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Correlational analysis of adult students' self-directed learning readiness, affective learning outcomes, prior electronic learning experience, and age in hybrid and online course-delivery formats

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CORRELATIONAL ANALYSIS OF ADULT STUDENTS' SELF-DIRECTED
LEARNING READINESS, AFFECTIVE LEARNING OUTCOMES,
PRIOR ELECTRONIC LEARNING EXPERIENCE, AND AGE IN
HYBRID AND ONLINE COURSE-DELIVERY FORMATS

A Dissertation Presented
to
The Faculty of the School of Education
Learning and Instruction Department

In Partial Fulfillment
of the Requirements for the Degree
Doctor of Education

by
Gleb Nikitenko
San Francisco, CA
December 2009

THE UNIVERSITY OF SAN FRANCISCO

Dissertation Abstract

Correlational Analysis of Adult Students' Self-Directed Learning Readiness,
Affective Learning Outcomes, Prior Electronic Learning Experience, and
Age in Hybrid and Online Course-Delivery Formats

The self-directed learning (SDL) in all of its characteristics measured in

students and in various learning contexts continues to have a very important role in

educational research and requires new explorations. Contemporary research

indicates that there is a direct positive relationship between the level of student self-

directed learning readiness (SDLR) and success in electronic learning (e-learning)

as tested by a variety of instruments, using different sets of measures associated

with self-perceived and externally assessed learning outcomes.

In addition to re-examining such relationship by using Self-Directed-

Learning-Readiness (SDLRS) and Online Learning Environment (OLE)

instruments, this study compared the main two Web-based delivery formats--

hybrid (or blended) and online-- for differences in SDLR and affective learning

outcomes, as well as possible differences and relationships associated with prior e-

learning experience and age. The study reports on the correlational research

conducted at a private San Francisco Bay area university using a convenience

sample of 240 graduate and undergraduate adult students enrolled in hybrid and

online courses in a variety of social-science programs. The sample used for the

study was very different from samples used in prior research in terms of

demographics and the level of professional experience of the adult student participants.

Results from comparing the relationships between SDLR and OLE affective learning outcomes revealed similar weak-to-moderate correlations within both hybrid and online groups and highlighted no statistically significant differences between hybrid and online courses in terms of the SDLR and OLE relationships. No statistically significant relationships also were found between age, prior e-learning experience, and the SDLR and OLE factors. The results confirmed the importance of SDLR and related programming for gauging, predicting, and facilitating adult student performance in and course satisfaction with the Web-enhanced learning settings regardless of the student level (graduate or undergraduate) or the type of e-learning format (hybrid or online). The study's qualitative results pointed out flexibility and convenience of scheduling and access in addition to the perceptions of "disconnect" from class members and the instructor as the two most pronounced themes. Faculty and curriculum designers need to take such perceptions into consideration when developing Web-based programming and for instructional purposes.

This dissertation, written under the direction of the candidate's dissertation committee and approved by the members of the committee, has been presented to and accepted by the Faculty of the School of Education in partial fulfillment of the requirements for the degree of Doctor of Education. The content and research methodologies presented in this work represent the work of the candidate alone.

Gleb Nikitenko   December 14, 2009
Candidate   Date

Dissertation Committee

Patricia Busk, PhD   December 14, 2009
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ACKNOWLEDGEMENTS

Dedicated to my family who has always believed in me, and to my wonderful and

fearless dissertation committee chairperson who has helped me so much in the

process…

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CHAPTER I

INTRODUCTION

Statement of the Problem

The effective acquisition of knowledge, especially in the adult-learning

environment, requires high level of student self-direction, regardless of the academic

field and instructional format (Brookfield, 1993; Candy, 1991; Ellinger, 2004; Koohang

& Durante, 1998, 2003; Merriam, 2001; Merriam & Caffarella, 1999; Regan, 2003;

Reiter, 2002; Sharma & Fiedler, 2004; Smedley, 2007). Numerous findings of extensive

contemporary academic and field research have shown that low recorded levels of student

self-direction generally indicate a strong preference for having someone else plan the

learner's activities (passive learning) and even a consistent dislike for any kind of

learning (Bonham, 1991). Hence, the self-directed learning (SDL) in all of its

characteristics measured in students and in various learning contexts continues to have a

very important role in educational research and requires new explorations, especially in

terms of developing newer, more refined instruments to measure SDL and relate it with

different types of learning (Brockett, 1991; Long, 1990; Song & Hill, 2007).

Several researchers have pointed out a need for researching new perspectives on

how context influences SDL (Garrison, 1997, 2003; Gunawardena & McIssac, 2003;

Song & Hill, 2007). When initial SDL models were developed, face-to-face instruction

was the predominant mode in higher education. More than a decade after the last model

was developed (Garrison, 1997), higher education learning takes place in a variety of

contexts, ranging from face-to-face classrooms to virtual classrooms. Within each of

these settings, a variety of methods may be used to enable interactions, including 100%

physical classroom interactions, a blend (or hybrid) of face-to-face and online interactions, and 100% online interactions. Even though there are strong indications that self-directedness (SD) is a desirable trait for online learners (Shapley, 2000), there is a continuous exploration of issues related to SD and other attributes in learning contexts (i.e., physical classroom instruction, a Web-based course, a computer-based instructional unit, etc.) that require an even more comprehensive understanding (Song & Hill, 2007).

An equally extensive contemporary research suggests that student autonomy and self-directedness in the Web-based learning (electronic learning or e-learning), specifically in the online and hybrid or blended (partially online) environments, are important characteristics of and even conditions for successful learning and overall student course satisfaction (Barnes, Gooden, & Preziosi, 2004; Boyd, 2004; Gallini & Barron, 2002; Hodge, Tucker, & Williams, 2004; Long, 2001; Nuckles, Kimora, & Pilling-Cormick, 2001; Redding & Rotzien, 2001; Song & Hill, 2007; Young, 2002). Many scholars have documented the need for research on online student characteristics, including SDL skills; yet the current literature mostly consists of accounts of personal learning, teaching experiences, and anecdotal observations rather than empirical research based on solid designs and externally and internally validated instruments (Bonk, Kim, & Zeng, 2006; Boyer & Kelly, 2005; Dzuiban, Hartman, Moskal, Sorg, & Truman, 2004; Hiemstra, 2003). Considering the fact that many of the SDL measuring instruments are in some need of updating and additional validation after 30 years of application and responding to calls for more robust and frequent examination of SDL in general, scholars attest to the widening gap in the contemporary SDL research, especially that in

comparable learning contexts (Brockett, 2001; Brockett & Hiemstra, 1991; Tallent-Runnels et al., 2006).

Although the need for a more systematic exploration of the behavior of differentiated student self-directedness in various Web-enhanced delivery formats is well-established, gauging appropriateness and effectiveness of such formats for learning is a complex task (Boyer & Kelly, 2005; Boyer & Maher, 2003; Brockett, 2001; Ekstrom, Landau, & Plowman, 2003). For example, several researchers in instructional technology have emphasized that comparing learning outcomes between different instructional media or formats would not be appropriate (Clark, 1983, 1994; Kozma, 1994; Norman & Schmidt, 2000). There is a notion that learning in different media could vary at so many levels that it would be difficult, if not impossible, to discern specific factors that impact learning more directly in one instructional format versus another one (Tallent-Runnels et al., 2006).

Because recent literature reviews and empirical findings had shown that concerns about the validity of comparing learning outcomes between the online and the traditional classes were justified fully (most of the results were found questionable), some scholars have recommended analyzing more "comparable" delivery-system formats (e.g., online and partially online or hybrid) that are more likely to produce valid results (Bata-Jones & Avery, 2004; Keefe, 2003). Furthermore, recent studies, including some empirical ones (McManus, 2000; Tallent-Runnels et al., 2006), of student academic performance within differently structured online courses and programs reported defensible results of linking learning outcomes with student satisfaction in various Web-enhanced environments. Because of the theoretical considerations, validity concerns mentioned earlier, and data-

collection challenges, there have been fewer studies comparing traditional course-delivery modes with any type of Web-based courses; the research focus has been shifting toward comparing hybrid and online courses instead. These considerations were taken into account and made part of the research methodology and design of this study.

Even though there are methodological challenges and concerns about the validity of research designs developed to compare instructional media, scholars are in agreement about the great value of understanding learners' attributes and characteristics related to the learners' motivation and self-efficacy, including SDL in various learning contexts. The dynamic and multifaceted interaction between various learner attributes and learning format-related components is the subject of ongoing educational research, which, to this date, has produced inconclusive findings. To assess delivery-system formats more effectively and thus test a learning theory such as SDL, scholars suggested that new research might need to concentrate on analyzing plausible learning outcomes based on individual perceptions, attitudes, delivery-system formats, and learners' personal attributes related to SDL (Kirkham, Coughlin, & Kromrey, 2007; Lynch & Dembo, 2004; Rauscher & Cronje, 2005; Roach & Lemasters, 2006; Shin & Chan, 2004; Song & Hill, 2007; Tallent-Runnels et al., 2006; Turk, 2002).

The learning outcomes based on such individualized and highly subjective factors are in the *affective domain*. Such outcomes typically are based on self-reported student perceptions of and attitudes toward their own learning experience, motivation and willingness to participate in the learning process. Students value what is learned and incorporate the values into a way of life leading to satisfaction with various techniques and activities used in any type of instruction (Althaus, 1997; Edwards & Fritz, 1997;

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Rauscher & Cronje, 2005; Richards & Ridley, 1997; Sullivan, 2002; Tallent-Runnels et al., 2006; Turk, 2002). The affective domain is critical for learning but often is not addressed directly or even overlooked because of its subjective nature. The concept was defined in the Krathwohl's (Krathwohl, Bloom, & Masia, 1973) taxonomy on the basis of the classic Bloom's (1956, p. 93) taxonomy and incorporated contemporary developments in learning theory and practice with the newly emerging focus on affective learning outcomes (Atherton, 2004; Bloom, 1956, 1973; Krathwohl et al., 1973; McDonald & Keilsmeier, 1972).

Unlike learning outcomes in the cognitive domain measured on the basis of course performance, content processing, and retention, learning outcomes in the affective domain often are investigated on the basis of the analysis of the relationships between characteristics of learners, their course satisfaction, and various design features of learning environment. For example, there have been several attempts to operationalize components of affective learning in studies using mostly descriptive methods (Althaus, 1997; Edwards & Fritz, 1997; Richards & Ridley, 1997; Sullivan, 2002). Nevertheless, there is no single established method or conceptual framework describing how such operationalization can be accomplished and what conclusions are likely to be drawn. There is, however, a consensus among various researchers that further exploration of affective learning domain via multiple characteristics of learners and environments by using a wider variety of methods and instruments is long overdue (Janssen, Berlanga, Vogten, & Koper, 2007; Rauscher & Cronje, 2005; Tallent-Runnels et al., 2006).

To add to the ongoing discussion about electronic learning (e-learning) in the affective domain, adult student population in the two primary Web-enhanced delivery

methods—online and hybrid—was examined. The main purpose of the examination was to understand the relationship between student self-management, desire for learning, and self-control (all self-directed learning readiness (SDLR) variables) and perceived course learning outcomes, intent to persist in the program, course satisfaction, perceived institutional presence, and online engagement (all part of the affective learning outcomes). The learners' SDL profiles were measured by the Self-Directed Learning Readiness Scale (SDLR) developed by Fisher, King, and Tague (2001), and the learners' affective outcomes were measured by the Online Learning Environment (OLE) instrument (Shin & Chan, 2004).

Important correlational research has been conducted to analyze various socio-demographic characteristics of online learners. Those characteristics include personal, demographic characteristics, learners' experiences and satisfaction with e-learning, and prior experiences in computer-related activities, such as electronic mail (e-mail), online course work, and the Internet use in general. In addition, learning styles and the quality of learners' social interactions in an online environment have been among variables commonly investigated (Bee & Usip, 1998; Gunawardena & Duphorne, 2001; Mortensen & Young, 2000; Muilenburg & Berge, 2005; Neuhauser, 2002; Swan, Polhemus, Shih, & Rogers, 2001; Wells, 2000). Some scholars found independent variables that statistically significantly affected student perceptions of e-learning and the related ratings; the variables included gender, age, ethnicity, type of learning institution, self-rating of online learning skills, effectiveness of learning online, online learning enjoyment, prejudicial treatment in traditional classes, and the number of online courses completed. The scholars' research concluded that people with more prior experience and training in

computer-related activities reported more satisfaction and comfort with the online environment (Muilenburg & Berge, 2005; Swan et al., 2001; Wells, 2000).

