it was not clear what added value there might be in offering the same services from the institutional domain. The third pilot provided students with online rating and commenting services throughout their courses. While rating, annotating, and tagging had potential to provide valuable information for students and staff, it was difficult to make this functionality available within the institutional LMS.

The institutional course design and development handbook makes brief mention of social media and networked approaches to learning, noting that learning activities may include sharing information through social bookmarking, keeping a study blog, or

contributing to a wiki. The institutional research project report from 2008 offers insight into the ways in which faculty were using social tools and networked approaches at that time. When asked about the ways in which they provide feedback or learning support to students, only 1.4% of academics reported using weblogs. Finally, an academic article from 2010 reports on an innovative course design in which teams of two to four students used groupware to work collaboratively on authentic problems for actual companies. In a model called remote internships, science students produced bachelor-level thesis reports. Personalization, an element of pedagogy 2.0 (McLoughlin & Lee, 2008) is evident in learners matching their own learning goals with employers' requirements. In this way, each student's learning starts from their own perspective, prior knowledge, and professional experience. However, the collaborative learning activities are limited to students enrolled in the course and further, within each small group. While students may have used open or social tools in their work together, this was not a primary goal of the project.

To conclude this discussion of connectivist pedagogy, it appears that few course developers are experimenting with network-based and Web 2.0 technologies, and connectivist pedagogy is not clearly evident in Case C's self-paced courses. The 2009 institutional research project report provides evidence of interest in and strategic planning for ways in which Case C should shape their technological infrastructure and educational services to match the emerging user-centred paradigm inherent in Web 2.0. Considerable energy and commitment is apparent in, first, choosing a conceptual framework (the PLWE) to guide Case C's strategic direction, and second, in imagining, planning, and implementing pilot projects. However, in practical terms, this ideal future is yet to be

realized. For now, the possibility for connectivist pedagogy at Case C is clearest in the messages within institutional reports, and these are over five years old. Perhaps these initiatives are not yet perceived as mainstream activities, or the willingness to explore new open pedagogies is hampered by myriad constraints. Despite the lack of evidence of social media and networked approaches to learning as pervasive in self-paced courses, some participants see the potential for networked learning as demonstrated by students who are able to combine their learning, working, and social lives online.

Self-Paced Course Design and Development.

My third research question investigated the processes involved in designing and developing for learner-learner interaction in self-paced courses. This question was designed to investigate what characteristics of the industrial model of distance education might still be present and to explore emerging models of course design and development for self-paced courses in general and learner-learner interaction in particular.

Course development processes.

There is a range of approaches to course design and development for self-paced courses at Case C. Two participants described a process of collaboration among academic and other experts (FAC-3; LTS-3). However, a third participant suggested that management at Case C "want us to hand off work to each other, like a conveyor belt" (FAC-2). As well, while one participant sees the design and development process as formalized (FAC-3), others suggested the process differs across the university. For instance, one participant suggested that there is no "institution-wide workflow, every faculty has their own workflow; even within faculties groups have their own way of working" (LTS-5). According to another participant there are different options for course

design and development "but it is not directed too much top down; it is mostly bottom up" (FAC-4). Furthermore, "sometimes one person is responsible for making a course and sometimes it's a team" (LTS-2). One participant suggested that "thinking about instructional design and educational models is not organized any more, but we have no new process" (FAC-6). As a result, course design and development is "not so structural anymore; in every faculty it looks different" (LTS-2).

While the process itself varies, there appears to be some agreement on the factors that should be addressed. Doing needs assessment early is vital; "otherwise, for example, you'll work for weeks and then throw it away because you didn't know there were no students for that course" (LTS-4). Course plans are developed for new courses or revisions (FAC-4; LTS-3). In the future, one participant suggested that courses be viewed as "work in construction, more conducive to continuous improvement, responsive to new developments and more easily updated" (LTS-3). Other participants suggested the process "should be much more flexible" (FAC-1), as well as have "people working more together" (LTS-1). Another participant suggested that there be "more regular interaction between the academic and [learning/teaching specialists]" (FAC-3).

Course development roles.

In the past, courses at Case C were developed by course teams (FAC-5; LTS-4) in "a group with several specialists, and a well-organized process" (FAC-6). In the early days, "we had very strong co-operation between the academics and the [learning/teaching specialists]" (FAC-4). Course teams "were compulsory, and everyone worked together as experts and as colleagues" (LTS-1). The course team "system gives the best results" (LTS-2) and produces "better courses" (LTS-3); "two people is good; [larger groups]

increase the ideas and creativity" (LTS-4). An academic participant believes that "it was better when we worked together with the [learning/teaching specialists]" (FAC-5) and a learning/teaching specialist suggested that "when we were more involved in course development, we kept the course team sharper" (LTS-2). These days, course design and development may or may not be the result of a team approach. Learning/teaching specialists are not always involved (FAC-1; LTS-4). The end of the structured course team model means that sometimes academics go "in circles hoping to find someone who can teach us" (FAC-2). Furthermore, academics in the old system were less likely "to wander off and do their own thing [but now] they can wander off if they don't want to involve [a learning/teaching specialist]" (LTS-3).

Academics are required to participate in nationally mandated faculty development certification; at Case C, this certification focuses on skills and knowledge associated with online teaching. Over the "past four or five years, every faculty member has taken these courses" (FAC-1). Academics learn about technology tools (LTS-3) as well as different learning design models (LTS-5). As a result, some academic participants see themselves as "not only a content specialist but also interested in technology and distance education" (FAC-2), and "also a little bit a [learning/teaching specialist] by now; that's how many of us feel" (FAC-1). One academic participant reported that "in our faculty there is not very much interaction with the [learning/teaching specialists]; academics in our department are comfortable doing course development themselves" (FAC-4).

At Case C, academics are "responsible for their own courses" (LTS-4) and are perceived to be "the owner of the course" (LTS-1). Two academics noted that as "the course manager I sign off" (FAC-5) and "I manage the process" (FAC-3).

Learning/teaching specialists play a consulting role, involved as needed. As noted previously, academics see themselves as "very experienced; I think I can do a lot alone" (FAC-5), and "I feel that I know what they do so I know how to contact them if I need to" (FAC-1). Another participant suggested that "there is not much intervention of [learning/teaching specialists]; somehow they have been separated" (FAC-4). On the other hand, some academics "always plan meetings with [learning/teaching specialists]" (FAC-3) and "courses are designed in close cooperation with the [learning/teaching specialist] department" (FAC-1). While support for pedagogy is available from learning/teaching specialists, academics make choices about who to involve and when (LTS-1), and avail themselves of that support when "they are confronted with issues they can't solve" (LTS-2).

Balancing theory and practice.

Several academic participants asserted that learning/teaching specialists' involvement in the practical work of course development has been downplayed in favour of their research and theoretical work; they have "a lot of expertise [but] we can't use it in our courses" (FAC-6) since learning/teaching specialists "are very interested in research on education but not very much in how to apply it" (FAC-4). In the recent past, new policies "meant research got more important than course development and the faculties were left alone; [this] research has a good name, [but] it isn't very practical for us" (FAC-5). Another participant reported that part of Case C's management "gives more focus to research, to developing new things" (LTS-2). Even academic participants reported that "we also have to do more research, so there is little time for course development" (FAC-6). One participant's explanation is that as "research got more

important for [learning/teaching specialists] it's more interesting to do that than just working at a little course; it has to do with prestige" (FAC-5).

Several participants described a gulf or "big division between [learning/teaching specialists] and the faculties" (FAC-5). A learning/teaching specialist's view of the division is that "when we are too far ahead the gap gets bigger; people say 'I don't want to know what you are doing; it doesn't interest me'" (LTS-2). While learning/teaching specialists try to help academics incorporate new ideas and technologies (LTS-4), an academic participant reported that "we said to [them] 'you are only theorizing, you don't know; it doesn't work with our students'" (FAC-5). Similarly, a learning/teaching specialist suggested that academics believe that "it's all very nice what you're trying to do but I will have 200 students in three months so I want to get on with it; [academics] don't want to experiment; they want to get there as quickly as possible" (LTS-5). The different views of the two groups are clearly summarized here: "[academics] say 'I've got 100 hours to do this course so I've got no time for all your fancy things'; the innovator says 'I want to make something lovely and to do research'" (LTS-5). Learning/teaching specialists "say 'think before you do' and [academics] say 'well let's do it because we have to do it'" (LTS-5).

Despite the provision of professional development for academics and research into online learning by learning/teaching specialists, it is not clear how new ideas and learning from online teaching experiences are or can be shared. This challenge has pragmatic implications, as when lack of communication results in "another faculty making the same sort of mistakes" (LTS-2). There may also be implications for institutional strategic direction if Case C has difficulty bridging the divide to implement

innovations. Participants suggested several changes. One suggested there be "more communication between the parts of the institution that are innovative; a lot more connectedness" (FAC-2). With fewer opportunities to work together in course teams, it is a challenge to share new ideas and innovation, and "the researchers using front edge technologies or research don't speak the language of our course developers" (LTS-5). An academic noted that "it's hard to get the tools they are developing into our faculty, into our course development" (FAC-2). One participant suggested that "the whole idea is that we develop new innovations and they get tested, and when ready to be implemented we hand it over [but with] juggling teaching and research tasks, there's not enough resources" (LTS-3). Staff numbers have declined, so "many young people who had a temporary contract are gone; they were good people with new fresh ideas" (FAC-1). In addition, when time is short, "there is a strict timeframe and then you fall back on what you know" (FAC-3).

Case C faces a challenge in diffusing throughout the university the knowledge developed by innovators, to bridge the "gap between the way we are teaching today and what will be possible in the future; I think sometimes there's much talking about and less doing" (LTS-2). According to this participant "sometimes you see that the bridge is made; someone is seeing new opportunities and then it works" (LTS-2). Despite the challenges, participants at Case C are keen to bring innovation into courses and processes, and "need new people who will bring in new things" (FAC-1).

Analysis of Case C artifacts.

The institutional research project report from 2008 describes Case C's course design and development process in detail. Academics focus primarily on course content

rather than on learning tasks and activities, and the process for developing content is more centralized than the process for developing study tasks. Less than half of course developers work cooperatively with multidisciplinary teams; for those who do, about three-quarters include learning/teaching specialists. The process reflected the industrial characteristics of division of labour, specialization, and a formalized process, with distinct roles each making specific contributions. The authors suggest that in the future there will be a shift from physical delivery of written material that is centrally developed to a more de-centralized process of content creation, content management in repositories, content assembly, and provision of materials to students via an electronic learning environment.