The research's opponents conducted similar investigations that revealed no statistically significant differences in test scores, assignments, participation grades, and final grades based on gender, age, learning preferences and styles, media familiarity, and so on (Neuhauser, 2002). Clearly, there is no consensus among researchers about the relationships and differences between sociodemographic characteristics and learning performances in the Web-based courses warranting further investigation.

Purpose of the Study

The main purpose of this study was to identify and examine the relationships between individual students' self-directed learning readiness (SDLR) and affective outcomes as well as prior electronic learning experience and age within and between online and hybrid formats. The SDLR had the following components: self-management, desire for learning, and self-control. The affective outcomes had the following components: student online engagement (frequency of weekly logins and enjoyment of participation in online discussion forums), perceived course learning outcomes, intent-to-persist in the program, course satisfaction, and institutional presence. The analysis of variables occurred in the context of online and hybrid social-studies courses. The research questions were focused on how students, who reported their self-management, desire for learning, and self-control based on the Fisher et al.'s (2001) SDLR scale, as well as age and prior e-learning experience, perceived both delivery formats, as well as each of the two, in terms of the individual course learning outcomes in the affective

domain (online engagement, perceived course learning outcomes, intent to persist, course satisfaction, and institutional presence) as measured by Shin and Chan (2004).

Using data gathered from students' responses, this study examined relationships between SDLR variables and perceived learning outcomes in the affective domain based on the interpretation of Krathwohl et al.'s (1973) taxonomy. The related dependent variables (self-management, self-control, desire for learning, online learning engagement (frequency of logins and enjoyment of participation in online discussion forums), institutional presence, perceived course learning outcomes (as self-reported perceived gains), course satisfaction, and intent-to-persist) and independent variables (the participants' prior e-learning experience, course format (grouping variable), and age) were used to examine possible relationships and learning patterns (Table 1).

Table 1

The Study's Independent and Dependent Variables (Scales)

Dependent variables	Independent variables
Perceived course learning outcomes	Age
Course satisfaction	Prior e-learning experience
Intent-to-persist	Course format (grouping variable)
Perceived institutional presence	
Online learning engagement: • frequency of logins • enjoyment of online discussion forums	
Self-management	
Self-control	
Desire for learning	

The correlation coefficients were analyzed on the basis of the two respective delivery methods—hybrid and online—thus assessing the two methods' effectiveness

(perceived affective learning outcomes) with consideration of age and levels of prior e-learning experience, and the role SDLR may have played in the process.

Theoretical Rationale

Self-directed learning (SDL) has been viewed as one of the conceptual pillars of adult learning theory in general since 1960s and one of the foundational elements of e-learning since 1990s. SDL is defined by Conner et al. (1995) as "[l]earning initiated and directed by the learner" (p. 62); SDL can include self-paced, independent, and individualized learning as well as self-instruction (Caffarella, 1993). The SDL strategy can be very effective, as it forces the learner to take the initiative, resulting in a more active-learning process and a deeper understanding of the assigned course material (Broad, 1999; Brockett, 2001).

The SDL philosophical underpinnings developed by Houle (1961) and Knowles (1975) were translated into the general notion that human nature tends to accept responsibility for one's own learning, thus proactively driving the process without much outside help (Brockett & Hiemstra, 1991). Mezirow (1985) developed the notion further by stating that critical reflection by the adult learner is a prerequisite to the autonomy and success of the learning process (p. 27). Therefore, it becomes the adult educator's immediate responsibility to encourage such process and increase the adults' capacity to operate as self-directed learners (Mezirow, 1981, p. 137).

Another aspect of the SDL concept is "the promotion of emancipatory learning and social action" (Merriam, 2001, p. 9). This process is supposed to be driven by the external conditions, changes, and challenges that an adult learner is surrounded by.

Unfortunately, the most active proponents fell short of elaborating on the contextual factors (societal, cultural, biographical, educational, or instructional) of SDL.

As mentioned earlier, SDL has been linked conceptually with Internet-based learning (e-learning) since at least late 1990s or, in some aspects, even earlier (Caffarella, 1993; Long, 2001; Monolescu & Schifter, 2001). E-learning, by its very learner-centered nature, is an appropriate forum in which SDL can and does occur (Garrison, 2003; Gunawardena & McIssac, 2003; Shapley, 2000). Instructors teaching asynchronous classes and providing guidelines for e-learning allow students to study at their own pace, in their own environment, and utilizing resources often found through self-guided research. Hence, students work independently, visiting virtual libraries, accessing online resources for the latest research, and participating actively in virtual interactive discussions (individual and group online forums) from remote locations.

Song and Hill (2007) provided a research-based framework for understanding SDL in any version of online context. The framework incorporated SDL as a personal attribute and a learning process in addition to a third principal dimension focused specifically on the learning context, thus emphasizing the effect of various environmental factors on SDL (p. 31). Song and Hill developed the framework on the basis of the models of the most prominent SDL scholars (e.g., Brockett & Hiemstra, 1991; Candy, 1991; Garrison, 1997; Guglielmino, 1977). The framework established linkages between SDL attributes and related learning processes on the one end and learning contexts, including course design, its support mechanisms, leading to learning outcomes (experiences, course satisfaction) in online environment, on the other end.

Guglielmino and Guglielmino (2003), a version of whose instrument is used in this study to measure self-directed learning readiness of students, contended that, although the students' technical skills and attitudes are very important for e-learning, self-direction is far more vital in the successful Web-based environment. The self-directed and self-regulated nature of Web-based courses, active participation in online assignments (discussion board, group pages, etc.), as well as feedback from fellow students and the instructor consistently have been found to be important factors of successful learning experience, often reported as overall course satisfaction and perceptions of success (Reece & Lockee, 2005; Tallent-Runnels et al., 2006).

It was Guglielmino's (1977) original attempt to understand the dynamics of SDL in various environments and operationalize SDL empirically that led her to develop a concept of self-directed-learning readiness (SDLR): an interpretation of SDL perceptions of learners that generated subsequently a rich body of literature of its own. Guglielmino's (1977) understanding of SDL motivators and individual self-perceptions was translated into an SDL- readiness-measuring scale (SDLRS). The scale has made an impact on the SDL research (especially its empirical part) internationally since the SDLRS first administration in 1977. SDLR illustrates how an individual's self-perceptions and intrinsic learning motivators can impact that individual's self-management, self-control, and overall desire for learning. The SDLR's utility and relevance to e-learning were the primary reasons for integrating the scale's modified version into the theoretical foundation and research design of this study.

Some of the studies in the broader field of SDL conducted in the context of e-learning and included in the Review of Literature section of this research emphasized (or

focused on completely) the concept of self-regulated learning (SRL). SRL is related to SDL while occupying its own place in the hierarchy of learning theories. Although there are similarities between SDL and SRL, both concepts differ on important aspects, including the "self" aspect and main developmental processes of which learners are an integral part. SRL includes an additional premise of giving students a broader role in the selection and evaluation of learning materials. SDL can encompass SRL, but SRL is too narrow in many respects to do the same (Loyen, Magda, & Rikers, 2008). SRL is "learning that is planned, assessed, and analyzed by the person doing the learning" (Moran, 2005, p. 17). Adult educators have written about the importance of helping adults to become competent independent learners not only in formal education and training programs but also in the workplace and in other areas of adult life. E-learning is a perfect context to apply and analyze SRL, especially considering the concept's high level of specificity and relevance (Lynch & Dembo, 2004). Incorporating SRL research in the broader context of SDL and e-learning thus is an effective way to highlight some of the common as well as different functional and motivational issues that emerge in the e-learning environment.

The learners' self-directedness was related to the affective domain of the Krathwohl's framework and measured accordingly in this study (Krathwohl et al., 1973). The two-dimensional framework to describe learning (cognitive and affective) was articulated by Krathwohl (Krathwohl et al.,1973) and explained theoretically by Martin and Briggs (1986), Simmons and Maushak (2001), and Smith and Ragan (1999). The Krathwohl's general conceptual stages in the domain were described as the following: (a) receiving or attending (willingness to listen to instructions and become aware of new

knowledge, issues, and perspectives), (b) responding (willingness to participate in associated learning activities, hence appreciating or internalizing new knowledge, issues, etc.), (c) valuing (willingness to be further involved in the acquisition of knowledge via related materials by accepting it, preferring it, and finally becoming committed to it), (d) organizing and conceptualizing (willingness to become an advocate of newly possessed knowledge and related values by incorporating it directly into one's value system), and (e) characterizing (willingness to identify with the newly enhanced value system more directly by constantly orienting oneself toward it, changing one's behavior, etc.; Krathwohl et al., 1973; Martin & Briggs, 1986).

The stages are listed in a particular order, following one another, and assuming that learning at each given level would depend on prior learning at lower levels (Atherton, 2004). The levels are not meant to be exact or prescriptive but are assumed to be rather broad stages, describing general dynamic of the affective learning and its assumed outcomes (Martin & Briggs, 1986). Because all of the stages described above are associated with human values, perceptions, feelings, and emotions, it can be inferred that learners' satisfaction with related learning experiences and formats as well as their perceptions of learning success and outcomes are certainly among the factors involved. For example, in accordance with the Krathwohl et al.'s (1973) framework outlined, receiving or attending to new knowledge refers to students' positive perceptions and acceptance of the course material and the way it is presented. Responding to and valuing new knowledge via related materials (reading, syllabi, etc.) and activities (group work, online posting, and interaction) refer to going beyond simply accepting the knowledge by making a commitment to it that will maximize learning outcomes and eventual

satisfaction with the learning process as well. Organizing, conceptualizing, and characterizing are based theoretically on one's (learner's) willingness to become an advocate of newly possessed knowledge and associated learning processes, incorporate them directly into one's value system, and constantly orient oneself toward the newly-enhanced system by changing one's learning behavior, preferences, perceptions, and intentions (Krathwohl et al., 1973; Rauscher & Cronje, 2005; Turk, 2002; Van der Horst & McDonald, 2001).

Based on the assumption of the linkage between the characteristics of the affective domain (e.g., student perceptions, respective values, appreciation for a particular design or format, and hence course satisfaction) and the overall quality of learning, this study focused on the elements of the affective domain as part of its theoretical rationale for describing learning outcomes in the online and hybrid formats of e-learning. By linking the content- and context-based aspects (online and hybrid learning, related activities, processes, and overall environment) with behavioral (self-management, desire for learning, self-control) and affective ones (course and learning format satisfaction, engagement in Web-based learning, self-reported perceived gains (value-based perceptions of outcomes), appreciation of the overall learning environment (institutional presence, individual intent-to-persist, etc.)), the theoretical framework of the Krathwohl's taxonomy (Krathwohl et al., 1973) is applied to the contemporary instructional mediums and designs (Huang & Alessi, 2002; Lee, 2000; Rauscher & Cronje, 2005; Van der Horst & McDonald, 2001).

Background and Need

In order to understand the factors and variables involved in this study, it was important to review the development of SDL and its function in the context of electronic learning (e-learning) in the contemporary higher education: (a) brief overview of the development of e-learning in the US, (b) SDL and its issues in the Web-based contexts, (c) perceived learning outcomes in the affective domain, and finally (d) overview of hybrid and online course-delivery formats, including learners' perceptions of the contexts on the basis of age and prior e-learning experience. The section elaborates on the discussion initiated in the introductory part and includes some of the sections to be further explored in the Review of the Literature.

E-learning in the US

E-learning, defined as a learning and instructional process, is considered to be part of distance learning. E-learning mostly is associated with activities that involve computers and interactive Web-based networks or tools simultaneously (Buzzetto-More & Sweat-Guy, 2006; Young, 2002; Zemsky & Massy, 2004). With the rapid development of technology, the Web-based online instruction has emerged as an alternative mode of teaching and learning and a substantial supplement to traditional teaching (Sikora & Carroll, 2002). In the 2000–2001 academic year alone, 90% of public 2-year and 89% of public 4-year institutions offered distance-education courses. In the same year, an estimated 2,876,000 individuals were enrolled in college-level, credit-granting distance-education courses, with 82% of these at the undergraduate level. Of those institutions offering distance education, 43% had Internet courses using synchronous computer-based instruction, which also can be called online courses (Waits & Lewis, 2003). In 2000, it

was reported that enrollment in online classes in the United States was increasing by 33% per year with almost 200 schools offering online graduate degrees (Pethokoukis, 2002). The total online educational market was estimated at 2.3 million students in 2000 (Katz-Stone, 2000).