In the internal research project report from 2009, two full chapters address course design and development. The first chapter outlines a research program for designing Case C's future virtual learning environment. In 2009 the research program was just over two years old and the issue of balancing the extent to which Case C adopted e-learning was still to be resolved. Many staff had reservations about e-learning. In addition, the authors acknowledged that it would be a challenge to meet the expectations of students who want more academic presence, high quality online courses with added value, and technology that works flawlessly. Rather than work with academics who are early adopters, the authors suggested that innovation could create long-term effects by encouraging the majority of academics to use new teaching approaches and tools. Without a unit responsible for innovation, the issue of maintaining momentum once the research program ended also needed to be addressed.

The second chapter from the 2009 internal research project outlines efforts to provide user-friendly tools and guidelines for course developers, and to describe workflow and business processes for online course design and development, since the process for developing online materials was unclear, varied widely, and there were no central procedures. The report noted that faculty members' main problems producing online courses are related to resources—insufficient time, money, and expertise. Faculty members expressed the need for access to instructional design expertise as well as central guidelines and standards for developing an online course.

In the public report produced to commemorate Case C's 25th anniversary, a chapter describing course development as an industrial process outlines the history of how the process has developed and changed, and alludes to what is coming in the future. According to this report, introducing an electronic learning environment had not yet led to flexible Web-based education at Case C. The course development process was not standardized, there were insufficient indicators and guidelines for quality, and there was too little support available in terms of tools and expertise. The process was left to faculties, or to individual academics; as a result, there were many types of Web-based courses with a variety of technical and educational approaches. This report suggested that if too little attention were paid to designing Web-based materials, low quality would result. Efforts at developing new procedures were not yet fully successful, apparently because of too little involvement and commitment from the academic faculties. According to the authors, Case C would ensure course development was more systematic and efficient, without creating a rigid and inflexible process. Based on the proven success

of multidisciplinary teams, standard models should allow room for creativity on the part of individuals, though usable authoring tools and routines must be developed.

A presentation to an international conference (2009) describes the Case C research project to develop tools and guidelines for course design and development. This paper noted that helping course teams as they design and develop their courses can distract researchers from focusing on generic tools and solutions. Individual solutions may result in excellent individual courses but might not lead to procedures and tools to enhance the design and development process for all of Case C. An academic article from 2004 asserts that without an integrated e-learning approach with flexibility of time, place, pace as well as personalized learning paths, the use of learning management systems and digital materials may result in little change to the traditional teaching and learning paradigm. The authors advocate an industrial process, as the work is beyond the capacity of single individuals. The authors also point out that artisan approaches can quickly and economically create courses that can be adapted to various student needs. However, to create high-quality multimedia for large heterogeneous groups of students working at different times and places, they suggest that the artisan approach is inefficient and results in resources that are seldom reusable. This article reports on Case C research into processes for developing Web-based courses through cooperation among experts. While some were highly satisfied with working together in course teams and appreciated the expertise of others, academics often reported feeling that they had lost their freedom to modify courses as they wished. While they acknowledged the quality of good instructional design, they felt that industrial processes impeded their ability to make use of the Web's opportunities to change course materials quickly and easily. The authors

suggest that industrial processes and multidisciplinary teams are best for the course design phase, and acknowledge that e-learning courses should be easy to adapt and update. Apparently, Case C needs tools and authoring systems that enable this to happen.

The in-house course design and development guide for a particular LMS was produced by an academic faculty. In contrast to the academic article from 2004, this handbook advocates an artisan rather than an industrial approach. In e-learning, the academic still designs, writes, seeks out resources, and determines the course components. With the shift to digital material, the academic's new role is to input material into the LMS. The institutional course design and development handbook (2011), on the other hand, does not mention this latter role for academics. It depicts Case C's process as based on the instructional design theory known as the ADDIE model (analysis, design, development, implementation, and evaluation). The planning phase is particularly important, as the final result depends on a quality design. Case C has developed and applied didactic models which ensure course developers do not have to design every course from scratch, and online courses in an LMS should also be based on some practical models. Internal research projects have focused on developing models and development routines for online courses.

To conclude this discussion of self-paced course design and development at Case C, the process, once carried out by multidisciplinary teams according to structured procedures, now varies from faculty to faculty. Learning/teaching specialists, once always involved, now participate as needed by academics; some participants want to see an increase in teamwork, as well as more involvement by learning/teaching specialists in the initial course design phase. Case C has conducted considerable research and

published results of investigations into ways to streamline processes while also making courses more flexible in order to accommodate open resources, pedagogical innovation, and creativity, as well as ensuring courses can be easily adapted and modified as necessary. However, it has been a challenge for Case C to diffuse the benefits of this research into course development and e-learning innovation, including the incorporation of learner-learner interaction into self-paced courses, across the university.

Key Case-Based Issues

The purpose of this final section of Chapter Six is to summarize my interpretation and understanding of Case C by developing key issues that convey the complexity of the case, and to give readers an opportunity to consider their knowledge of the case or modify their understanding of similar cases. The characteristics of Case C as they relate to this study are summarized here as an overview. Self-paced courses at Case C demonstrate cognitive-behaviourist pedagogy, with knowledge transmitted one way to students who are usually assessed with a final examination. Documentary evidence indicates an emphasis on competence-based education, which may not necessarily indicate cognitive-behaviourist pedagogy, but which at Case C does focus on individual acquisition of a set body of knowledge and skills along a well-defined path. Learner-content interaction is of central importance; while opportunities for learner-learner interaction are available through some course websites, these are not integrated into self-paced learning designs. Course design and development, once involving structured teams with a strong learning/teaching specialist presence, is now a widely varying process with few central procedures. Several research projects have investigated ways to make Case C's process both more systematic as well as flexible enough to allow for creativity and e-

learning innovation. However, it is not clear how or whether the results of this research, and e-learning innovation in general, will diffuse throughout the organization or have a wide-ranging impact. At Case C, there are unresolved issues related to (a) pedagogy and learner-learner interaction, (b) incorporating social media, and (c) course design and development processes.

At Case C, self-paced courses are individual endeavours by students with few opportunities for learner-learner interaction. While some participants in this study see benefit in learner-learner interaction, it is not emphasized and is not systematically present in self-paced courses. Several participants suggested that this is because learner-learner interaction is not as important as learner-content or learner-teacher interaction. In addition, making learner-learner interaction a required activity, perceived by several participants as necessary in order for it to happen, is seen as imposing limits on learners' freedom. Participants also suggested that in their view, learners prefer the current individualized arrangement and do not see advantages in interacting with others in their self-paced courses. Finally, at Case C, learners are most often assessed solely by a final examination, without graded assignments as opportunities to provide incentives for learner-learner interaction, which is a common approach at other universities. It appears, then, that individualized pedagogy and limited learner-learner interaction are most common in Case C's self-paced courses.

In the past, much educational research at Case C focused on online learning environments and course design and development processes, rather than on pedagogy. Several participants noted that learning/teaching specialists are no longer systematically involved in course design, and there are few mechanisms for diffusing new knowledge

and ideas about pedagogy through the university. Participants are also focused on issues related to the possibility that Case C may turn attention to paced cohort learning. It is widely believed that this new, more structured approach will be beneficial in helping learners complete their courses and will be a "transformation; that's why there's more enthusiasm to go to this model" (FAC-4). Participants are concerned that the new model may not be easy to scale to learning for "big groups; I'm curious how we're going to manage" (LTS-1). Still others see self-pacing as well as freedom and flexibility of time, place, and pace as Case C's key distinction, and they worry that Case C will begin to look more like the conventional universities in the country.

On the surface, Case C seems well positioned to incorporate Web 2.0 and networked learning approaches into self-paced courses. Some participants expressed interest in fostering connections among students (FAC-4) and giving learners "opportunities to be social and to be interactive" (FAC-3). As well, there has been considerable energy devoted to research designed to bring integrated e-learning to Case C learners through building infrastructure and providing support for personal learning working environments. While some participants expressed interest in using social media, it is perhaps less for the value of open and networked pedagogy, and more for its usefulness as a vehicle for "promotional kinds of things because we need more students" (FAC-1). Perhaps social media is perceived more as a way to push information out rather than as part of an open and networked approach to learning. Even so, it appears that some Case C participants are exploring possibilities for networked learning, but as they do, students are forming their own Facebook groups. The Education faculty is investigating social networked capacity in the collaborative portal system they are using as a platform

for online courses. There is potential for networked learning and connections there, though confined to one faculty, and some at Case C are interested in developing a similar social network in the institutional LMS (LTS-1).

However, there is little evidence of social media use associated with self-paced courses. Some participants suggest that “course developers don’t want to experiment; they want to get [the course developed] as quickly as possible” (LTS-5) and “thinking about instructional design and educational models is not organized any more” (FAC-6). Speedy course design with minimal learning design consultation seems unlikely to facilitate social media experiments and networked learning, among other innovations. Neither learner-learner interaction nor use of social media is systematic at Case C, which may be tied to the proliferation of LMSs, and also to the difficulty of diffusing innovation, particularly from learning/teaching specialists, throughout the university, now that the structured course team model is no longer mandated. Still, where Case C participants are interested in the use of social media, they are focused on reaching out through existing networks; “we should use the things people use already” (LTS-4) and “we have to use the social media as they are at the moment; not try to incorporate them in our course” (FAC-3). While efforts are currently spread across multiple networks and LMSs, it is not clear how this may be compatible with the concept of the personal learning and working environment, an idea which may still hold potential for innovative approaches to networked learning at Case C.

In the early days, course design and development at Case C saw course teams, with learning/teaching specialist expertise always present, working within a structured process to produce high quality print resources and other media. Later, these teams

designed online courses and materials for Case C's in-house virtual learning environment. Ten years ago, course design and development "was clearly a kind of industrial model; now it is more of an artisan approach; not very sustainable" (LTS-5). Over time, the process has become more differentiated. Learning/teaching specialists have taken on more research, while faculty development in educational technology has become systematic and mandatory.

The key issue related to pedagogy as well as course design and development is that of how to share and implement research-related new ideas. Individual solutions can result in an excellent course but might not lead to innovations which can enhance course development for the whole university. In 2008 and 2009, Case C's research investigations and efforts brought about positive changes, with increased focus on educational innovation, and more agreement on using e-learning and multimedia. But diffusing innovation throughout the university and reaching the whole staff were challenges, and these concerns continue to be issues. In the future, if Case C's learning model shifts to paced cohort, "the industrial model will re-appear in a different form because we'll have to do what they call *tour de force* to change all our courses" (LTS-5), and from multiple learning environments there may emerge a single LMS. While this may be the challenge around which Case C can rally, it remains to be seen what effect this will have on the university's position as a provider of self-paced study.

Conclusion

Case C is in the midst of change, and it is unclear what sort of university it will be in the future. It is possible that Case C will shift from a self-paced to a paced cohort learning model. Participants wonder what direction lies ahead. Case C is "searching [for]

the best way to give students the opportunities to study" (LTS-1). This participant believes "the new way will be the same as regular universities; studying together at the same time" (LTS-1) and another suggests that the new cohort-based model is a matter of necessity (LTS-5). Participants have concerns and questions. The new model may be difficult, or at least expensive, to scale (FAC-3; FAC-4) and will also make different demands on learners (FAC-3). Case C is an open university "and that's the reason why people come to us, we mustn't change completely to a normal university" (FAC-5). One participant wonders "if we really have gone through to the heart of it to see what is good teaching for distance learning" (LTS-5). Perhaps the future will see Case C become "a different organization" (LTS-5). Others wonder if the new model, in which "the definition of openness will change" (LTS-5) is compatible with Case C's mission.

Over the years, Case C has conducted considerable research on teaching and learning, and has been an early adopter of innovative ideas for online learning environments. The university's strength will come from its ability to act on its experience as a place of research and innovation. A number of factors have led to a gulf between academics and learning/teaching specialists, suggesting that educational technology change needs to go hand-in-hand with organizational and cultural change. As well, innovative efforts need to be supported for momentum to be sustained. The combined experience of academics and learning/teaching specialists, if focused on a common goal, could achieve future directions that work for the whole university.

Chapter VII: CROSS-CASE ANALYSIS AND INTERPRETATIONS

This chapter moves beyond the three single-case reports to address broader interpretations as well as the cross-case analysis of pedagogies and processes from the field, as a result of abstracting and synthesizing multiple case-based findings in order to develop cross-case assertions. This chapter begins with a brief discussion of key over-arching findings from the research. An overview of the cross-case analysis process is followed by discussion of each of four cross-case assertions, associated case-based findings, and representative concepts.

Overall Findings

As noted in Chapter Three, this study was framed by the following three issues.

- Learner-learner interaction is often incorporated as optional or supplemental rather than integral to the learning design of self-paced courses.
- Many self-paced courses are based on or have evolved from cognitive-behaviourist pedagogy, though aspects of constructivist and connectivist pedagogies may also be evident.
- Industrial models of self-paced course design and development may be more compatible with cognitive-behaviourist pedagogy than with constructivist and connectivist pedagogies.

As a result of this multiple-case study, three broad findings address the assumptions behind the first two of these issues. First, regarding learner-learner interaction, in the three cases examined in this study, such interaction is rare in self-paced study. Second, cognitive-behaviourist pedagogy is dominant. When aspects of constructivist pedagogy (or potential for it) were apparent in the three cases, they usually took an objectivist form

such as cognitive constructivism, with its focus on learners as individuals (Kanuka & Anderson, 1999). Third, and also related to the second issue, connectivist pedagogy was rarely evident in this study. Participants' experiences with connectivist pedagogy for learner-learner interaction in self-paced study took place both inside and outside course instances in various LMSs. The question of how to incorporate aspects of open networked approaches while also being bound to LMS infrastructure and supports for self-paced courses remains a challenge. While there were no clear findings across the three cases regarding the issue of whether the industrial model of distance education is more compatible with particular pedagogies, some single case-based findings related to this issue were evident, and contributed to the cross-case analysis discussed in the next section.

While the broad findings just described are important, a process of cross-case analysis helped me explore deeper meaning and explanations beyond these general results and served to create richer description and analysis of these cases.

Cross-Case Analysis

According to Stake (2006), the "main activity of cross-case analysis is reading the case reports and applying their findings of situated experience to the research questions" (p. 47). However, Stake does not suggest simply listing the case findings that relate to each research question. Rather, Stake describes cross-case analysis as a "dialectic . . . wherein attention to the local situations and attention to the program or phenomenon as a whole contend with each other for emphasis" (p. 46). In this study, cross-case analysis was a deliberate process of estimating, rating, and synthesizing the importance, utility, and relevance of findings from within and across the three cases.

Analysis Process

Stake (2006) recommended a process through which to determine the importance, utility, and relevance of the findings of each case as they relate to the key concepts in the research questions, and a way to develop assertions through this analysis. In order to generate cross-case assertions from single-case findings, I worked along Stake's (2006) Track I, which emphasizes the situations and findings of the individual cases. (Track II is appropriate when there are a large number of cases. Track III is used when there is "little interest in the situationality of the cases" (p. 50) and when quantitative analysis is called for.)

The following description outlines the main activities and outcomes, and where applicable, the tools and records (i.e., worksheets, concept map) for the cross-case analysis process. Stake (2006) suggested that the worksheets are not intended for presenting data, as they "might distract rather than help a reader of the multicase report" (p. 47). However, several of these worksheets do represent the key stages in the analysis process in this study, so samples of Worksheets 4, 5, and 6, as modified for use in this study, are included as Appendices E, F, and G, respectively. The final version of a concept map is also included in this chapter as it illustrates the set of assertions and the main concepts that represent the key ideas inherent in the assertions and associated findings. Supporting text indicates the findings that exemplify and support how the assertions are manifested in this study.

I read each single-case report (Chapters 4 to 6) and used Worksheet 3 (Appendix D) to create three case synopses to summarize key information and findings. Case-by-case, in each synopsis I addressed the situational constraints, relevance/prominence of

multicase themes, expected utility of the case for developing each theme, and the key findings. On Worksheet 4 (Appendix E) I estimated the ordinariness of each case, and rated the expected utility of each case for developing each theme. With only three cases, a rating of ordinariness may have less influence, but I did note that Case B was slightly different from Cases A and C. This is partly due to Case B being a dual-mode university, but also because course design and development there appears to be more stable and consistently applied, and to follow industrial processes. This does not mean that Case B was less useful, or that the findings were more or less important to understanding learner-learner interaction in self-paced study. Ratings of usefulness, importance, and relevance were yet to be made at this point in the analysis.

On Worksheet 5 (Appendix F) I rated each case finding as to its importance to understanding learner-learner interaction in self-paced study through each theme. Cross-case assertions were determined by clustering and sorting the case-based findings as they related to each theme. Each finding was rated high, moderate, or low for importance in understanding learner-learner interaction in self-paced study, and then again for relevance. The findings were then sorted high-to-low for usefulness in adding to our understanding of learner-learner interaction in self-paced study. To develop cross-case assertions, findings rated as (a) high for importance, relevance, and utility scored highest; (b) high for importance, and high for one of relevance or utility scored second; (c) middling for importance and high for both relevance and utility scored third; and (d) high for importance but not useful or relevant scored fourth. Analysis of the findings that emerged as strongest through these steps is discussed in the next section.

Cross-Case Analysis Results

As a result of this analysis, 7 of the 12 findings emerged as key findings—most important, useful, and relevant to understanding the main research concerns related to learner-learner interaction in self-paced study. Table 10 presents all 12 case-based findings. The seven key findings are in dark type; the five minor findings are greyed out. References to the research questions for this study as they are associated with each finding are also included.

Table 10

Case-Based Findings (Key as well as Minor Findings)

	Case A
Finding A-1	scripted learning path; structured/monitored learner-learner interaction (RQ 1, RQ 2)
Finding A-2	staff perceive risk of learners cheating and/or no meaningful interaction if learner-learner interaction unstructured/not monitored (RQ 1, RQ 2)
Finding A-3	social media peripheral and not influencing pedagogy; in-house social network valued as open and accessible, with potential for supporting interactive learning but not integrated into typical course development or provision (RQ 2)
Finding A-4	gap between academics and learning/teaching specialists evident in issues related to ownership of courses, design and development process, access to course sites (RQ 3)
	Case B
Finding B-1	strategic directions and admin/economic/business policies affect learning design/pedagogical decisions (RQ 1, RQ 2)
Finding B-2	course content is the common course denominator (variables in pacing, media, need to mirror face-to-face content) (RQ 1)
Finding B-3	use of social media affected by institutional support/resources, perception of social media as a content source, concerns for privacy (RQ 2)
Finding B-4	course owned by the design and development process (RQ 3)
	Case C
Finding C-1	gap between academics and learning/teaching specialists; also between research and practice (RQ 1, RQ 3)
Finding C-2	piloting new paced cohort model may dilute services to students who need/prefer self-paced; perceived danger of becoming like conventional universities
Finding C-3	personal learning working environment (PWLE) concept forward-looking but not evident in practice; multiple platforms may be hindering/distracting progress (RQ 2)
Finding C-4	presence of gaps which learning/research about pedagogical innovation and new processes has trouble spanning or bridging (RQ 1, RQ 2)

Note. Minor findings greyed out; RQ = research question

The next step was to develop assertions. To begin, I considered the tentative assertions that initially emerged throughout data collection, analysis, and writing. Then I thought about new assertions from the findings of cross-case analysis; I reflected on the individual cases, how the assertions were manifested in the cases, and how the cases were

represented in the assertions. This reflective and interpretive process is a search for meaning and evidence. According to Stake (2006) “it is rare to find strong evidence for an assertion. . . . most assertions are based on compelling persuasion” (p. 75). Consistent with the interpretivist paradigm, Stake defined such persuasion as that which is “compelling to the researcher” (p. 75). On Worksheet 6 (Appendix G) I recorded the development of assertions through an interpretive cross-case process (Stake, 2006). A final list of four assertions and associated concepts emerged through the cross-case analysis process. Evidence for these final assertions came from all three cases, and is included in the discussion of assertions and findings later in this chapter. These concepts, cross-case assertions, and case-based findings are discussed next.

Cross-Case Assertions and Findings

Four assertions emerged as most important to helping us understand learner-learner interaction in self-paced study at a distance across three cases of self-paced study at a distance, as synthesized from cross-case analysis of case-based findings. In order to explore these assertions and the relationships among them at a more abstract level, I proposed the following concepts as representative of the cross-case assertions made in this study: (a) gaps and differences, (b) implicit pedagogy, (c) ownership, and (d) decision making. The following list outlines the four cross-case assertions, as well as references to associated case-based findings and research questions. The larger ideas or concepts I chose to represent each assertion are in boldface type.

- **Gaps and differences** are evident between many academics and learning/teaching specialists. For example, academics perceive courses as content;

learning/teaching specialists perceive courses as activity (Findings A-4, C-1, C-4; Research Questions 3, 1 and 3, and 1 and 2, respectively).