Although e-learning is expanding rapidly, it remains a relatively new frontier for educational research. With higher educators' plans for even more use of e-learning being discussed nationwide, additional research (and its assessment) in this area is needed to help guide effective ways to teach variation of online courses and administer Web-enhanced and online academic programs (Broad, 1999; Song & Hill, 2007). Educators continue to debate what specific delivery methods work best and what approaches are most effective for diverse learners with a range of learning styles. A great deal of contemporary research is focused on analyzing adult-student learning characteristics and perceptions. Based on the analysis of these perceptions, various solutions and strategies designed to improve both the course-learning outcomes and the student-learning experiences, including course satisfaction, are suggested. With over 600 graduate and even a greater number of undergraduate programs in the US currently being offered in a variety of Web-based formats, the research and pedagogical attention to online learner's characteristics and their level of course satisfaction is enormous (Allen & Seaman, 2007; Roach & Lemasters, 2006; Tallent-Runnels et al., 2006).

Self-Directed Learning and its Issues in the Web-based Contexts

The importance of self-directed learning (SDL) as one of the theoretical constructs within adult learning theory (ALT) cannot be overestimated. Based upon the pioneering work of Tough (1967), Houle (1961), and later Knowles (1975), the first

description of self-directed learning was presented to the research community in the late 1960s and early 1970s. SDL appeared as another perspective on adult learning theory helping to define adult learners as different from children, around the time when Knowles introduced andragogy, otherwise known as the most articulate manifestation of ALT. Knowles himself contributed to SDL development by writing a book in which he explained his version of the concept and elaborated on his approach to implementing it through learning contracts (Knowles, 1975). It was Tough (1967), however, building on the original work of Houle, who described self-directed learning in comprehensive terms as something that was widespread and as a process occurring in adults' everyday life. Such learning is systematic, yet does not depend on an instructor or a classroom (Houle, 1961).

The discussion of SDL within social and instructional (especially adult-learning-related) contexts generated a flurry of research, including several empirical studies and academic discussion that followed. The most vocal critique came from Brookfield (1993), Collins (1996), and Andruske (2000), who specifically called for a more critical, demographic, and, more importantly, pedagogical analysis of self-directed learning. Pointing out the similarity in the dynamics of "self-directedness" between adults and children, Merriam and Caffarella (1999) focused attention on what instructors could do in the formal classroom setting to promote self-direction and student control of learning without anticipating these processes to emerge naturally simply because adults are expected to be more self-directed.

Furthermore, the results of the study published by Candy (1991, p. 309) found that a learner's self-direction and autonomy often vary from situation to situation, so no

assumption should be made that because one person has been self-directed in one situation he or she will display the same attitude and behavior in another situation or in another area (format) of learning. The study had an empirical component to illustrate the testing of variables. Candy concluded that "orientation, support, and guidance" may be necessary to ensure successful learning of even the most self-directed adults. These and other empirical findings partially fueled further criticism of self-directed learning revealing inconsistencies and theoretical gaps within the concept that are being examined even presently. Nevertheless, the SDL theory and practice were established as solid and applicable aspects of adult learning in various formats and contexts.

Mezirow (1985) did not go beyond simple acknowledgement that critical reflection does in fact include a well-rounded understanding of the "historical, cultural, biographical, and other reasons for one's wants, needs, and interests" (p. 27) Even though there were certain theoretical gaps, several practical models of measuring and evaluating SDL had been developed beginning in the 1970s and through the 1990s; these ranged from linear (needs and resource identification through selecting and applying instructional formats to evaluating outcomes) to more interactive models developed in the 1980s and the 1990s that accounted for the environmental factors and influences that shaped the SDL process and teaching approach (Merriam, 2001). Other methodologies related to SDL and self-regulated learning (SRL) also were developed including one with a matrix to help learners locate themselves in terms of their readiness for and comfort with being self-directed and self-regulated. The matrix reflects learners' types, materials, educational techniques, and motivations (Moran, 2005).

The conceptual background above provides an additional insight into the SDL theoretical development in the process of becoming one of the mainstream learning theories irrespective of many challenges and ongoing criticism. The various environmental and demographic constraints reviewed comprise the major set of limitations of SDL even though there is already a large body of literature, explaining SDL theoretically and validating it empirically. The need for further exploration of SDL in various contexts and conditions remains high nonetheless.

On the basis of extensive research and field observations, SDL theory is now accepted widely as a concept and practice fully applicable to the online and hybrid environments (Chou & Chen, 2008; Kirkman et al., 2007). Effective knowledge acquisition dialogue, reflection, participation, and other learning activities are impossible without a great degree of self-direction practiced by learners (mostly adults) engaged in this type of the learning process (Merriam, 2001; Merriam & Caffarella, 1999). The self-directed and self-motivated principles of SDL have been found profoundly important in the large majority of the Web-based learning groups studied in the early 21st century (Boyd, 2004; Derrick, Ponton, & Carr, 2005; Doran, 2001; Frey, Alman, Barron, & Steffens, 2004).

The current availability of valid and reliable instruments to measure the level of student self-directedness permits researchers to analyze how students, who have a particular score of self-directedness (SDLR), function within different online delivery formats (Fisher et al., 2001; Lynch & Dembo, 2004; Smedley, 2007). Several studies have examined relationships between SDL and academic success, including individual performance, experiences, and satisfaction, in Web-based environments singularly and on

the comparative basis. Even though the results have been inconclusive, there is an indication that SDL has a distinct functional role and should be explored further in various e-learning contexts and formats (Chou & Chen, 2007; Kirkman et al., 2007).

In this study, the SDLR-related data were collected by utilizing a well-tested survey instrument and sorted by the type of course delivery (hybrid vs. online; Fisher et al., 2001; Lynch & Dembo, 2004; Shin & Chan, 2004; Smedley, 2007). The analysis of various relationships between variables provided ground for this study's conclusions and added to the contemporary research of student learning depending on personal attributes, perceptions, and learning contexts.

Perceived Learning Outcomes in the Affective Domain

Since late 1960s when both Bloom's (1956) and Krathwohl's (Krathwohl et al., 1973) taxonomies of learning were formulated, they have been considered the principal theoretical foundations for the study of learning objectives and related outcomes in both cognitive and affective domains. As learning contexts and designs have evolved, the need to continue analyzing learning outcomes of various sorts and levels has become more pressing as well (Martin & Briggs, 1986; Simmons & Maushak, 2001; Smith & Ragan, 1999). Because this study involved exploration of students' perceptions, values, and self-reported experiences as components of affective learning objectives and outcomes, the Krathwohl's taxonomy formed an important part of the study's background and need for reviewing the taxonomy's contemporary application. The "value-driven" environment of adult education with its transformative nature, cooperative (peer-based), and life-long learning could be tied theoretically with the valuing stage of the Krathwohl's taxonomy

of affective learning domain in particular (Krathwohl et al., 1973; Rauscher & Cronje, 2005; Simmons & Maushak, 2001).

Although there has been an extensive research into cognitive aspects of online learning (e.g., content, instructional design, learners' performance) partially on the basis of the Bloom's (1956) taxonomy, the affective aspects of the online medium have been either overlooked or addressed superficially (Bloom, 1956; Tallent-Runnels et al., 2006). Some researchers suggested that such neglect of the affective domain in pedagogical models can be explained by a relative difficulty to formulate it in research-design terms: its theoretical framework and operationalization are not straightforward (Goldfayl, 1995; Rauscher & Cronie, 2005). Furthermore, the affective learning in online environment is viewed often with skepticism especially by those questioning the utility of distance and online learning in general (Bowers, 1997; Postman, 1999; Tallent-Runnels et al., 2006).

The connection between behavioral, cognitive, and emotional (affective) aspects of learning has been emphasized by many scholars. Some of them have argued that a better understanding of learners' reactions and preferences would lead to improvements in the online curricular design, instruction, and ultimately quality of learning (Huang & Alessi, 2002; Van der Horst & McDonald, 2001). The emotional (and hence affective) dimension of learning in the online environment is illustrated by examples of students reporting lack of "real" social contact and feeling isolated from peers and instructors. These learners perceive being forced to make difficult decisions completely on their own (Lee, 2000; Rauscher & Cronje, 2005). Alternatively, clear instructions, well-designed course curriculum, lack of technological problems, and active online interaction are associated directly with increased level of course satisfaction (Buzzetto-More, 2008;

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Kirkman et al., 2007; Koohang & Durante, 2003; Lynch & Dembo, 2004; Reasons,

Valadares, & Slavkin, 2005; Wu & Hiltz, 2004). There has been a direct positive

relationship reported between learners' satisfaction and self-reported internalization of

the material in addition to willingness to take online or hybrid courses again in the future

(Dziuban et al., 2004; Reiter, 2002).

Based on the assumptions of the Krathwohl's taxonomy (Krathwohl et al., 1973),

Web-based learners would accept the format in its variations more easily and associate

their learning success with it more directly if the perceptions and experiences are mostly

positive. A learner's value system is thus influenced positively and substantially

(especially for those who have not taken such courses before), and the impact of positive

learning can translate into a more successful online or hybrid learning in subsequently

years (Rauscher & Cronje, 2005).

Overview of Hybrid and Online Course-delivery Formats in Their Specific Contexts and Student Populations: *Learners' Perceptions on the Basis of Age and Prior E-learning Experience*

Researchers in the area of instructional technology have been focusing on e-

learning formats by comparing and contrasting them and exploring mechanisms for

altering existing e-learning practices since 2002 (Dziuban et al., 2005; Gallini & Barron,

2002; Koohang & Durante, 2003; Sharma & Fiedler, 2004). The ongoing academic and

professional debate on which of the two formats (online or hybrid) would be a better

choice for what type of learner is one of the main reasons why this research was

undertaken. Although comparisons of the Web-based and Web-enhanced delivery

methods such as hybrid and online with the traditional class-based method still take

place, there is an emerging consensus of the e-learning-based-format's "incomparability"

with the traditional one for conceptual (different medium, different cognitive, and motivational foundations) and methodological reasons (data collection limitations, difference in perceptions affecting learners' responses to surveys, etc.; McManus, 2000; Tallent-Runnels et al., 2006).

In addition, there is a continuing disagreement between those who believe that the course format and delivery methods play a much smaller role in comparison with the instructor's competence, teaching skills, and student attitudes toward educational technology and those pointing out a major influence of the course design and instructional medium (Carnevale, 2000; Hodge et al., 2004; O'Malley & McCraw, 2005; O'Neill, Singh, & O'Donoghue, 2004; Powell, 2007; Reasons et al., 2005; Sanders & Morrison-Shetlar, 2002). Although this study was not focusing on the aspect of instructional effectiveness specifically, the analysis of learners' perceptions and experiences as part of the learning outcomes in affective domain would contribute to the scholarly debate on these issues.

Scholars have examined blended- or hybrid-delivery format and its potential in supporting new and advanced forms of learning and facilitation in various contexts and with diverse student populations. The hybrid format has been analyzed separately and in comparison with traditional and online formats (Ausburn, 2004; Dziuban et al., 2004, 2005; Koohang & Durante, 2003; Lynch & Dembo, 2004; MASIE, 2002; Pan, Sivo, & Brophy, 2003; Reasons et al., 2005; Riffell & Sibley, 2003; Rovai & Jourdan, 2004; Sharma & Fiedler, 2004). Student demographic data have been analyzed as different types of variables in various Web-based formats since at least mid-1990s with special focus on the students' age and prior learning experience. The results have indicated

consistently that students in Web-infused and online courses predominantly are older than traditional students (19 to 23 years old): one study found that the online students' average age was 29 (n= 259) and were almost equally split between male and female students in various (mostly college-level) adult-learning programs. Another study conducted much later found that the majority of online students in a graduate program were between 30 and 35 years old that confirmed the assumption of many studies that online and other Web-based courses are taken predominantly by adult learners regardless of the level of a degree program (graduate or undergraduate) and with an overall stable and balanced split between male and female students (Bocchi, 2004; Schneider & Germann, 1999; Tallent-Runnels et al., 2006). Hence, tracking the demographics of Web-based learners, and specifically their age, has been conducted continuously and may have research utility for subsequent analysis of the age-related perceptions of course-learning formats and e-learning in general.