- **Implicit Pedagogy** exerts a profound influence over course design and development, as well as exploration of alternative designs (Findings A-1, A-2; Research Questions 1 and 2 for both findings).
- **Ownership** of courses and processes is contested (Finding B-4; Research Question 3).
- **Decision making** for learning design and provision often involves non-pedagogical factors such as strategic directions, policies, and business objectives (Finding B-1; Research Questions 1 and 2).

Assertion One: Gaps and Differences.

The concept of gaps and differences comes from participants' descriptions of gaps between the main concerns of academics and learning/teaching specialists. This strongest of the four assertions is supported by three of the seven top case-based findings, two of which were the highest rated in terms of importance, utility, and relevance; it was the first to emerge as a tentative assertion, toward the end of data collection and analysis at Case A. This assertion relates to all three research questions for this study. While I analyzed data from Case A and reflectedon data collected at Case B, I noted that participants talked about self-paced courses in different ways. Across all three cases, I encountered academics who described *the course* in terms of content and topics; learning/teaching specialists often described *the course* in terms of activities, learning, and experiences. I began to see this distinction more clearly as the study progressed, apparent both in how participants talked about their own perceptions of "what is the course" as well as how

participants talked about the concerns on which they believed their colleagues were focused. At Case C, the gap between academics and learning/teaching specialists is also apparent in academics' concern for course content and teaching practice while learning/teaching specialists seem more often concerned with educational and learning research. As well at Case C, there is a gap between current practice and innovative approaches, a gap which research and new knowledge regarding pedagogy and learning design are having trouble spanning or bridging. This gap is also apparent in Case A where researchers have constructed a fairly complex social networking context, but the gap between perceived potential and actual usage is large.

These gaps describe differences between what learning/teaching specialists and academics see as important in course design and pedagogy. Academics at Case C are very involved in the course materials but "not in how it will be brought to the students" (C-FAC-4) while learning/teaching specialists "are there to support our content" (C-FAC-2). According to a learning/teaching specialist at Case C, academics are most concerned with teaching "the content to the students so they are all filled with content" (C-LTS-2). At Case A, in order to shift course design and development from focusing on content to thinking about activity and interaction, learning/teaching specialists devote energy to "educating, informing, cajoling, [and] convincing" academics (A-LTS-3) about design for learning as an active process. At Case B, academics do not share the learning/teaching specialists' concern that "students are doing something rather than just getting content" (B-LTS-2). Another participant there concurs; academics focus on content and are less concerned about how students need to use what they learn (B-LTS-3).

As the study progressed, I began to see these differences in the perspectives of academics and learning/teaching specialists in terms of a grammatical metaphor. It seemed to me that academics, when talking about the course as content, were talking about courses as things, or nouns. Learning/teaching specialists, in talking about the course as learning activity, were talking about courses as action, or verbs. The parts-of-speech metaphor was reinforced by the words of a participant at Case C who said that academics and learning/teaching specialists do not speak the same language (C-LTS-5). However, rather than view gaps only as barriers or problems in which these different "languages" may create communication challenges, I suggest that acknowledging the different perspectives of others is also an opportunity for strengthening learning designs by integrating different points of view. Regardless of pedagogy or process, academics' and learning/teaching specialists' perceptions of "what is the course" will likely persist or be slow to change. I believe that innovation in terms of pedagogy or learner-learner interaction is less likely to happen simply at the content or the activity level. It will be the breadth of different perspectives, as well as the synergy of working with others who define *the course* differently, that will help course developers (both academics and learning/teaching specialists) improve and innovate learning environments and experiences. Overall, recognizing the necessary contribution and complementariness of the different perspectives of academics and learning/teaching specialists is particularly important given Assertion Two, related to the power of implicit pedagogy to influence whether or how gaps are bridged.

Assertion Two: Implicit Pedagogy.

The concept of implicit pedagogy represents Assertion Two, and relates to the first two research questions for this study. Though directly supported by two findings from Case A, this assertion is apparent in all three cases in the perceived necessity of providing learners with one clearly scripted learning path. As well, there is a perception that the risk of learners cheating increases, and that little or no meaningful interaction will take place if learner-learner interaction is unstructured or not monitored. Further, at Case C several participants noted that unless the teacher is visible in the discussion forum, for example, interaction dies. In several instances, participants suggested that they see little need to provide for interaction because self-paced learners do not want to interact. Rather than open courses up to more networked and public participation by learners who wish it, self-paced courses are usually confined inside the LMS virtual classroom with few opportunities to interact with others outside the course or contribute learner-generated content. The results are problematic for a vision of operationalizing connectivist ideals in this context and highlight the lack of perception of value for learner-learner interaction.

Assertion Three: Ownership.

The concept of ownership is related to the question of where ownership of the course lies—with academics, learning/teaching specialists, course design and development processes, the university itself, or some combination. This assertion is primarily supported by a finding from Case B that the course is owned by the design and development process, and by a finding from Case A that, for the most part, academics

own the course, while learning/teaching specialists own the process. This assertion relates most closely to the third research question for this study.

In all three cases, course design relies on blueprints that are pre-developed and are considered representative of the course's design. At Case A, academics own the course inasmuch as they have the final say on the content, but they do not have access to courses between revisions. One participant in this study from Case A advocated giving academics "the keys to the kingdom" (A-LTS-2), while an academic participant perceived the presence of "issues of territorial realms; unfortunately, people like kingdoms" (A-FAC-4). At Case B, the learning/teaching specialists clearly own the process, but within the mandates and policies of the larger university. At Case C, faculty must be credentialed for teaching and educational technology, but they look to the learning/teaching specialist for innovative ideas.

Some learning/teaching specialist participants perceive academics as unready for full control of their courses. While the tools to create and post content are becoming more accessible to academics, many of them need and appreciate pedagogical and learning design support. Perhaps one solution lies in less a sense of either individual or department ownership of courses and processes, and more open, truly collaborative work, to minimize the sense that input from others "is interference in my process" (C-LTS-7). The ability of self-paced course developers to incorporate networked learning opportunities will depend, in part, on clarifying (and I suggest, sharing) responsibility for various aspects of courses.

Assertion Four: Decision Making.

Assertion Four relates to the first research question for this study. When this study began, I supposed that pedagogy would influence learning designs, but discovered that non-pedagogical factors have a great influence. The concept of decision making represents this issue, which emerged as a tentative cross-case assertion toward the beginning of the data collection process at Case C, while analysis of Case B data was under way. The assertion that non-pedagogical factors have a major impact on decision making for learning design is supported most clearly by the Case B finding that strategic institutional directions as well as administrative, economic, and business factors have considerable influence over learning design and pedagogical decisions.

At Case B, changing institutional decisions regarding the university's model for distance learning have had a direct impact on course design and development for some time. There have been at least two major shifts of direction, with the result that participants in this study, learning/teaching specialists in particular, suggested that courses should be easily adaptable to various modalities. Case C participants were also experiencing pressures about changing learning design from non-pedagogical factors, as the paced cohort model was being piloted. Apparently, a major intent of this pilot was to increase the number of learners who complete degrees, as this is now the basis on which funding is secured, rather than on the basis of course registrations or even course completions. At Case A the predominant self-paced model for undergraduate study was stable, which may account for participants having less to say about non-pedagogical factors affecting their learning design decisions.

Even so, in all three cases, decisions about learning models and platforms are made at program or university executive levels. These are strategic, institutional decisions. Whatever the learning model, there are design opportunities and constraints associated, and practitioners operate within these, keenly aware of how shifts in the learning design terrain and non-pedagogical changes affect their work. We might expect decisions about learning models and pacing to be influenced by pedagogical factors such as appropriate learning design, and learner characteristics or needs, or even philosophical or values factors such as positions on the meaning or importance of openness. However, it appears from this study that business and marketing factors such as strategic and policy directions have as strong or stronger influence. As a Case B participant suggests, "a lot of our decisions are not driven by the pedagogy; the organizational constraints, I'd say that's probably the biggest thing" (B-FAC-2).

Assertions Within a Larger Context

According to Stake (2006), in the final step, the process shifts from analysis to synthesis. Since "putting the assertions together is not like assembling a jigsaw puzzle because the pieces lack shape. . . . this is less a time of following procedures and more a time of interpretation and composition" (p. 76). In order to consider how the assertions and larger ideas representing them might explain, provide, or contribute to a conceptual context for my cross-case assertions, I drew a series of concept maps to help me visualize and clarify the concepts representing my assertions. I envisioned the cross-case assertions and associated concepts of gaps, implicit pedagogy, ownership, and decision making as depicting a set of factors that make up the current state within a larger context of addressing challenges for connectivist learning evolution in self-paced study. A second

set of factors consists of opportunities and demands such as (a) new pedagogies, (b) new technologies, (c) pressure to innovate, and (d) pressure to improve course quality and completion rates. Figure 4 depicts these sets of current and future factors within the context of an evolution towards connectivist learning in self-paced study.

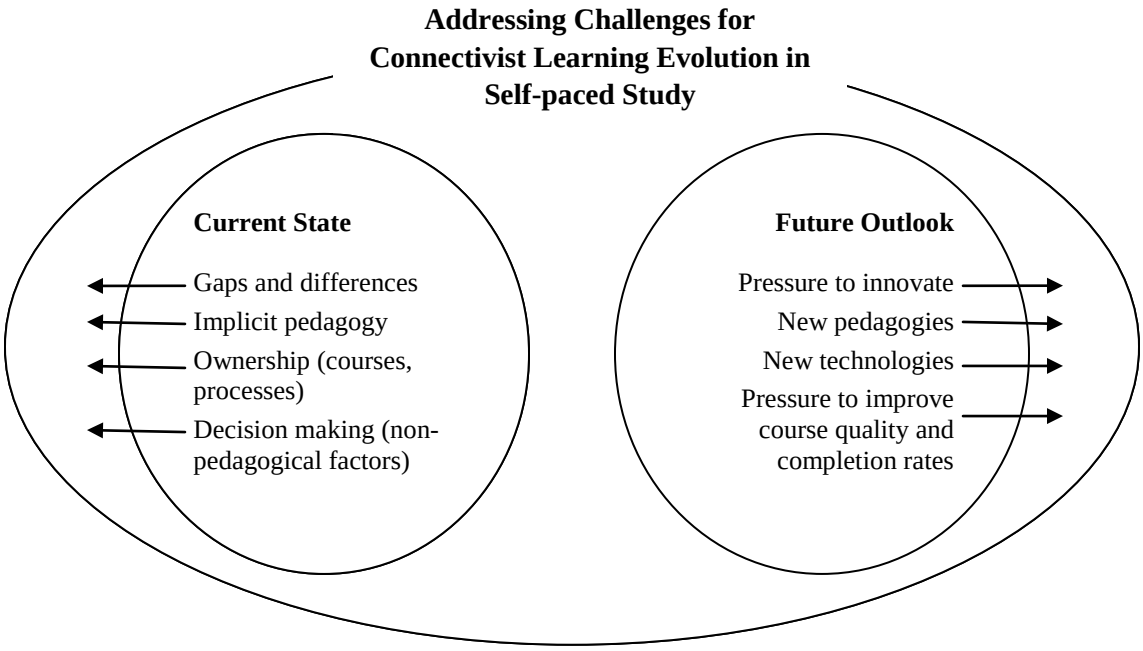

Figure 4. Pedagogical innovation in self-paced courses

The arrows illustrate that these sets of factors are pulling in different directions, with the current state constrained from moving forward, while factors in the future outlook offer opportunities as well as pressures for change. Chapter 8, while concluding this dissertation, considers the implications of this study, particularly implications related to addressing the challenge of evolving connectivist learning in self-paced study.

Cross-Case Analysis Conclusion

Cross-case analysis produced four assertions and associated concepts, present in some way in all three cases in this study. All of these assertions would likely be recognizable to participants from the three cases. Having talked to participants and explored their courses, I believe that if these assertions were addressed in one case, the solutions would be useful in the others, as long as the specifics of local context and needs were considered. Furthermore, I suggest that learning/teaching specialists are a logical conduit for innovation in pedagogy and learner-learner interaction, as they are generally the source of new ideas that support academics' concerns for course topics and content. However, this advocacy must recognize that in most instances, the academic is typically considered to be the owner of the course, with learning/teaching specialists playing a consultative and supporting role. However, all participants share a desire to provide effective, quality learning experiences.

Chapter VIII: DISCUSSION, IMPLICATIONS, AND CONCLUSION

This chapter begins by discussing how the particular research strategies in this study represented limits to the study as well as efforts to address these limits, while also contributing to specific criteria for research quality and trustworthiness. Then, this chapter moves to discussing the results of this study and their implications, exploring similarities and differences across the three cases in terms of research questions related to (a) pedagogy and learner-learner interaction, (b) connectivist pedagogy and networked approaches to learning, and (c) processes for designing and developing self-paced courses. A brief discussion of aspects of change theory highlights how the results from this study can contribute to our understanding and practice of learner-learner interaction in self-paced study as an evolving field. Suggestions for further research conclude this chapter.

Addressing Limits and Ensuring Research Quality

The criteria that determine the quality of a research inquiry are linked to the paradigm that frames the research design. Guba and Lincoln (1994) describe as post-positivist the criteria suggested by Yin (2009) and common in case studies, namely, internal validity, external validity, and reliability. Since this multiple-case study was framed by the interpretivist/constructivist paradigm, Guba and Lincoln's (1994) alternate terminology for Yin's (2009) criteria were more applicable. Accordingly, the trustworthiness of this research study was shaped by its credibility, transferability, dependability, and confirmability. The data collection and analysis for this multiple-case study helped ensure the quality and plausibility of qualitative research findings. Figure 5

illustrates how the various strategies of this research design align with Guba and Lincoln's criteria of trustworthiness.

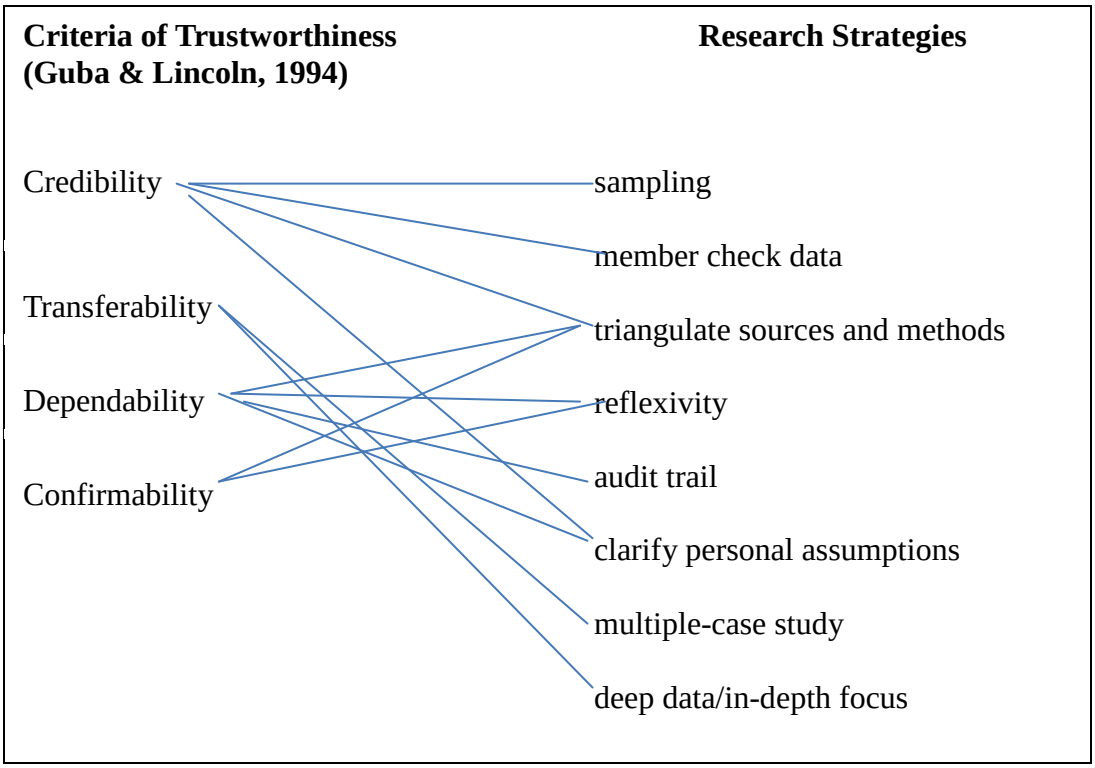

Figure 5. Matching criteria of trustworthiness (Guba & Lincoln, 1994) and research strategies for this study

Credibility was enhanced by deliberate sampling decisions (Marshall & Rossman, 2006). The sampling strategies for this study increased the likelihood that participants were knowledgeable about the key concepts in the study, namely, self-paced study, learner-learner interaction, and course design and development. In addition, sampling strategies targeted course developers identified as innovative and engaged, as well as self-paced courses from a range of disciplines. A basic form of member checking, in

which all participants reviewed their interview transcripts for accuracy and completeness, also served to enhance the credibility of this study (Janesick, 1994).

A key procedure for this study, and one that contributed to the credibility, dependability, and confirmability of the research design, involved triangulation in the form of reliance on multiple sources of data collected via multiple methods (Huberman & Miles, 1994). Of particular relevance to a study framed by a interpretivist/constructivist paradigm, triangulation through the use of multiple sources and perceptions served to "clarify meaning by identifying different ways the phenomenon is being seen" (Stake, 1998, p. 97). Carter and Little (2007) also recommended the use of multiple sources "to produce more data rather than to prove accuracy" (p. 1322).

The process of clarifying my personal assumptions and theoretical orientation (Creswell, 1994; McGloin, 2008; Merriam, 1998) supported both the credibility and dependability of the research design. This process was ongoing throughout the study and was complex. It involved becoming aware of, confronting, reflecting on, and articulating my assumptions about the topics under study, and the research process itself.

External validity concerns the extent to which research findings can be generalized to other situations. The question of generalizability in a traditional sense is a challenge for case study researchers (Yin, 1994). Merriam (1998) suggested that concern for the particular rather than the general is inherent in qualitative research, and according to Stake (1995) "the real business of case study is particularization, not generalization" (p. 8). Guba and Lincoln (1994) suggested transferability as a constructivist parallel for external validity, achieved when research findings are "useful to others in similar situations" (Marshall & Rossman, 2006, p. 201). This study made use of two approaches

to enhance transferability, namely, the use of multiple-case study design, and generating deep data through an in-depth focus on a small sample (McGloin, 2008). In addition, triangulation as well as multiple data sources in the form of several participants and more than one data-gathering method contributed to transferability and served to "strengthen the study's usefulness for other settings" (Marshall & Rossman, 2006, p. 202).

Particularly in a multiple-case study in which institutional and other cultural differences were present among cases, reflection was an important part of the research process. Reflection and reflexivity were crucial to ensuring research quality (dependability and confirmability in particular) and spanned all phases of this study. I continued to write in the personal research journal I began at the start of my doctoral studies, as a place to document the process of data collection and analysis. This journal, in which I documented research decisions and events, and reflected on data collection and analysis processes and procedures (Miles & Huberman, 1994), contributed to an audit trail and the dependability of the research design.

Confirmability, variously linked to post-positivist concern for objectivity (Guba & Lincoln, 1994) was also supported by researcher reflexivity (McGloin, 2008). Stake (1998) noted that on the surface, the work of case study research appears observational, but it is essentially interpretive and reflective. Carter and Little (2007) recommended making detailed records of "participation, reactions, and experiences . . . as an important data source" (p. 1322). Lincoln and Guba (1985) suggested that a reflection journal is a place for documenting schedules and logistics, storing personal reflections, and tracking methodological decisions. In this study, keeping a reflective research journal, similar to what Eisenhardt (1989) called field notes, was a way to concurrently document and

explore the process of interpretation and the influence of personal positions, essentially collecting data on personal experiences and responses through the course of the research journey.

Comparing Three Cases

Pedagogy and Learner-Learner Interaction.

The first research question asked how choice of pedagogy affects the incorporation of learner-learner interaction in self-paced distance courses. When this study began, I was aware that many self-paced courses are based on cognitive-behaviourist pedagogy that had evolved in an era before low-cost, many-to-many communications technologies were widely available. I wondered what sorts of pedagogy I might find, and how academics and learning/teaching specialists currently make their choices and decisions. I supposed that they crafted learning designs based on a particular pedagogy, and that with the availability of interactive communication tools, learner-learner interaction—however challenging to design—might follow. What I found was that in all three cases, cognitive-behaviourist pedagogy continues to predominate, there is little learner-learner interaction, and when it is present, it is usually peripheral to the main learning design and activities. In all cases, the learning trajectories in self-paced courses typically begin with pre-determined objectives, include static learning activities and assessment, and leave little room or necessity for learner-learner interaction. When opportunities for learner-learner interaction are provided, usually in asynchronous LMS discussion forums, participants in this study, particularly at Case A, assert that such interaction must be a required activity, and that it must be moderated and monitored by

teaching staff. Because of the challenges inherent in such provision, in this study, learner participation in such interaction activities is minimal.