Analyzing learners' age as one of the factors in e-learning caused some researchers to look into other experiential dimensions of learning, including prior experience in various e-learning contexts. Formulating and examining related variables produced eventually a broad-based category called *e-learning experience* (or prior online experience) with several subcategories, such as a number of years spent studying in an e-learning environment, a number of Web-based courses experienced, a level of complexity experienced, and so on (Tallent-Runnels et al., 2006). Increasingly, various researchers delved into the issue of effects of prior e-learning and used this experiential factor as a variable in their empirical studies. Although the results varied, there was a consensus that learners with previous e-learning experience consistently had better perceptions of the

Web-enhanced design and environment in both online and hybrid courses than learners without or with very limited e-learning experience. The studies revealed overall positive relationships between the number of hybrid and online courses taken (or number of years since the first e-learning experience) and perceptions of achieving more learning outcomes and feeling of more satisfaction with such experience (Hodge et al., 2004; Muilenburg & Berge, 2005; Swan et al., 2001). There was a conceptual and practical relevance of prior e-learning that warranted further investigation.

With respect to the type of the learning format, although there is an emerging consensus that hybrid learning offers the "best of both worlds" (Lindsay, 2004) by combining more faculty-supported environment of a traditional classroom with flexible and innovative elements of online education, Koohang and Durante (2003), Lynch and Dembo (2004), and Reasons et al. (2005) have questioned any significant differences in learning outcomes, student performance, and satisfaction between traditional and hybrid formats. Still researchers of other empirical studies concluded that hybrid-course format enhances the students' sense of community, supports cohort learning, and increases course attendance and hence retention (Riffell & Sibley, 2004; Rovai & Jourdan, 2004).

In contrast, online technologies and completely online courses generally support more individualized, delayed, and asynchronous documentation, reflection, and commentary. Online courses are more acceptable to and effective for the type of learners who tend to rely on the Internet constantly, have a rather extensive prior e-learning experience, and express preference for completely online programs in general (Buzzetto-More, 2008; Gallini & Barron, 2002; Sharma & Fiedler, 2004; Taylor & McWilliam, 1998). When Buzzetto-More (2008) and Wu and Hiltz (2004) pointed out the course

design and online interaction as the most recognized components of students'

performance, perceived learning, and satisfaction with experience, Rivera, McAlister, and

Rice (2002) and Roach and Lemasters (2006) emphasized school support and faculty

performance as more important prerequisites for success in this delivery format.

Hence, there is no clear consensus among scholars on principal factors that are

correlated with or have direct impact on students' learning and course satisfaction in

various contexts. The lack of consensus justifies further exploration of both hybrid and

completely online delivery formats.

Many social-science programs are designed for working adults. Because of the

accelerated nature of adult student programs, those have been supplemented increasingly

with either online components or transferred completely online, thus making them well-

established venues of e-learning (Powell, 2007; Waits & Lewis, 2003). Such proliferation

of e-learning, which is considered an important medium for self-directed learning (SDL),

has created a growing need for a more systematic analysis of the SDL implications in the

context of Web-based courses. Research discussions have broadened as curricular and

instructional methods become enhanced increasingly by innovative delivery systems that

utilize online and blended learning approaches (Tallent-Runnels et al., 2006).

<div align="center">**Research Questions**</div>

There were four research questions posed for this study as follows:

1. To what extent were the learning outcomes in the affective domain (online

   learning engagement (frequency of logins and enjoyment of participation in

   online discussion forums), perceived institutional presence, perceived course

   learning outcomes, course satisfaction, and intent-to-persist) related to the

adult students' SDL readiness (self-management, desire for learning, self-control), age, and prior e-learning experience in both hybrid and online course-delivery formats combined?

2. To what extent were the learning outcomes in the affective domain (online learning engagement (frequency of logins and enjoyment of participation in online discussion forums), perceived institutional presence, perceived course learning outcomes, course satisfaction, and intent-to-persist) related to adult students' SDL readiness (self-management, desire for learning, self-control) in an online course-delivery format?

3. To what extent were the learning outcomes in the affective domain (online learning engagement (frequency of logins and enjoyment of participation in online discussion forums), perceived institutional presence, perceived course learning outcomes, course satisfaction, and intent-to-persist) related to the adult students' SDL readiness (self-management, desire for learning, self-control) in a hybrid course-delivery format?

4. To what extent was there a difference in the relationship between SDLR and OLE scores for students in hybrid and online courses?

Significance of the Problem

Academicians and educational administrators in various programs rely on research in the area of technology-enhanced learning and instruction greatly. As an increasing number of courses, degrees, certificate programs, and entire colleges are transferred online or partially online, there is a growing number of educational aspects and issues related to these delivery formats that require comprehensive and thorough

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assessment to be translated into practical recommendations. The demand in academic and professional research of self-directed learning and its function within the online or hybrid (blended) delivery formats is growing and already has become an issue of constant interest. Such demand is partially the result of broadening acknowledgment of the central role that student learning autonomy plays in making online and hybrid education a meaningful, effective, and rewarding experience for both students and faculty (Allen & Seaman, 2007).

The findings of this dissertation research can be used to present recommendations to social-studies-based programs at various institutions for the purposes of assessing and sharpening student self-directed learning skills, thus improving overall course and program outcomes. The data and findings also may be used for further research and publications in the areas of online and hybrid learning design as well as the function of self-directed learning (SDL) in various instructional formats. Given the growing use of online and hybrid courses by the overwhelming majority of accredited universities and colleges, this dissertation project should become a valuable contribution to the body of contemporary higher education research. The study is expected to have practical importance for academic advisers and curriculum designers involved in hybrid or online programming.

Definition of Terms

In this section, the definitions of main terms and concepts are provided. Although there may be alternative ways to define these terms, the way they are defined here is the way that they are used in the study.

Adult learning involves nontraditional students—working adults—who are typically enrolled part-time or half-time in mostly evening or weekend classes in degree, certificate, or training programs that emphasize professional-skill development in addition to general academic competence (Brookfield, 1993; Knowles, 1989; Tough, 1978).

Asynchronous mode of online instruction is the interactive process of instructor-learner communication and exchange conducted within nonimmediate time-frame where a respondent is allowed hours or even days to communicate with a peer or an instructor via the course site, discussion forum, or blog (Picciano, 2002).

Cohort model is the type of adult-student-learning organization where students take course together in a prescribed sequence throughout their entire program (Mandzuk, Hasinoff, & Seifert, 2003).

Distance learning is an instructional approach that is based on interaction at a distance between teacher and learners and often between learners themselves; it enables timely instructor reaction to learners. Simply posting or broadcasting learning materials to learners is not distance learning. Instructors must be involved in constant interaction and receiving feedback from learners (Harry, John, & Keegan, 2003; Yacci, 2000).

Electronic or e-learning is learning and instructional process generally considered to be part of *distance learning* and mostly associated with activities that involve computers and Web-based interactive networks or tools simultaneously. There are other competing definitions of e-learning, but this one is used for the purposes of the study (Young, 2002; Zemsky & Massy, 2004).

E-learning experience of learners (in this study, it is referred to as "prior e-learning experience) is a broad-based category, which generally involves several subcategories, such as a number of years spent studying in an e-learning environment, a number of Web-based courses experienced, a level of complexity experienced, and so on (Tallent-Runnels et al., 2006). For the purposes of this study, only the category based on the number of Web-based courses experienced was selected.

Hybrid (blended, or partially online) course-delivery method is the type of *e-learning* that is utilized within both online and classroom media in any combination, which generally involves an online component (at least 20% of the entire course delivery time) and a traditional face-to-face component (Buzzetto-More & Sweat-Guy, 2006; Lindsay, 2004; Skibba, 2003).

Learning outcomes in the affective domain are based on self-reported student perceptions of and attitudes toward their own learning experience and satisfaction with various techniques and activities used in e-learning instruction (Tallent-Runnels et al., 2006). Unlike learning outcomes in the cognitive domain measured on the basis of course performance, content processing, and retention, learning outcomes in the affective domain often have been investigated on the basis of correlational research focused on relationships between characteristics of learners, their course satisfaction, and features of e-learning environment (Althaus, 1997; Edwards & Fritz, 1997; Richards & Ridley, 1997; Sullivan, 2002). Affective learning outcomes are operationalized by use of the Online Learning Environment (OLE) instrument as described in the paragraph below.

Online Learning Environment (OLE) is an instrument designed by to Shin and Chan (2004) to examine relationships between students' self-reported engagement in

online learning and perceived learning outcomes, satisfaction with learning experience in courses, and intent-to-persist with online learning in future. The instrument was administered at the Open University of Hong Kong in 2004 on the basis of a course taught in both English and Chinese to a diverse body of Chinese and international students. Additionally, the study was to explore a relationship between students' perceptions of institutional presence (quality of services) in the online environment and student online involvement, course learning outcomes, satisfaction with online learning experience, and finally the intent-to-persist with online learning in future. The instrument consists of a 30-item questionnaire using a 5-point Likert scale and identifies three major subscales defined as *institutional presence* (9 items), *learning outcomes* (10 items), *course satisfaction* (6 items), and *intent-to-persist* (4 items). A measure of *online engagement* is also incorporated; the respondents' demographic data are in a separate section, including the level of Internet skill, experience with online courses, the level of prior education, age, and gender (Shin & Chan, 2004)

     Online course-delivery method is the type of *e-learning* generally conducted 100% outside of the classroom via computer on which the course content is accessible readily. The content may be deployed on a password protected or open-access website or simply installed on a CD-ROM or the computer hard disk (Allen & Seaman, 2007).

     Self-Directed Learning (SDL) is a theory as well as a learning and instructional model, based on the perception that "learning is initiated and directed by the learner" (Conner et al., 1995, p. 62); a process that typically includes self-paced, independent, and individualized learning as well as self-instruction (Caffarella, 1993). SDL is operationalized by use of the SDLR as described in the paragraph below.

Self-Directed Learner Readiness Scale (SDLRS) is an instrument originally developed by Lucy Guglielmino in 1977 as part of her doctoral dissertation to measure student self-directedness. The scale subsequently was retested and further developed by a number of educational researchers with most recent contributions by Fisher et al. (2001), Lynch and Dembo (2004), and Smedley (2007). The instrument consists of a 40-item questionnaire using a 5-point Likert scale and identifies three main subscales: self-management, desire for learning, and self-control (Bonham, 1991; Guglielmino, 1977; Smedley, 2007).

Synchronous mode of online instruction is the type of online communication conducted in real mode, simultaneously (Web chats, instant blogs, and discussion forums, and so on; Picciano, 2002).

Summary

In this chapter, the purpose of the study, the main problem and its significance, general background, and theoretical rationale have been discussed. The main aspects of self-directed learning (SDL) in Web-based course-delivery formats in addition to the principles of the learning outcomes in the affective domain have been highlighted, and the study's research questions and the definition of terms have been articulated.

In the next two chapters, the review of literature focuses on the recent research findings in the areas of Web-based and self-directed learning, course-delivery formats and environments, and various student characteristics in the online and hybrid formats. The chapter on methodology contains the research design, its instruments and sample, data collection and analysis procedures, and some other aspects that are essential for understanding of the scope and nature of this research. The chapter on results has the

main research findings and data analysis based on the statistical tests performed and qualitative data reviewed and rated. The final chapter provides scholarly and practical interpretation of findings, including the research limitations, suggestions for future research, and overall conclusions.

CHAPTER II

REVIEW OF LITERATURE

Because the purpose of this study was to examine the relationship between individual self-directed learning readiness (SDLR) variables and course learning outcomes in the affective domain (perceptions, experiences, and course satisfaction) in the context of the variety of adult-learning social-studies courses, the following four main components of the literature review are included: (a) review of the self-directed learning (SDL) based empirical research, (b) SDL in the electronic learning (e-learning) environment, (c) assessment of learning outcomes in the cognitive and affective domains (student experiences, perceptions, and satisfaction) in the two main e-learning delivery formats: hybrid and online, and (d) overview of student perceptions of and main characteristics of Web-infused delivery formats.

Review of the SDL-based Empirical Research

The review of literature starts with a selection of empirical studies that are reviewed to present problems related to SDL-related educational measurement, the possibilities and limitations of various SDL designs and instruments, and their importance for future research. To operationalize SDL and assess it empirically in any environment, several authors have developed instruments to address the issue both within and outside of the e-learning context. Both approaches are equally valuable for the purposes of this study because related instruments can be used for analyzing important instructional and learning aspects of SDL. Such analysis will address some of the research questions posed in this study, especially those related to the relationship between SDL and learning outcomes.