One finding for the third research question about course design processes, and relevant to this first question of pedagogy and learner-learner interaction, is that most participants apply a linear systems process for course design and development, consistent with the objectivist tradition of much instructional design (Duffy & Jonassen, 1992). In a few instances, aspects of constructivist pedagogy are apparent, and some participants, particularly at Case B, value constructivist pedagogy. However, they also report ambivalence about the value of learner-learner interaction. When aspects of constructivist pedagogy (or potential for it) are apparent in self-paced courses, these usually take an objectivist form such as cognitive constructivism, with its focus on learners as individuals (Kanuka & Anderson, 1999). In my experience, self-paced study inside the closed virtual classroom confines of an LMS, is largely incongruent with the collaborative approaches and abundant many-to-many communication of constructivist pedagogies.

Connectivist Pedagogy.

Early in this study, as I thought about Anderson and Dron's (2011) three generations of distance education pedagogies, I wondered if connectivist pedagogy and the opportunities of open networked approaches might be an alternative way for course developers to provide for learner-learner interaction in self-paced study. This would allow for a leap-frogging beyond constructivist pedagogy to pedagogy that seeks to develop and enrich students' personal networks and collective production.

Participants in this study were interested in experimenting with network-based and Web 2.0 technologies for learner-learner interaction, and were open to the idea of

including individuals from outside the course (e.g., those in a learner's personal network) as potential participants in such interactions. At Case A, the in-house social network offers a safe place for students and an open place for course developers to explore and experiment with networked approaches to learning. However, beyond occasional use of tools such as blogs and wikis, connectivist pedagogy was not evident in the cases of self-paced study I investigated. While participants were interested in the potential for learner-learner interaction with social media, they were often constrained by administrative and resource factors, including concerns for privacy and protecting learners' personal information. In the past at Case C, considerable energy went into conceiving of personal learning working environments (PLWE) as a framework to guide the university's strategic direction and pilot projects. However, this ideal future is yet to be realized, though some Case C participants see the potential for networked learning as demonstrated by students who are able to combine their learning, working, and social lives online. Interestingly, in several instances, participants saw social media as a source for generating or enriching course content rather than an opportunity for sharing, interaction, and participating in a networked learning community. In the cases in this study, social media is often used for marketing and promotion but much less (if at all) for teaching and learning.

Using connectivist pedagogy, learning is described as building, negotiating, and navigating networks of connections formed by actions and experience (Downes, 2012). Networks exhibit diversity, autonomy, openness, and connectivity; connectivist pedagogy is built on "the practices that lead to such networks" (p. 85) through learners' actions and reflection, supported by teachers' demonstration and modeling. Several participants in

this study have experimented with social media tools for learner-learner interaction, but given the dominance of cognitive-behaviourist pedagogy, these activities were not central to the design of self-paced courses. This is not to minimize course developers' experiments and willingness to investigate new ideas. However, in all three cases, participants found LMSs—though convenient, secure, and broadly supported through the organization—not conducive to open, networked learning. As well, few participants in this study described themselves as active bloggers or frequent contributors to social networks, activities we might associate with teachers demonstrating and modeling connectivist pedagogy. While I believe connectivist pedagogy still has promise for self-paced study at a distance, particularly as evidenced by institutional documents in which open, connected approaches are seen as a desired future, it is not yet clear how, or even if, this future will come to be.

Course Design and Development.

When this study began, I was interested to learn what processes were involved in designing and developing for learner-learner interaction in self-paced courses, and what aspects of the industrial model of distance education production were evident. Cognitive-behaviourist pedagogy and industrial processes for designing and developing self-paced courses have evolved with each other to create workable systems. I wondered if efforts to change one or the other without regard to this co-dependence might explain the challenge of doing more than just a few experiments with, for example, social networking. In all three cases, objectivist perspectives are evident in participants' reliance on traditional instructional design approaches. Industrial processes for course design and development are present in all three cases, though are strongest in Case B, with the greatest variation in

processes at Case C. Many participants' comments regarding the need for changes focused on issues related to efficiency, though some participants in all three cases see promise in open, networked development tools and processes.

Course design and development processes, and especially how various roles are configured, influence course developers' efforts to address challenges such as incorporating learner-learner interaction into self-paced courses. Now that tools for online teaching and learning have become more accessible, academics in conventional universities, working in blended or paced cohort learning contexts, often post their own learning content and activities online via an LMS. Some academics from both Cases A and C are interested in such artisan approaches, as opposed to the more structured industrial approaches incorporated in designs for course production at these institutions. However, the perception that self-paced courses must be kept static and locked down mitigates against this desire for flexibility and individual artisan control of production. Even so, several institutional documents suggest a desired future in which networked approaches, as well as content generated by a range of contributors, are evident in self-paced courses as well as the processes for designing and developing them.

Case C has researched ways to streamline processes while also making courses more amenable to open resources, pedagogical innovation, and creativity. At Case A, the in-house social network has created an opportunity to implement open and flexible courses and processes. However, as noted in Chapter 7 in the discussion of cross-case assertions within a larger context of connectivist learning evolution, in all three cases there is a gap between the vision for newer pedagogy and the many constraints identified

by participants. It remains to be seen how systemic change and pedagogical innovation in self-paced study will come about.

Implications

This multiple-case study was guided by a focus on pedagogy, which bridges theory and practice. Thomas (2011) suggested that a case study's "validation comes from the connections and insights it offers between another's experience and your own" (p. 229). This discussion of implications for theory, practice, and further research is intended to make connections from this study to readers' experiences.

Implications for Theory.

The results of this multiple-case study seem to indicate that both academics and learning/teaching specialists share a sense that innovation and change within self-paced course development and provision is needed and desirable. However, there was little concrete discussion or optimism that such innovation is either likely or possible. Thus, I present a very brief discussion of these cases in the context of change theory.

The most widely read and researched change model is Everett Rogers's seminal work on the adoption of innovation. Although multi-faceted, of particular interest in both popular understanding and scholarly research is the notion that individuals adopt innovation at different rates and play different roles in regard to adopting innovation. Rogers (1995) described five types of innovation adopters:

- Innovators can "cope with a high degree of uncertainty about an innovation" (p. 264).
- Early adopters are opinion leaders who speed the innovation diffusion process.

- The early majority do not move quickly in adopting innovations; they are seldom leaders, but will follow willingly, and are "an important link in the diffusion process" (p. 265).
- The late majority are cautious, and are motivated by "the pressure of peers" (p. 265).
- Laggards adopt and use innovations long after they become aware of them, and are usually "suspicious of innovations and change agents" (p. 265).

Although both Rogers himself and, more popularly, Clayton Christensen (Christensen, Johnson, & Horn, 2008) have written about the challenges of innovation adoption and especially when dealing with "disruptive innovations" in business and education contexts, perhaps the most relevant discussion is from Moore's (2014) work on the chasm that separates early adopters from others. Figure 6 depicts Moore's technology adoption lifecycle, with gaps to illustrate that each group has distinct perspectives and concerns. Moore labels innovators as *enthusiasts*, early adopters as *visionaries*, the early majority as *pragmatists*, the late majority as *conservatives*, and laggards as *skeptics*. Members of one group will have difficulty accepting an innovation if it is presented in the same way as it was to another group (Moore, 2014). In addition to these gaps or cracks, there is a "deep and dividing *chasm* that separates the early adopters from the early majority" (p. 24, italics in original). Many organizations, including educational providers, flounder trying to bridge this chasm, which is depicted in Figure 6.

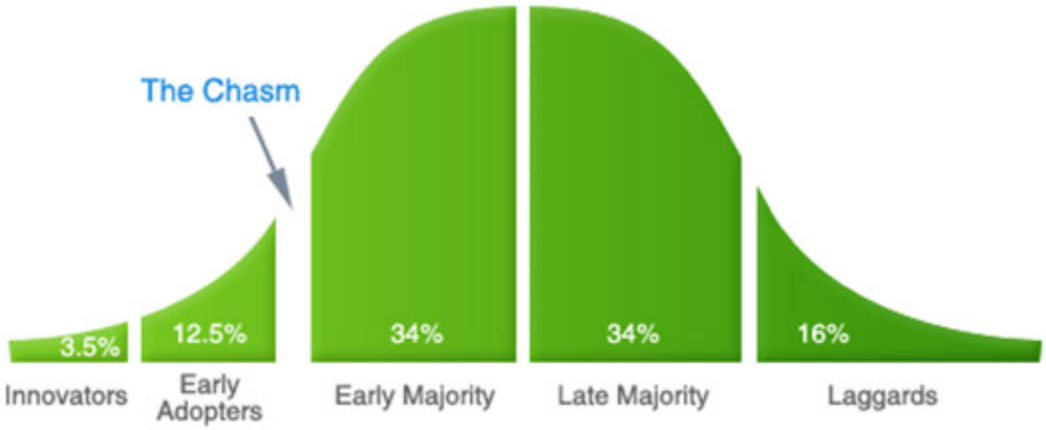

Figure 6. Moore's chasm (original figure from Volinsky, 2013) (http://moz.com/ugc/seo-has-crossed-the-chasm-whats-your-business-longterm-strategy)

This multiple-case study added to our understanding of the adoption of educational innovation as it is evident in the development and provision of self-paced study. From these three cases it is apparent that researchers developing the in-house social network at Case A, and those conducting educational research at Case C, are innovators attempting to create new models and technologies. In all three cases, learning/teaching specialists are early adopters, able to envision more innovative processes in learning than just content assimilation. Academics who volunteered for this study are best classified as early majority to late majority. And though laggards are often reluctant to become involved in this type of study and were so in this case, participants seemed to be aware of the existence of laggards amongst their colleagues. This study, particularly the first cross-case assertion regarding gaps and differences, contributes to and supports Rogers and Moore's work on diffusion of innovation and how adoption differs among groups. The results of this study support Moore's position that early adopters/visionaries seek opportunities for dramatic change, while the early

majority/pragmatists need incremental ways to increase productivity and want innovations to work properly (Moore, 2014).