The first such research effort was Guglielmino's (1977) dissertation. The author developed the 58-item Self-Directed Learning Readiness Scale (SDLRS). The SDLRS instrument was used by many researchers (the study has been translated into 25 languages) to measure self-directed learning readiness (SDLR) and to compare various self-directed learning aspects with other factors, such as faculty ratings, learning styles and preferences, leadership characteristics, and many others (Field, 1989).

The SDLRS was developed by Guglielmino (1977) in several stages with the participation of a panel of 14 experts in the adult-education field, including well-known scholars such as Houle, Knowles, and Tough, who took part in the so-called Delphi survey with a threshold rating of "desirable" or better being used to decide whether an item should be added to the scale. After revision of the initial 41-item version of the scale, 9 items were eliminated, and additional 26 items were added to make up the 58-item version of the scale, which was administered to 307 adult students (both graduate and undergraduate levels) at three locations in North America with reportedly over 80% response rate. The results necessitated additional revisions and led to the final version of SDLR being used internationally (Field, 1989; Guglielmino, 1977; Long, 1990).

It was estimated at the time that based on approximately 240 respondents, the SDLRS's overall reliability coefficient (Cronbach's coefficient alpha) was .87. A factor analysis performed with the data collected in 1977-78 academic year revealed the presence of eight principle factors: (a) self-concept as an effective learner, (b) openness to learning opportunities, (c) initiative and independence in learning, (d) acceptance of responsibilities for one's own learning, (e) love of learning, (f) creativity, (g) ability to use basic skills and problem-solving skills, (h) positive orientation to the future. An

initial factor analysis performed on the eight factors indicated that the first factor (self-concept as an effective learner) accounted for 17.6% of the total variance, whereas successive factors accounted for substantially less.

The 58 items (both positively and negatively phrased) were measured on the 5-point rating scale, indicating the degree of agreement or disagreement by responses to statements such as (a) "Almost never true of me; I hardly ever feel this way" and (b) "usually true of me; I feel this way more than half the time." Some of the examples of the actual items included the following: "I love to learn" and "I do not work very well on my own" (Field, 1989).

Guglielmino (1977) reported an average total score of 214 for all adults. Scores between 214 and 240 fell in the top 50% of all adults. Scores of 240 to 265 fell into the top 16%, and scores over 265 fell in the top 2% of all adults. Scores below the mean were as follows: 188 to 214 lower 50% of all adults, 162 to 188 lower 16% of all adults, and below 162 were the lower 2% of all adults. Hence, the total score of 214 (Total SDLR) and above was designated to represent the threshold level of self-directed readiness based on the results of the pilot study. Of the items that were correlated with the total SDLR the highest, all were associated with the notion of learning as an exciting, challenging, and very enjoyable process (at least r=.58 and above): "I have a strong desire to learn new things," "Learning is fun," "I love learning," and "The more I learn, the more exciting the world becomes" (Field, 1989).

Although further details of the study were not made immediately available, several researchers' follow-up work showed how important it was to understand a learner's environmental circumstances (curricular support, instructional quality, access to

online resources and materials, etc.) in promoting self-directed learning (Berger, Cafarella, & O'Donell, 2004; Bonham, 1991; Kirkman, Coughlin, & Kromrey, 2007). The Guglielmino's scale, however, repeatedly has been questioned by some authors, who raised serious and very argumentative concerns about the scale's construct validity, reliability, indiscriminate use, and high cost (Candy, 1991; Straka, 1995; Straka & Hinz, 1996). Field (1989) and Candy (1991) even recommended discontinuing it.

Fisher, King, and Tague (2001) developed a 52-item instrument to measure SDLR on the basis of the Guglielmino's (1977) SDLR to address growing criticism of the Guglielmino's instrument's validity and reliability and modify the scale for the purposes of nursing education. In fact, multiple critics had been questioning the construct of the original eight-factor SDLR scale developed by Guglielmino (1977) for years (Field, 1989, 1991; Long & Agyckum, 1983, 1984; Straka, 1995; Straka & Hinz, 1996; Smedley, 2007).

Fisher et al. (2001) originally designed the instrument in two stages. The first stage involved the modified SDLR development, including massive research of all previous similar scales and rigorous validity panel's review of 11 nurse academics and educational specialists, who assessed the instrument's construct and content validity with each member rating it individually and independently on a 5-point Likert scale. In order to retain an item, the panel had to reach at least 80% consensus agreement in several rounds of deliberations.

During the second stage, the significantly revised instrument – the number of items was reduced from 93 to 52—was piloted in Australia by being administered to a convenience sample of 201 undergraduate nursing students at the University of Sydney

during a regular semester. Students were encouraged to seek clarification if questions were unclear or confusing; they completed the questionnaire anonymously by describing their self-directed characteristics on a 5-point Likert scale to the extent the questions were deemed clear and relevant.

The survey results were analyzed using principal components with Varimax rotations to search for a general factor (SDL readiness), Cronbach's coefficient alpha to measure internal consistency, and item-to-total score correlations for unidimensionality (each item measuring the same underlying concept) and hence overall validity and reliability (Fisher et al., 2001). It should be noted that 201 subjects is too small a sample for a valid principal components analysis.

The analyses resulted in additional 12 items being dropped eventually from the version of the instrument administered to students even though the scales comprised of the original 52 items demonstrated high reliability and validity levels. The 40-item instruments' subscales (based on the data collected from the administration of the 52-item instrument) were the same three scales, comprising a reduced number of items each: (a) Self-management (13 items) with Cronbach's coefficient alpha value measured at .86; (b) Desire for learning (12 items) at .85; and (c) Self-control (15 items) at .83; the total instrument's (40 items) Cronbach's coefficient alpha value was measured at .92: all are above .70 value considered to be minimally acceptable level of internal consistency. It is important to note, however, that Fisher et al., (2001) never administered the 40-item version of the questionnaire (Smedley, 2007).

Thirteen items comprised the *self-management subscale:* students were asked to reply to questions such as "I am self-disciplined," "I manage my time well," "I set strict

time frames," and so on. Twelve items comprised the *desire for learning subscale*:

participants replied to items such as "I have a need to learn," "I am open to new ideas," "I

want to learn new information," and so on. Fifteen items comprised the *self-control*

subscale with the following questions asked "I have high expectations of myself," "I am

in control of my life," and so on.

The subscale total means ranged from 44.26 to 58.98 (subscale 1—44.26, SD=

8.04; subscale 2—47.31, SD=6.62; and subscale 3—58.08, SD=6.98) amounting to the

total mean of 150.55, which was designated to be a threshold for SDL readiness for a

respondent—a total score of greater than 150. Hence, students whose total self-directed

readiness score fell below 150 were considered lacking self-directed readiness (Fisher et

al., 2001; Smedley, 2007) and thus not ready for SDL approaches.

The results of the test were able to provide validity support for the scale designed

to measure self-directed learning readiness. The instrument is still being used widely in

nurse education for the purposes of diagnosing student-learning needs in order to

implement necessary curricular changes, teaching strategies, and gauge potential as well

as actual learning outcomes. A recent empirical study conducted by Smedley (2007)

largely confirmed the results reported by Fisher et al. (2001) when he administered the

scale to a sample of 93 undergraduate nursing students at a private university in Australia

(72% return rate) and re-affirmed subsequently the reliability and internal consistency of

the SDLR instrument. Cronbach coefficient alpha statistics for each of the subscales in

the Smedley's report were statistically significant and very similar to those reported by

Fisher et al.: (a) Self-management (13 items) at .81, (b) Desire for learning (12 items) at

.78, and (c) Self-control (15 items) at .84. The distribution of SDLR total scores from 100

to 197 (with the maximum possible score of 200) within the sample with a mean of 151.5

remarkably was similar to the one reported by Fisher et al. of 150.55. The total means

and standard deviations for each of the subscales in Smedley's study also were very

similar to that of Fisher et al.: of all students surveyed, 30 students' total scores were

below150 cut-off accepted as the SDLR mean, thus indicating these participants' lack of

readiness for SDL learning methods (Smedley, 2007).

A correlational design was employed by Lynch and Dembo (2004) who, as part of

the study, conducted an extensive literature review of distance education and academic

self-directed learning to select learners' characteristics potentially predictive of academic

success in online programs. The researchers identified five self-directed attributes that

were considered more likely to be predictive of academic performance: (a) intrinsic goal

orientation, (b) self-efficacy for learning and performance, (c) time and study

environment management, (d) help seeking, and (e) the Internet self-efficacy. The sixth

independent variable-- verbal aptitude-- was called a "control" variable and was selected

to control for those learners with naturally higher verbal intelligence. Such learners in the

mostly text-based nature of online courses were assumed to perform better in mostly

online hybrids than those students with lower verbal IQ regardless of the degree of their

respective self-directedness. Hence, in total, six independent variables (the five self-

directed ones above and verbal aptitude) were used in this correlational study with two

main predictors for the regression analysis. The only dependent (criterion) variable—

online academic performance--was operationalized as final course grades expressed in

percentages in a sample course.

Using a nonrandom equally distributed sample, 352 questionnaires, consisting of 82 items in four sections each, were administered. The first section included 24 items designed to measure intrinsic goal orientation, self-efficacy for learning, time management, and help seeking adapted from the Motivated Strategies for Learning Questionnaire (MSLQ) developed by Pintrich, Smith, Garcia, and McKeachie (1991). The reported Cronbach coefficient alpha reliability for all subscales had good internal consistency except for help seeking: intrinsic goal orientation (.74), self-efficacy for learning and performance (.93), time and study environment management (.76), and help seeking (.52).

The second section included eight demographic items that were adapted from MSLQ. The third section consisted of eight items measuring Internet self-efficacy on the Eastin and LaRose Scale (reported Cronbach coefficient alpha reliability coefficient at .93) developed for this purpose in 2000. The final section contained 50 items of the verbal IQ measure from the Schubert General Ability Battery (Schubert, 1986) with the reported Cronbach coefficient alpha reliability coefficient at .67.

Data were collected from 94 students, representing a 26 % return rate, in a blended (75% online and 25% face-to-face mix decided by a professor) undergraduate marketing course at a West coast U.S. research university. Student participants took the paper-and-pencil questionnaire home to complete, and those who decided to participate returned it during the next face-to-face session. The study utilized both descriptive and inferential statistics, including a stepwise multiple regression with the level of significance at .05 used for the analyses.

Reliability analysis revealed that all subscales had good internal consistency reliabilities: intrinsic goal orientation (.71), self-efficacy for learning and performance (.92), time and study environment management (.80), help seeking (.67), Internet self-efficacy (.93), and verbal ability (.82).

The only moderate-to-strong statistically significant correlation was reported between intrinsic goal orientation and self-efficacy (r=.47). Moderate and weak-to-moderate statistically significant correlations were reported between time or study management and intrinsic goal orientation (r=.31) and between time or study management and self-efficacy (r=.32), whereas self-efficacy for learning and performance and verbal ability correlated with final grades r=.29 and r=.26, respectively, also represent weak-to-moderate statistically significant correlations. These results indicate that there is a relationship between learner motivation and the behavioral strategies involved in learner control of study time and study environment in a mostly online hybrid course.

The study's partial regression analysis also revealed that verbal ability and self-efficacy for learning and performance related statistically significantly to academic performance (final grades) with regression coefficients for self-efficacy at .14 and verbal ability at .24. The inferred results largely were confirmed by the stepwise multiple regression, indicating that only self-efficacy and verbal aptitude contributed statistically significant to predicting the variation in final grades (R Square value = .13; Adjusted R Square value = .12; $F(2,91) = 7.06$), taking the two variables together explained 12% of the variation in grades. The semipartial correlations for each of the statistically significant predictor variables were self-efficacy $r(91) = .25$ and verbal ability $r(91) = .22$. The

semipartial correlation for self-efficacy squared gives a value of .07, which indicated that self-efficacy accounted for 7% of the variance in final grades, with verbal ability held constant.

The overall results were inconclusive, indicating that many self-directed characteristics, except for self-efficacy, were not statistically significant predictors of course performance operationalized as final grades in this type of blended course. The statistically significant correlations between self-efficacy and course results as well as the self-efficacy's predictive value may be an indication of some behavioral (motivational) patterns and could be further explored. The lack of statistically significant relationship between Internet self-efficacy and academic performance (final grades) as well as between help-seeking and final grades may be explained partially by the blended nature of the course. In the blended course, some of these self-directed characteristics were less important (given the periodic face-to-face sessions and other aspects of administration) compared, for example, with a completely online course. The course format also may explain partially the statistically significant correlation (as well as its predictive value) of verbal aptitude and final grades due to the mostly text-based design of the hybrid and online courses. Lynch and Dembo (2004) implied that these and related issues would need to be explored further in subsequent studies using some of these variables and design features.

Solid and repeatedly tested SDLR instruments have been developed to assess SDLR of various adult student populations in different environments. There is a body of evidence that makes using some of these instruments valuable data collection and analysis tools for both predicting and monitoring student academic performance in adult

learning programs of different types. Guglielmino's (1977) pioneering the SDLRS with

updated and further tested replicas such as those by Fisher et al. (2001) and Lynch and

Dembo (2004) described in this section have made it possible for educational researchers

to advance the study of SDL and take it to new special areas and levels.

SDL in the E-learning Environment

SDL has a particularly important meaning in the e-learning environment of

various delivery formats: SDL places learning responsibility more directly on a learner,

who interacts with the course website and online materials independently and within a

time-frame convenient to him or her. The SDL theoretical premise has been linked with

distance education in general and e-learning in particular for a number of years (Song &

Hill, 2007). This section continues the review of literature on the SDL conceptual

applicability online and its various functions, including online resources, as well as

learners' characteristics and perceptions.

 E-learning, by its very nature, is a very appropriate forum in which self-directed

learning can and does occur. Asynchronous classes that offer guidelines for learners

allow those learners to work at their own pace, in their own environment, utilizing

resources often found through self-guided research. Students can work independently,

visiting virtual libraries, accessing online resources for the latest research, and actively

participating in virtual interactive discussions (online forums and group pages) from their

own homes.

An e-learning environment such as Blackboard ® offers a number of

opportunities for self-directed learning. Students can utilize the Personal Calendar as a

way to organize tasks, peruse the Course Map to locate courses and activities, engage in

instructor-lead assignments and discussions that often require independent research, take online tests or surveys, and use the External Links to find additional resources. Other course management systems (e.g., WebCT® , E-College®) also offer additional options for self-directed learning such as bookmarks that allow the student to review target points in the material for further exploration or to develop individual research plans using the Image Database or Reference section of the tool.

The SDL features of the e-learning environment would not be effective if they were not designed for a particular type of learner. Boyd (2004) described the characteristics of students who were most successful in the online environment as identified in contemporary literature. Based on the extensive literature review (both descriptive and empirical), the researcher came to the conclusion that four sets of factors should be considered. First, there are the technical factors, which pertain to the student's access to the technology through which an online course is delivered, individual computer skills, and so on. Second, there are the environmental factors, which have to do with the student's personal learning environment (personal, professional and time constraints, support from family, friends, physical space and environment, etc.). Third, there are the personal factors, which have to do with the character traits of the students themselves: successful online students are highly self-motivated and self-disciplined; they exhibit qualities of honesty, integrity, and authenticity, the standards of ethical behavior. Fourth, there are various learning characteristics, which successful online students tend to exhibit and possess: learning styles (independent, self-paced learners with strong preference for collaboration), strong and effective reading and writing skills, and constant self-direction.

The profile of a successful online student suggests there are several essential factors that must be considered. First, a successful online student must possess appropriate technology and the skills to use that technology effectively. Second, that student must have an environment that includes an appropriate management of time and space, as well support from significant others. Third, that student must possess certain personal characteristics, including a healthy balance between autonomy and interactivity, self-motivation and self-discipline, and a high level of integrity. Finally, that student must possess a more independent learning style that tends toward a more self-directed learning orientation, as well as better-than-average reading and writing skills.

It is important for educators to consider the nature of the students who are taking online courses: there may be some students who are better suited than others for the online learning environment. Boyd (2004) has identified some of the important factors that must be considered in determining who should and who should not be encouraged to participate in online distance education to facilitate the student advising process. There are very few quality empirical studies related to Adult Learning Theory (ALT) and specifically Self-Directed Learning (SDL), which is its major component. In fact, the lack of solid empirical research has been a major issue in adult learning field often causing a vigorous debate over issues that have not been tested statistically. Boyd has touched on this widening research gap between SDL with its learning outcomes and other aspects (instructional and behavioral) of the e-learning environment.

The e-learning instructional strategy increasingly becomes one of the central research topics. O'Neill, Singh, and O'Donoghue (2004) emphasized that the trend in e-learning classrooms is away from the student as a passive recipient of knowledge and

toward the student involved in the learning process as an active, self-directed participant. Such participation requires constant engagement, ability to pace oneself well within flexible, yet dynamic time frames, and increased responsibility for one's learning. With the emphasis on active learning and participation in mind, instructors continue searching for ways to motivate learners to engage in self-directed learning.

Frey, Alman, Barron, and Steffens (2004) presented the findings from five focus groups of students (35 students) in two online master's degree programs. The researchers argued that the need for increased student-to-student and student-faculty interactions was an area that called for special consideration in the design and development of online courses. Their study measured adult learners' satisfaction with the new online Master's Degree in Library and Information Science program (MLIS) at the University of Pittsburgh. Student feedback gathered through focus groups was categorized into five themes: (a) general program issues, (b) course issues, (c) communication and interaction issues, (d) on-campus orientation issues, and (e) technology issues. The feedback was analyzed on the basis of its applicability to SDL by identifying and grouping common themes related to self-direction, motivation, and related students' satisfaction around key questions related to SDL that researchers were asking students repeatedly and inviting them to be more precise and balanced in separating their SDL-related feedback from other (confounding) variables, such as course design and instructor-related issues. As a result, 10 recommendations for future course development were suggested. SDL as part of Adult Learning Theory generally offers valuable guidelines for online course development, teaching, and learner perceptions, specifically course satisfaction as one of the perceived learning outcomes in the affective domain (Frey et al., 2004).

On the basis of the study results and observations, Adult Learning Theory (ALT) and SDL as ALT's conceptual pillar are confirmed to be applicable fully to the e-learning process. Essentially, the basic SDL concept developed for a traditional classroom transfers effectively to the online as well other types of e-learning environment. The self-directed and self-motivated components were present in all of the groups in the study. One area that is not addressed sufficiently for the online classroom is the concept of student-instructor and student-student interaction. The feedback from adult learners reflected a strong positive satisfaction with the active discussion board and e-mail in their classes as shown in this research study. The learners valued the tools designed for the contribution they were able to make in the learning process. Thus, active participation in the discussion board and feedback from both the fellow group members and the instructor were the single important sources of successful learning experience and of strong course satisfaction (Frey et al., 2004). Finally, online interaction was another major theme in the focus-group dialogue. Such interaction is an element of course design that must be considered early in the planning stage of any online course.

There were some limitations (small number of participants (n= 35) in the five MLIS focus groups, bias). The students' retention and satisfaction with the program were going to be monitored throughout the 2-year experience but yielded only inconclusive results. None of the student feedback in the initial focus group related to the discipline of library and information science. The setbacks still do not diminish the educational significance of this qualitative study. Frey et al. (2004) successfully achieved the purpose of analyzing the learners' initial satisfaction with the MLIS program and suggesting recommendations for designing future online and hybrid courses. The recommendations,

including special emphasis on more frequent, better timed, quality interaction between course participants, more structured instructor presence, appeared to be applicable to all disciplines and included specific guidelines for successful online interaction that enhances learning.

Corbeil's (2003) conducted a study in which the Oddi (1986, 1987) Continuing Learning Inventory (OCLI) was used as the instrument for measuring student's self-directed learning. The OCLI is a 24-item questionnaire assessed on the 7-point Likert scale and consists of three domains determined by factor analysis: (a) proactive or reactive learning drive, (b) cognitive openness or defensiveness, and (c) commitment or aversion to learning. The Cronbach alpha reliability coefficient for the scale was calculated at .83. The OCLI higher overall scores indicated greater attributes of a self-directed learner (Oddi, 1986, 1987).

The participants in Corbeil's (2003) research comprised 191 graduate-level online learners in a distance-education program at a Southern U.S. university who were enrolled in the semester-long study. Ninety-eight students eventually submitted the OCLI-based surveys at the end of the semester, thus representing a 51% response rate. The academic performance was measured as the final grade for the course.

The result of the study showed a statistically significantly positive relationship between overall SDL and academic performance (r=.51, Pearson Product-Moment Correlation Coefficient was used). More importantly, subsequent regression analysis also revealed SDL as one of the principal factors for statistically significant predicting online academic performance (R²=.55). Hence, the report's data confirmed a statistically significant relationship between SDL and online academic performance. The one notable

limitation was that if the SDLR (Guglielmino, 1977) instrument were to be used as the measurement rather than the OCLI, then the results may have been different.

The notion that highly self-directed learners could be expected to have a cumulatively higher course performance (based on a final grade) was revisited in a much larger investigation by Chung (2001) involving a 177-student sample at the National Kaohsiung University in Taiwan. The students were enrolled in three Web-based courses—programming, multimedia design, and introduction to information technology—that were offered over a 3-month period (one semester). The SDLR (Guglielmino, 1977) was administered online to all students with 117 valid survey responses being returned, which constituted a 66% response rate: an unusually high rate for a Web-based survey. In this study, the student's academic performance was measured on the basis of a cumulative score computed by averaging assignment scores and final test scores in each of the three courses. A statistically significant low-medium relationship (r=.21) was discovered between SDL score and academic performance by using Pearson product-moment correlation coefficient.

Another correlational study using SDLR was conducted by Tsai (2005) in a corporate setting of a Taiwanese power plant where more than 400 employees participated in a business e-learning course. The company policy did not allow obtaining exact results of the participants' cumulative performance scores in the Web-based course, so the course's content was not reported. To control for this limitation partially and to substitute for traditional academic performance measure, the researcher employed the "learner self-report learning performance scale" based on perceived learning outcomes. The scale was piloted in a separate study and achieved reportedly high reliability and

validity levels. After the e-learning class, the SDLR and a learner self-report learning performance scale were distributed to all learners who responded with 401 valid surveys (the exact return rate is unknown although it was likely very high given the number of valid responses). The result of the study obtained by using Pearson product-moment correlation coefficient showed a medium-strong statistically significant positive relationship between self-directed learning and learning performance (r=.56).

In this part of the Review of the Literature, some of the conceptual frameworks, assumptions, and related research have been presented suggesting the SDL connection with and applicability to e-learning environments. Student perceptions, final-grade-based performances, feedback, and researchers' observations make a good case for underlining the inherent SDL nature of the e-learning environment due to particularities of the course design and learning-related factors. Nevertheless, further studies would be valuable to replicate some of the studies mentioned above and confirm the thrust of the argument by achieving possibly even more statistically significant results.

Learning Outcomes in Hybrid and Online Delivery Formats:
Assessments and Comparisons

This section focuses on some of the more recent, mostly empirical, studies pertaining to the assessment of learning outcomes in the Web-infused delivery systems. With the increasing use of e-learning in higher education and workplace training, educators continue to debate what specific delivery methods work best and what approaches are most effective for diverse learners. Student learning styles, performance, and individual perceptions are sometimes added into a mix to develop advance research instruments and suggest strategies and solutions for the improvement of broadly construed course learning outcomes (cognitive, affective, performance-related ones) and

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related student level of satisfaction (Dziuban, Hartman, Moskal, Sorg, & Truman, 2004; Hiltz & Goldman, 2005; Riffell & Sibley, 2003; Rovai & Jordan, 2004).

Assessing learning outcomes in various course designs and environments has been rather difficult methodologically. Because a number of studies on learning outcomes have been based solely upon assessments of either student final grades or faculty and learner's perception-based assessments, the literature reflects a good deal of disagreement on the approaches, techniques, validity, and reliability of these studies and even on an entire feasibility of measuring outcomes. With the ongoing grade inflation plaguing degree programs nation-wide, equating learning outcomes with final course grades is being considered an increasingly unreliable method. Furthermore, when the subject of the debate is nonclassroom-based delivery methods, such as online or hybrid, the disagreements increase because many researchers find comparing different types of Web-infused formats similar to "comparing apples and oranges" (Tallent-Runnels et al., 2006).