Based on Moore's first edition (1999), Elgort (2005) applied Moore's idea of the chasm between visionaries and pragmatists to e-learning, and pointed out that making change in education systems is not a single innovation. Instead, it is "a *multidimensional process* located in two planes: the plane of technology and the plane of pedagogy" (Elgort, 2005, p. 184, italics in original). Innovation within each of these two planes often follows different adoption cycles. For example, technology innovation such as adoption of an LMS may be in a more advanced stage of adoption as compared to pedagogical innovation. Furthermore, Elgort suggested that for e-learning innovation, the chasm is "primarily associated with teaching and learning processes, rather than with the use of technology" (p. 184). This study, especially the cross-case assertions related to gaps between learning/teaching specialists and academics, and regarding the implicit pedagogy that pervades the three cases, reinforces Elgort's suggestion. Pedagogical innovation is a much different endeavour than, for example, course developers' adopting specific technology tools. In all three cases, pedagogical innovation lags behind adoption of technology tools, supporting Elgort's contention.

Implications for Practice.

According to Rogers (1995), rates and patterns of innovation diffusion are influenced by whether or not the innovation meets a perceived need; Moore (2014) pointed out that different groups of adopters have different needs, desires, and values, based on their different perspectives. Change strategies and agents need to appreciate the characteristics of each group, and consider what motivates each type of adopter. For

example, Moore (2014) suggested that one way to bridge the chasm between visionaries and pragmatists is through the use of pilot projects, as long as these are designed to meet both group's specific needs. For visionaries, deliverables from pilot projects are "only of marginal interest—proof of concept with some productivity improvement" (Moore, 2014, p. 45), while for pragmatists, pilot projects need to result in workable ideas that can be implemented for making incremental progress. As well, since pragmatists wait to see how others fare in adopting an innovation before they commit, Moore (2014) recommends that strategies designed to cross the chasm need to create a base of pragmatist adopters who can help the innovation gain credence with others in the mainstream. This suggests a need to identify different types of adopters and involve them with new ideas and activities that are appropriate to their needs and perspectives.

In this study, the presence of gaps between the perspectives and concerns of learning/teaching specialists and academics certainly affects the diffusion of new ideas and knowledge. Even so, different perspectives on "what is the course" offer potential for synergy in course design and development, at an overall pedagogical level in the design phase and also at a practical level in the development phase. Issues of implicit pedagogy and ownership of courses may be impediments to change in learning design and pedagogy, and in course design and development processes. To bridge the chasm of innovation in learning and teaching, it is important for course developers to explore their own beliefs and ideas about learning and teaching through a reflective "process that can be triggered by staff development" (Elgort, 2005, p. 184). In addition, I suggest that design and provision of strategies for faculty and staff development need to (a) include opportunities to reflect on individual beliefs about how learning happens; (b) avoid a one-

size-fits-all approach; and (c) recognize the difference, and different rates of adoption, between pedagogical and technological innovation.

Conversations with participants in this study also suggested several practical ideas for providing learner-learner interaction in self-paced study. The first is to use social media, online presence indicators, and opportunities to share personal profiles in order to help learners find each other in their courses, as well as within intra-course venues for their academic program areas. The second is the suggestion to open up the requirements within learning activities in order to provide learners the option to interact with others from outside their course, and bring that experience back into their course, if they wish. Finally, these and other suggestions for practice are predicated on envisioning courses as more open entities, perhaps by designs that mash-up resources (varied and created by many) as well as activities (from within and without the course).

Implications for Further Research.

As a result of this study, the following are recommendations for further research. First, while this study explored design and development roles and processes, more research is needed to look deeply into interactions within the process and among participants, in teams, or other configurations where present. Second, I suggest it would be worthwhile to look at innovative learning designs and work back through what choices and decisions were made, by whom, why, and to evaluate the effectiveness of and barriers confronted in projects in which these innovations were piloted.

Third, in most instances in this study, social media for interaction was peripheral, with little interest, it seemed, in creating truly networked approaches to learning. A participant from Case C suggested that there are lively communities of interest around a

number of topics from customizing camping vans to sharing health information and experiences, while educators focus intently on “pulling the strings” (C-LTS-2) to try and make learning communities come alive. More research is called for to explore ways in which people engage in open and social approaches to sharing common human experiences, including learning in general, and self-paced learning in particular. In addition, research is needed to consider the ways in which these mediated opportunities can be turned upon the problem itself, so that academics and learning/teaching specialists gain first-hand experience of learning and contributing in these contexts. Furthermore, research is needed to explore how connectivism as a phenomenon in open social spaces outside the walls of virtual classrooms relates to course-based connectivist pedagogy.

All three cases use LMSs for self-paced courses. Many participants spoke about the influence such management systems exert on pedagogy and learner-learner interaction. According to Morris (2013), most often the decision to use an LMS “was not a creative decision … it was settling for the least innovative classroom practice and repositioning that digitally” (The relic of the LMS section, para. 1). I suggest the need for more research into the ways in which distance educators are working with (or around) the affordances and constraints of LMSs.

A perhaps tangential suggestion for further research emerged late in this study when I saw that one distinguishing characteristic of Case C was the presence of references to competence-based learning. It seems that interest in this topic is growing in higher education. It may be worthwhile to look more deeply into this literature and practical ways in which competence-based learning is being substantiated in both self-paced and cohort models. Case C, as an experienced provider of self-paced learning with

a history of competence-based learning, located in Europe, and newer examples such as Western Governors University, located in the United States, are well situated to gain knowledge and expertise related to this innovation.

Conclusion

Anderson et al. (2005) argued that it should be possible to use new technologies and pedagogies to support learner-learner interaction within the freedom of self-paced courses. Learning networks, educational social software, and connectivist pedagogy hold promise for interaction within self-paced learning. Networks emphasize autonomy and openness as opposed to the centralized coordination evident in groups (Downes, 2006). Educational social software represents "networked tools that support and encourage individuals to learn together while retaining individual control over their time, space, presence, activity, relationship, and identity" (Anderson, 2006a, p. 83). Connectivist pedagogy may enable learners to link with others by way of a learning network's connections and affordances, and so experience both independence and interaction, balancing autonomy with purposeful collaboration. Thus, there is a need to find empirical research that either confirms or refutes these claims. This study used a multiple-case study method, framed by Anderson and Dron's (2011) typology of three generations of distance pedagogy to explore how and why learner-learner interaction is incorporated into self-paced study at a distance. This was uncharted territory, making case study an appropriate way to address our scant knowledge of how distance educators are incorporating learner-learner interaction into self-paced study.

Undoubtedly, new, online communication technologies offer opportunities for interaction in self-paced study. Even so, it is a challenge to achieve purposeful interaction

when students set their own pace—hence, the notion of a divide between independence and interaction, a "silent struggle within the academy" (Annand, 2007, p. 8) that is yet to be resolved. As a result of my experience conducting this research study, I suggest that one way to transcend the theoretical divide between independence and interaction may be to realize connectivist pedagogy in which self-paced course developers and learners can tap into the "less visible social processes and social affordances . . . where human social genius can meet the augmenting power of technological networks" (Rheingold, 2011, Participatory Pedagogy section, para. 1).

Peters (1993) argued that while the educational mindset is shifting, "the shift from industrial to post-industrial distance education will be a Copernican one. Slight and superficial alterations will certainly not do" (Peters, 1993, p. 239). Social networks are more than teaching tools or a place for structured interactions. It is exciting to imagine what learning could look like if we focused on learning more as a shared enterprise rather than an intersection of tools and content sources. Further research is needed about how we might create opportunities to connect and share, as well as meet and relate to others who have a common interest in learning but who may not share our own experiences or perspectives.

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APPENDIX A: Glossary

Connectivism:	applies network principles to defining knowledge as a particular pattern of relationships, and defining learning as creating new connections and patterns, and manoeuvring among existing networks and patterns (Siemens, 2008)
Content experts:	course design and development team members with expert knowledge of the course content and field of study
Continuous enrolment:	learners may start their studies at any time, often 12 or more start dates per year
Dual-mode university:	offers university-level courses on site as well as at a distance
Imposed pace course:	specified start/end dates, limited number of start dates per year, groups of learners proceed through course together
Independence:	not dependent on authority or control
Independent study:	learners determine content they will study, the learning resources they will use and the activities they will engage in, and set their own learning pace
Interaction:	reciprocal events, requiring at least two objects and two actions, and occurring when these objects and events mutually influence one another (Wagner, 1994)
Learning design:	involves planning or structuring for a specific learning intention, and includes design of learning resources, environments, activities, tools, and curriculum. (Beetham & Sharpe, 2007)

Learner-learner interaction:	connections among learners and members of learning communities, alone or in groups, with or without an instructor in real time
Learning/teaching specialists:	course design and development team members with expert knowledge of learning/instructional design, educational multimedia, or editing and clear communication
Pedagogy:	teaching activities that provide guidance to learn, combining theory (understanding of practice) and practice (how theoretical understanding is applied)
Self-paced course:	educational institution sets curriculum, learning resources and activities; learners set pace and decide when to complete lessons, assignments, and exams
Single-mode university:	offers university-level courses as distance education only
Web 2.0:	new generation of Internet technology; differs from the traditional WWW due to wide use of collaborative applications

APPENDIX B: Interview Guide

[note date, time, location, and participant's name]

I'm Jan Thiessen, an EdD candidate at Athabasca University

My doctoral research is concerned with how in practice we balance the two important ideals of independence and interaction in distance education. I am especially interested in learner-learner interaction in self-paced undergraduate distance courses.

Our interviews should last 45-60 minutes. If we need to explore any issues further, we may arrange to do that. Thank you very much for answering these questions!

The information you provide will remain completely confidential. No information that identifies you in any way will be published. Personal data will be destroyed 5 years after the end of the project.

Please confirm your agreement by signing an informed consent form.

A few words about process:

- I will ask some questions to initiate discussion, but the goal is to let you talk freely.
- I will check at the end of the interview to see if you have questions or comments, and to ensure that all the issues we would like to raise have been covered.
- I will be recording our conversation. I will also take notes.

Warm-up

This research is designed to investigate how and why in-house course developers (such as you and the [academics/educational technologists] you work with) incorporate learner-learner interaction into self-paced undergraduate distance courses. I am also interested in the course design and development processes you engage in.

The purpose of these interviews is to explore your experiences and perspectives. I am interested in hearing about your work and how you view your own practice.

Any questions before we begin?

Background Questions

How long have you worked at University X?

What academic disciplines/subjects/content areas do you work in?