In their descriptive study, Reasons, Valadares, and Slavkin (2005) examined and compared student outcomes of two introductory required courses-- one in Educational Psychology and another one Health Care Delivery System—offered in three delivery formats: traditional classroom, Web-based (completely online using a Blackboard® platform), and hybrid or blended model (combination of face-to-face and Web-based delivery) offered over the course of 6 academic semesters at the University of Southern Indiana, a public 4-year institution of 10,000 students. The overall purpose of the study was to test the strength of wide-spread assertions that a hybrid or blended instructional format tends to be more effective in terms of the overall impact on student learning (learning outcomes) compared with other course-delivery modes.

To assess and compare student outcomes in the three different delivery formats, the following criteria (dependent variables) were used: (a) course participation (class-based for the traditional sections and the discussion-board postings for the Web-based and the hybrid sections) were measured both in terms of quality and quantity with the use of a standard rubric and the Blackboard® posting frequency recording device, (b) final course grades recorded and based on the course-delivery format, and (c) the level of interaction with the course website (all sections had the website regardless of the format) among learners depending on the delivery format recorded manually and electronically.

Reasons et al. (2005) attempted to reject the three-part null hypothesis that course participation, final grade, and the level of interaction with the course website do not differ statistically significantly based on the course-delivery format. The assertion was based on firsthand anecdotal evidence and some evidence gleaned from the current research literature. A convenience sample of 403 students (mostly freshman and sophomore classes), enrolled in five traditional classroom sections (208 students total), four Web-based (76 students), and four blended sections (119 students) of the two different undergraduate introductory courses (Introduction to Educational Psychology and Introduction to the Health Care Delivery System), was used in this study. Four hundred and three students represented a good-size sample, and the completion rate (paper-and-pencil-based responses) was apparently 100% because all 403 cases were collected and recorded. Although no additional specifics about the sample are reported in the study, the sample's size certainly adds to the design's reliability.

The researchers of this study were the instructors of all the course sections offered in the three delivery formats; they attended the University's Institute for Online Teaching

prior to teaching some of the course sections. The questions used in the investigation of the course outcomes were reviewed in conversations between the two instructors, who reviewed the data based on current teacher-action research and phenomenological research investigations. The student evaluations using the three-part elaborate criteria were recorded over six academic terms.

The data were collected by means of measuring the course participation on a rating scale (from 1, indicating poor performance, to 5, indicating extensive participation with all assignments completed), final grades on the basis of standard grading system (10-point ranges from F (59 and below) to A (90 to 100)), and interaction with the course website measured on the basis of a number of online hits recorded by the Blackboard® course-management system.

The results were collected and analyzed statistically by using the analysis of variance (ANOVA) test. Reasons et al. (2005) failed to reject the study's null hypotheses for course participation ($F_{(2, 400)} = 0.94$), but rejected it for final course grades ($F_{(2, 400)} = 8.48$) and for interaction with the website ($F_{(2, 400)} = 5.41$) measures. Thus, the course final grades and website interaction measures differ statistically significantly based on the course-delivery format—online, traditional, and hybrid—even though the differences were not as significant as researchers expected. Having applied the Tukey Honestly Significant Differences (HSD) post hoc analysis, it was concluded that students in internet-based (online) course sections performed better and interacted with the course site to a greater extent than students in both hybrid and traditional sections, with no difference found between traditional and hybrid sections. Due to a slight inequality of the

group sizes, the harmonic mean of the group sizes of 113.70 was used in the case of final grades and interaction.

Hence, based on the hypothesis testing described above, it was found that students in the Web-based (online) format performed better by earning approximately 20% higher final grades across the board compared with those in the hybrid and traditional sections whose levels of final grades were very similar (average B+). Similarly, based on the rejection of the null hypothesis, it was concluded that the course website interaction measure, where students in the completely online sections interacted with a greater frequency (also by approximately 20% in terms of recorded number of online posts and correlated website clicks) as compared with the other two formats (hybrid and traditional), which between the two of them showed virtually no difference in the interaction frequency.

Reasons et al. (2005) pointed out various limitations of the study, including (a) the development of research questions solely on the basis of instructors' and researchers' prior teaching experience rather than a review of the related literature, (b)various changes in the delivery format from semester to semester over the study's period (e.g., changing the exact proportions of the Web-based components in hybrid and traditional courses, etc.), (c) the choice of the instructors' testing and assessment procedures, and so on. Perhaps the limitations were among the reasons why no conclusive evidence was yielded to assert that blended course format was in any way superior to the traditional or online ones. The researchers acknowledged that additional studies and more sophisticated instruments might be needed to investigate this subject of comparing student outcomes in different delivery formats.

Notwithstanding the study's contradiction with the thrust of the research questions and hypothesis examined here, some of its ideas and additional feedback nevertheless are useful for designing a somewhat different instrument, which would be more applicable to the context of this study. In addition, it includes rather helpful background and literature-review sections.

In addition to learning outcomes in the cognitive domain as those primarily described above, researchers were interested also in learning outcomes in the affective domain, such as students' attitudes, satisfaction, and perceptions of the online environment. A number of scholars used descriptive research methods to report students' experiences in online courses (Althaus, 1997; Edwards & Fritz, 1997; Hansen & Gladfelter, 1996; Richards & Ridley, 1997; Sullivan, 2002). These researchers specifically were interested in students' perceptions of their own learning experience and perceptions of various learning activities used in online instruction. College students who were participants in the studies generally showed positive perceptions of learning outcomes and the learning environment of online and hybrid courses and wished that the same or similar online materials and activities were available in other courses (Tallent-Runnels et al., 2006).

More often, scholars have conducted correlational research to investigate the relationships among characteristics of learners, features of online learning environment, and satisfaction of the learners (Bee & Usip, 1998; Gunawardena & Duphorne, 2001; Mortensen & Young, 2000; Swan, Polhemus, Shih, & Rogers, 2001; Wells, 2000). Learners' prior experiences in computer-related activities such as e-mail and Internet use, their learning styles, and the quality of their social interactions in an online environment

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were variables commonly investigated. Individuals with more prior experience and training in computer-related activities reported more satisfaction and comfort with their experience in the online environment. At the same time, the level and quality of social interactions and sense of connectedness were found to be important factors in course satisfaction and successful learning outcomes in various e-learning course-delivery formats as well.

In Rovai and Jordan's (2004) pilot study, sense of community was studied across three principal course-delivery formats: traditional, blended, and fully online. The investigation was based on the hypothesis that such perception and the related set of learning outcomes would be the most profound in the blended environment because of the perceived range of opportunities for students to interact with each other and their professors compared with the fully online environment. Such interaction was expected to amount to increased socialization, interconnectedness, and hence stronger perceived learning outcomes based on student satisfaction with the constructivist aspect of course learning via discourse and "community membership" (p. 5).

The investigators found that students in the blended course measured highest in a sense of community, similar to those students in the face-to-face section, but higher than those in fully online section: "since students in the blended course exhibited similar sense of community and variability as students in the traditional course, offering the convenience of fully online courses without the complete loss of face-to-face contact may be adequate to nurture a strong sense of community in students who would feel isolated in a fully online course" (Rovai & Jordan, 2004, p. 11). Students in the blended courses praised the benefits of the online portion of the course that allowed them the freedom to

perform some of the course activity at their own discretion, flexibility important for these students, many of whom needed to work. Many of the students mentioned nonetheless the value of the face-to-face component that they believed helped them both academically and in building professional relationships and a strong sense of community. In addition, some students in the fully online course misread the instructor's comments as being "sharp and frank," whereas students in the blended and fully online courses did not convey such impressions, possibly because of the opportunity for face-to-face discussions that allowed everyone to become acquainted. Such difference in perceptions is an important piece of evidence that educational specialists should be cognizant of as they design courses and project certain learning outcomes.

Hodge, Tucker, and Williams (2004) investigated student perceptions of course content based on online, traditional, and blended course-delivery methods in the original survey that the researchers designed and administered. Students enrolled in the courses were exposed to various delivery methods. Survey questions to assess the adult college students' perceptions addressed contact between students and instructor, active learning, instructor feedback, time on task, communication of expectations, and ability to address diverse learning styles. A total of 51 surveys were collected from undergraduate adult students enrolled in various types of courses across North Carolina: (a) completely online (use of Blackboard ® as a platform), (b) partially online, (c) in-class with an online component, and (d) traditional in-class. The survey consisted of 24 questions that were responded to using a rating scale of 1 (not applicable) to 5 (definitely agree) regarding personal experience and participation in the course. This information was used to

investigate if particular traditional delivery styles create a better learning experience for students as opposed to online instruction.

Based on the results from the survey, the researchers ascertained that delivery methods played a key role in student learning and associated perceptions of the methods. More specifically, the results of the survey indicated the following: (a) students who met in the online and hybrid classes perceived that they had been exposed to a richer diversity of learning styles, which positively influenced their course satisfaction and learning outcomes, than students in the traditional classes; (b) students who were in hybrid classes indicated that they received more course materials and overall content in addition to being more motivated by their instructors compared with those in online classes; and (c) at the same time, there was no important difference between online, hybrid, and traditional course delivery systems in terms of clarity of expectations. All students overwhelmingly agreed that expectations were made clear: 71.5% in completely online classes, 61.6% in partially online (hybrid) classes, 77.8% in traditional classes with online components, and 86.3% in traditional classes, thus addressing the issue of possible lack of communication from and facilitation by online instructors in comparison with traditional class-based ones. Students in online and hybrid classes appreciated the course's structure and curriculum delivery more than those in traditional classes even though the online and hybrid students perceived to be more pressured by the technology demands and expectations compared with students in traditional classes (Hodge et al., 2004). The analysis of student perceptions is helpful for deeper understanding of various formats in the e-learning environment. The student perceptions also might highlight possible relationships with as well as impact on learning outcomes that are associated

with the research topics of this dissertation study. The comparison between the course-delivery formats presented in the study provides additional clues for further investigation of the independent (prior Web-based experience, the course delivery type) and dependent (affective learning outcomes, level of motivation, including self-directedness) variables selected for this research.

One of the Hodge et al. (2004) findings refers to other studies that point out that students with previous Web-based learning experience consistently have better perceptions of the online activities and assignments portion of hybrid courses and believe that they achieve more learning outcomes in such courses than students with no or very limited such experience (Chou & Chen, 2007; Muilenburg & Berge, 2005; Swan et al., 2001).

The findings of the studies discussed in this section reinforce the importance of setting a climate that encourages active learning and using a number of strategies and approaches that increase the success of learners at a distance and in the classroom. The results indicated that the correct correspondence between the teacher's approach and the delivery methods plays a key role in student learning. To increase student productivity and performance, instructors need to incorporate a variety of techniques. These techniques of good teaching and learning stem from student perceptions and the Seven Principles for Good Practice in Undergraduate Education. It appears that to improve student perceptions of faculty contact, feedback, communication and diverse learning methods, instructors would need to focus on improving these areas (Hodge et al., 2004).

Student Perceptions and Characteristics of
Web-infused Delivery Formats

Since at least 2002, an increasing number of scholars have been proclaiming benefits of one or another type of Web-based formats (Tallent-Runnels et al., 2006). Some have argued more strongly in favor of blended or hybrid teaching format: a varied combination of classroom and completely online instruction. Hybrid learning supporters have argued blended learning as one of the most effective (and often "painless") ways of transitioning from a traditional classroom instruction to an online delivery method. Being often called the "best of both worlds," the hybrid format has been receiving a great amount of attention in academic circles (Buzzetto-More & Sweat-Guy, 2006; Skibba, 2003). Because one of this study's research purposes is to analyze student perceptions, satisfaction, and self-directed readiness factors in the two Web-infused formats, it would be appropriate to review a small selection of descriptive and empirical studies of student perceptions and characteristics of Web-infused delivery formats (especially the hybrid one) in this final section of the Review of Literature.

Building on previous relevant studies while acknowledging a major theoretical gap that existed in the area of online learning and learning outcomes (especially in terms of valid empirical studies), Shin and Chan (2004) designed the Online Learning Environment (OLE) instrument to examine relationships between students' self-reported engagement in online learning and perceived learning outcomes, satisfaction with learning experience in courses, and intent-to-persist with online learning in future. Another aspect of the study was to explore a relationship between students' perceptions of institutional presence (quality of services) in the online environment and student online involvement (or engagement), course learning outcomes, satisfaction with online learning

experience, and finally the intent-to-persist with online learning in future. The OLE instrument was developed as part of an exploratory correlational study on the effects of online learning (broadly construed) on various aspects of distance education at the Open University of Hong Kong on the basis of courses taught in both English and Chinese to a diverse body of Chinese and international students at both graduate and undergraduate levels to both traditional and adult students.