Part I

1. What is your job? Describe your role and responsibilities for designing and developing self-paced courses at University X.
2. Self-paced courses exhibit a range of pedagogies or designs. Some courses are designed primarily for transfer knowledge or skills; others are designed for learners to construct knowledge through collaboration and so on.
   - How would you describe the self-paced courses you work on?
   - What factors guide your decisions and choices about pedagogy or design for self-paced courses?
   - In your experience, how does the pedagogy of a self-paced course affect the incorporation of learner-learner interaction?
3. In what ways is learner-learner interaction part of self-paced courses here at University X?
   - What tools and strategies do you use for learner-learner interaction?
   - What purposes do those tools serve?
   - If you have included learner-learner interaction involving “learners” from outside the course, tell me about that.
4. In what ways do various theories of learning contribute to your work?
5. How have you seen social media (e.g., blogs, wikis, media sharing) used in University X’s self-paced undergraduate courses?
   - What benefits do you think social media brings to self-paced courses?

Optional

6. What innovative learning designs have you seen or created for learner-learner interaction in a self-paced course?

Part II

[Preamble: let's shift gears a bit and talk about your experience with course design and development practices at University X.]

7. Let me recall what you said about your own role in self-paced course design and development. Did I miss anything?
8. How would you describe the roles and responsibilities of the faculty and staff you work with in self-paced course design and development? (Help me understand your roles by telling me about a specific self-paced course project.)
9. How would you describe the way self-paced courses are designed and developed here? (overall model, workflow, communication, project management, other facets of the process.)
   (Some people describe course design and development as "the course is in the middle" with faculty, IDs, and others around it. Others describe an assembly line or "football" model. How would you describe the process here?)
10. What changes have you seen in self-paced course design and development at University X?
    - What factors do you think are driving these changes?
    - What other changes are needed?

Optional

11. In what ways do you think course design and development has changed with the move from print to online media?

Wrapping Up

12. What are the main challenges University X faces in incorporating learner-learner interaction into self-paced courses?
    - How should these challenges be addressed?
13. Could you recommend particular University X self-paced courses with learner-learner interaction you think I should look at?
14. What policies, procedures, models, would help me better understand your work in course design and development at University X?
15. Do you have any final comments about the topics we've been discussing?

I will transcribe the recording of our interview and ask you to review the transcription for accuracy. Thank you very much for your time and insights.

APPENDIX C: Rubric for Analyzing Course Materials

(adapted from Anderson & Dron, 2011; McLoughlin & Lee, 2008)

Case:
Course name:
Format:
Link:

Criteria	Cognitive-behaviourist Individual process of mastering pre-specified facts/concepts	Constructivist Group process of building meaning and application in authentic contexts	Connectivist Networked process of building information, contacts, and resources
Indicate primary **General Characteristics** with a checkmark			
Indicate primary type of **Technology/Communication** with a checkmark	Print and online media/One-to-one communication	Conferencing/Many-to-many communication	Web 2.0/Networked communication
Indicate primary type of **Learning Activity** with a checkmark	Read and watch	Discuss and construct	Explore, connect, and create
Indicate primary type of **Evaluation Activity** with a checkmark	Recall	Synthesize	Create artifacts
Eval Scheme			

Pedagogy 2.0

Describe the ways in which course materials include opportunities for:

Personalization (e.g., learner choice and agency, customization, self-regulation and management) Participation (e.g., communication, collaboration, connectivity, community) Productivity (e.g., learner-generated content, creativity, innovation)	

Learner-learner Interaction

Describe learner-learner interaction activities. Describe extent of learner-learner interaction activities (e.g., occasional, in every lesson, core to evaluation). Are learner-learner activities optional or required?	

Summary:

APPENDIX D: Worksheet 3 (Analyst's Notes from Case Report; adapted from Stake, 2006)

Case ID**:**

Synopsis of case:

Situational constraints:

Uniqueness among other cases (if applicable):

Prominence/Relevance of case for cross-case themes:

Theme 1_____
Theme 2_____
Theme 3_____
Theme 4_____
Theme 5_____

Expected utility for developing cross-case themes:

Theme 1_____
Theme 2_____
Theme 3_____
Theme 4_____
Theme 5_____

Case Findings:

I:

II:

III:

IV:

Possible excerpts for cross-case report:

APPENDIX E: Worksheet 4 (Ordinariness of Cases, and Expected Utility for each Theme)

	Case A	Case B	Case C
Ordinariness of this Case's situation*			
Multicase Themes			
Theme 1: Pedagogy in self-paced courses			
Theme 2: Learner-learner interaction in self-paced courses			
Theme 3: Connectivist pedagogy in self-paced courses (Web 2.0 and/or networked approaches)			
Theme 4: Participants' roles in course design and development			
Theme 5: Industrial characteristics in course design and development (aspects of other models)			

* A highly unusual situation (far from ordinary) is one that is expected to challenge the generality of themes.

APPENDIX F: Worksheet 5 (Generating Theme-Based Assertions from Case Findings)

Case and Findings	Themes				
Case A	1	2	3	4	5
Finding I: scripted learning path; structured/monitored learner-learner interaction					
Finding II: staff perceive risk of learners cheating and/or no meaningful interaction if learner-learner interaction unstructured/not monitored					
Finding III: social media peripheral and not influencing pedagogy; in-house social network valued as open and accessible, with potential for supporting interactive learning but not integrated into typical course development or provision					
Finding IV: gap between academics and learning/teaching specialists evident in issues related to ownership of courses, design and development process, access to course sites					
Case B	1	2	3	4	5
Finding I: strategic directions and admin/economic/business policies affect learning design/pedagogical decisions					
Finding II: course content is the common denominator (variables in pacing, media, need to mirror face-to-face content)					
Finding III: use of social media affected by institutional support/resources, perception of social media as a content source, concerns for privacy					
Finding IV: course owned by the design and development process					
Case C	1	2	3	4	5
Finding I: gap between academics and learning/teaching specialists; also between research and practice					
Finding II: piloting new paced cohort model may dilute services to students who need/prefer self-paced; perceived danger of becoming like conventional universities					
Finding III: personal learning working environment (PWLE) concept forward-looking but not evident in practice; multiple platforms may be hindering/distracting progress					
Finding IV: presence of gaps which learning/research about pedagogical innovation and new processes has trouble spanning or bridging					

APPENDIX G: Worksheet 6 (Cross-Case Assertions for Final Report)

Assertion/Concept	Evidence in Which Cases
Implicit pedagogy is pervasive	
Ownership of the course is contested	
Gaps evident between academics and learning/teaching specialists (Academic perceives course as content/ learning/teaching specialists perceives course as activity)	
Non-pedagogical factors (e.g., strategic directions, policies, business objectives) have an impact on learning designs	

APPENDIX H: Research Design, Activities, and Details

Item	Activities and Details	
Research questions	1. How does choice of pedagogy affect the incorporation of learner-learner interaction opportunities in self-paced distance courses? 2. In what ways is connectivist pedagogy enabling learner-learner interaction in self-paced course designs? (How are Web 2.0 and network-based technologies and activities being incorporated to provide for learner-learner interaction in self-paced courses?) 3. What processes are involved in designing and developing for learner-learner interaction in self-paced courses? (What aspects of the industrial model of distance education production are evident?)	
Methodology	Multiple-case study	
Cases	Pilot study/Case A: single-mode distance university in North America Case B: dual-mode university in North America Case C: single-mode distance university in Europe	
Boundaries	Time: 2007 to present Activity: In-house design and development of self-paced courses Definition: Learner-learner interaction within self-paced courses Context: Public, not-for-profit universities; self-paced study at a distance	
Methods	Interviews with learning/teaching specialists and academics (RQ 1 to 3)	Inquire about: - purposes of incorporating interaction - design and development processes and decisions - pedagogical issues/decisions in specific courses - efforts to incorporate interaction (strategies and tools)
	Analyze course materials (RQ 1 and 2)	Identify predominant pedagogy in selected courses Verify practitioners' reports of pedagogical models Analyze how and for what purposes interaction is incorporated
	Analyze institutional documents (RQ 1 to 3)	Identify course design and development processes Verify presence of pedagogical models Verify information from interviews and self-paced course analysis in strategic plans, course descriptions, organizational charts

APPENDIX H: Research Design, Activities, and Details (continued)

Item	Activities and Details
Participants	Case A (9 participants): 4 academics and 5 learning/teaching specialists Case B (6 participants): 2 academics, 3 learning/teaching specialists, 1 administrator Case C: (11 participants) 6 academics, 4 learning teaching specialists, 1 administrator Total (26 participants): 12 academics, 12 learning/teaching specialists, 2 administrators
Artifacts	Case A: - course development policy and procedures - learning design models - course design templates and course maps - learning/teaching specialist's advice to an academic about learning design - participant's conference presentation - discussion paper proposing a new model for online undergraduate courses Case B: - organizational chart for distance learning division - course design templates and sample course blueprints - newsletters and a student handbook produced by distance learning division - agendas from initial course planning meetings - course development checklists Case C: - public report produced to commemorate Case C's 25th anniversary (2009) - five academic articles - institutional course development and design guide - two institutional research project reports (2008; 2009) - in-house handbook for developing courses in a particular LMS - internal report on an institutional research program (1998)

APPENDIX I: Research Ethics Approval from Athabasca University

Athabasca University
Canada's Open University

MEMORANDUM

DATE: October 4, 2012

TO: Janice Thiessen

COPY: Dr. Terry Anderson (Research Supervisor)

Janice Green, Secretary, Athabasca University Research Ethics Board

Dr. Simon Nuttgens, Chair, Athabasca University Research Ethics Board

FROM: Dr. Rick Kenny, Chair, CDE Research Ethics Review Committee

SUBJECT: **Ethics Proposal #CDE-12-09-25: "Learner-learner Interaction in Self-paced Study at a Distance: Perceptions and Practice in Multiple Cases"**

The Centre for Distance Education (CDE) Research Ethics Review Committee, acting under authority of the Athabasca University Research Ethics Board to provide an expedited process of review for minimal risk student researcher projects, has reviewed the above-noted proposal and supporting documentation.

I am pleased to advise that this project has been awarded **APPROVAL TO PROCEED**. **You may begin your research immediately.**

This approval of your application will be reported to the Athabasca University Research Ethics Board (REB) at their next monthly meeting. The REB retains the right to request further information, or to revoke the approval, at any time.

The approval for the study "as presented" is valid for a period of one year from the date of this memo. If required, an extension must be sought in writing prior to the expiry of the existing approval. **A Final Report is to be submitted when the research project is completed.** The reporting form can be found online at http://www.athabascau.ca/research/ethics/ .

As implementation of the proposal progresses, if you need to make any significant changes or modifications, please forward this information immediately to the CDE Research Ethics Review Committee via rebsec@athabascau.ca for further review.

If you have any questions, please do not hesitate to contact the Committee Chair (as above), or the Research Ethics Board secretary rebsec@athabascau.ca