The 30-item instrument was composed of items that most of which began with phrases such as "I feel" or "I believe" to emphasize the affective domain of perceived values and, consequently, a subjective state of mind of respondents. The participants were directed to indicate their agreement with the items on a 5-point Likert scale ranging from "strongly disagree" (1) to "strongly agree" (5). The engagement in the OLE was measured by the self-reported frequency of a student's login to the course site per week on the scale ranging from 0 to 3 times through 16 times plus. The frequency of a student's login was the only item from the entire instrument, which was modified for the purposes of this study by being converted into a self-reported item on online engagement.

The researchers had 746 survey questionnaire both mailed via the Postal Service and e-mailed to graduate and undergraduate participants in the selected four courses in Business Administration at the Open University in 2002 in several stages to maximize response rate. Shin and Chan (2004) were able to collect 285 completed questionnaires that constituted a 38.2% response rate. After sorting out the demographic and various subgroups-related data, 15 correlations were conducted between the two major groups: compulsory (mandatory) courses and optional courses (both graduate and undergraduate). The results showed statistically significant moderate Pearson Product-Moment

correlation coefficients between perceptions of institutional presence and learning outcomes (r= .40 for optional courses and r= .43 for compulsory ones) and between presence and intent-to-persist (r= .36 for optional model and r=.46 for compulsory one). The results showed moderate-to-strong statistically significant correlation coefficients between institutional presence and learning satisfaction (r= .61 for optional mode and r= .63 for compulsory one). All other relationships examined to address the research questions were either weak or weak-moderate.

The differences between groups of students in compulsory and self-selected online courses were not statistically significant, and the similarities between correlations discussed above provide a clear pattern of commonalities between the main groups (Shin & Chen, 2004). The correlational analysis points out the overall importance (statistical significance) of institutional presence as one of the key elements of the students' perception and its connection with both learning outcomes (another perceptional value) and course satisfaction. Both learners' course satisfaction and learning outcomes are important dependent variables that make the OLE instrument and its results particularly relevant to the scope and purpose of this study.

The analysis of Shin and Chen's (2004) study supported one of the hypotheses that students in compulsory OLE courses are more active users of online materials and discussion features than those in optional OLE courses. At the same time, the assumption that there would be any difference between graduate and undergraduate students in online behaviors such as average time spent per visit, level of the Internet usage skill, logon frequency, and some others was not supported. Based on the data collected by this instrument and some initial results, it can be assumed that other factors, such as levels of

overall motivation, interest, level of self-directedness, and course-delivery format may be involved. Because these factors are some of the key elements of this dissertation, the utility of the OLE instrument for the purposes of this study becomes more obvious.

The statistically significant direct relationship between students' perceptions of institutional presence and the perceived factors of online learning-- learning outcomes, course satisfaction, and intent-to-persist—indicate that students who have a stronger perception of availability of and connectedness with program faculty and staff tend to be more satisfied with their learning experiences and are more inclined to continue in online learning than those with a more mixed perception of belongingness to the program as a whole. The program involvement and monitoring of the online course process has a visible and positive impact on student perceptions of their learning and satisfaction with educational process.

Finally, some of the results above show a positive relationship between the frequency of student online visits and their perceptions of course learning outcomes in the supplementary or optional OLE courses. The relationship, however, is more indirect and conditioned by the perception of institutional presence in compulsory OLE courses. Such difference between the compulsory and optional formats is explained by the course design (how online components are integrated) and some general motivational elements in the Shin and Chan's (2004) study but, in fact, may reflect some aspects of student self-directedness in accessing the course sites more often in the more favorable environment of choice that optional (or supplementary) course format provides.

There is a growing realization of the benefits of hybrid learning formats as an ever increasing number of courses illustrate the formats to be viable, even exemplary, methods

of instruction. For example, enrollments in such courses remain high, and the student satisfaction rates are growing at an amazing pace, which means that learners are increasingly accepting both modes as mainstream learning modes (Buzzetto-More & Sweat-Guy, 2006). At the same time, proponents of hybrid learning proclaim it to be a particularly effective way of expanding course content that supports in-depth delivery and analysis of knowledge (Young, 2002) and actually increases student satisfaction (Campos & Harasim, 1999; Dziuban, Hartman, Juge, Moskal, & Sorg, 2005; Wu & Hiltz, 2004). On the basis of surveying a number of previous descriptive studies, Campos and Harasim (1999) actually reported that the majority of students surveyed preferred hybrid learning experiences.

In Rivera, McAlister, and Rice's (2002) study, one section of an introductory management information systems course was offered almost exclusively online, another was taught in the traditional classroom setting, and a third was a hybrid of traditional format supported by the course management system WebCT ®. Class enrollment averaged 45 students per each of the three sections. Although the researchers discovered that the highest students' satisfaction was with the hybrid mode, the test scores were almost identical in all three methods of delivery. The researchers concluded that, among the three modes of instruction, the hybrid model appeared to be the most promising in terms of benefits for learning and instruction. No statistically significant differences in student performance (as measured by final exam scores) were found. Students generally were satisfied with the traditional and hybrid classes and less so with the online course.

The growing number of research proponents of hybrid delivery system further strengthens favorable perception of hybrid learning not only among e-learning

researchers but also among instructors and learners who believe that hybrid approach to learning ensures the widest possible impact of a learning experience and thus ensures learning quality and productivity (Julian & Boone, 2001). Part of the assumption is actually supported empirically. Dziuban et al. (2004) found that 88% of faculty members and a comparable number of students were overall satisfied with their blended courses, citing convenience and "increased instructional quality" (p. 7). The independent study of nearly 4,000 learners revealed average pretest scores of 54% and average posttest scores of 89% -- a noticeable jump of 35 percentage points after adult learners completed Knowledge Net training, utilizing the hybrid learning format (Anderson, 2002). Although the exact parameters of the study are unknown, the reputation of the publication source is quite solid. In general, the hybrid environment has been found to have the "potential to increase student learning outcomes" over online instruction and have comparable success to face-to-face courses (Dziuban et al., 2004)

Thompson Learning conducted a study, which was comprised of 128 participants-learners from both higher education and industry (Kiser, 2002) and that took 2 years to complete. The results showed that the group using the blended or hybrid instructional format performed same tasks and assignments 41% faster with 30% greater accuracy than the online only group (Martyn, 2003). Apparently, the faculty associated with the aforementioned study who taught a variety of courses with different online components reported that e-learning courses achieved learning outcomes at a level equal to or higher than the traditional classroom-based courses. As a part of the instructional program review, the major course projects for all courses offered in the first semester were assessed by outside impartial reviewers, who scored projects completed in the e-learning

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classes between 10 and 12 percent higher on average compared with those written by students in the traditional format. During interviews, each of the faculty members reported that projects produced in the e-learning classes were in fact superior (Martyn, 2003).

Some of the research shows that there are good reasons to leverage a blend of instructional strategies and delivery media. First, blended (hybrid) learning allows course participants to meet their diverse learning needs, including visual learning, asynchronous learning, and so on. The use of multiple types of learning technologies and strategies addresses issues of both learning style preference and convenience. More importantly, blended methods can allow for the assessment of learners prior to the actual instruction: online pretests, discussion forum posts, and other assessment features. Knowing the experience or knowledge of learners in advance provides instructional designers with the ability to develop content that maximizes learning outcomes (Reece & Lockee, 2005)

By applying learning theories of Keller, Gagne, Bloom, Merrill, Clark, and Gery (Carman, 2005), five key ingredients emerge as important elements of a hybrid learning process: live events (classroom activities), self-paced learning (completed individually), collaboration (threaded discussions on online boards, etc.), frequent assessment (to maximize a learner's transfer), and performance support materials (references, learning aids, etc.). The two particularly applicable and essential elements for a successful hybrid learning experience are self-paced learning and assessment (Carman, 2005).

The study conducted by Barnes, Gooden, and Preziosi (2004) offered another look at the issue of student individual learning styles and perceptions of course design. Because there is a link between learning styles, perceptions, the student successful

learning, and overall class satisfaction, reviewing and analyzing contemporary research in this area is essential for understanding the implications of learning styles on adult learners' function in the e-learning environment.

The researchers asked all 124 students pursuing an online MBA at the Huizenga School on the East coast of the US to complete a a questionnaire based on the well-known Kolb Learning-Style Inventory (LSI; Kolb, 1993) to investigate their particular learning styles. In addition to the questions about learning style, students were asked to evaluate eight online course delivery methods used by their professors. Students were asked to assess those methods using a 6-point Likert-type scale. They also were asked how the method could be qualitatively improved by submitting written comments. The following research questions were posed: What are the different learning styles of online MBA students? What, if any, differences are there in the learning styles of students enrolled in online MBA courses? Finally, Do online students prefer certain electronic course-delivery methods over others? Of the 124 questionnaires mailed, 48 students returned them, and 4 students' answers were unusable, hence the sample size was reduced to 44 yielding a usable response rate of 35.5%. Based on the 44 respondents, the overall Cronbach coefficient alpha reliability for the instrument was calculated at .91, which indicated a high degree of reliability.

A one-way analysis of variance (ANOVA) with a .05 level of significance was used to test the two hypotheses: (a) there are no significant differences in students' preferences for available online course delivery methods and (b) there are significant differences in students' preferences for available online course delivery methods.

In accordance with the LSI Inventory (Kolb, 1993) utilized in the study, the main two types of learners in online courses were identified: Divergers and Assimilators. Divergers (approximately 64%) choose cases as their first choice of course delivery method with their second choice being online exams. Because divergers enjoy situations that encourage idea generation and brainstorming, case studies would be their preferred course-delivery method. Assimilators (approximately 32%) preferred online exams as their first choice of course-delivery method followed by website navigation. Assimilators tend to be more focused on abstract ideas and concepts and are less focused on people.

Exams submitted online were the most preferred course delivery method with PowerPoint ® presentations being the least preferred. The results of the ANOVA are $F(2, 41)= 4.81$ for the hypothesis, which suggests there are differences in students' preferences for the different online course-delivery methods. A multiple comparison analysis using the Tukey (HSD) test was done to locate the actual differences between the online course-delivery methods. There were statistically significant differences in students' preferences among the following: (a) bulletin board and PowerPoint®, (b) case studies and PowerPoint®, (c) website links and PowerPoint®, and (d) written paper and PowerPoint®. The exact results of the Tukey (HSD) test were not reported in the article.

The following conclusions can be made on the basis of the study. There are statistically significant differences in the learning styles of students pursuing online education and that students use combinations of Kolb's (1993) four learning modes that determine their learning style. Nearly two-thirds of the students studied exhibited one learning style—diverger—whereas two other learning styles—accomodator and converger —were nearly absent.

Because students prefer certain online course-delivery methods over others, such student overall preference can present a challenge for educators. If teaching style and learning style are to be matched, online instructors will now have to develop ways of accommodating the different learning styles in their course design and delivery to ensure that learners benefit from a comfortable and rewarding learning experience.

Further research into student learning styles, online course delivery methods, and online teaching styles clearly is needed if practitioners are to maximize the effectiveness of online learning.

As was mentioned in the Background section, student demographics data have been examined in various Web-based formats for over a decade with particular attention paid to students' prior learning experience and age. The results have indicated that students in Web-infused and online courses predominantly are an older population: working adults in their 30s and 40s with an overall stable and balanced split between male and female students as compared with traditional students (Bocchi, Eastman, & Swift, 2004; Tallent-Runnels et al., 2006).

More importantly, the level of an adult-learning program is not an issue of concern apparently for a number of scholars of e-learning. In the extensive review of empirical research conducted by Tallent-Runnels et al. (2006) in which over 70 studies were referenced, at least seven studies involved a mixture of graduate, undergraduate, and professional-study students. A large majority of all referenced studies simply refer to their populations as college students without specific differentiation between the year of study and the content area, especially if the student population comprised adult learners. No studies have been found in which mixing undergraduate and graduate adult students

for sampling purposes has been questioned as a source of possible major validity and reliability concerns.

The discussion in this section highlights a number of interesting, promising, yet inconclusive results of the descriptive and empirical research studies on the student perceptions of and characteristics in major Web-infused formats. Although there are findings indicating student preference and more favorable perceptions of hybrid learning, there are studies reporting no statistically significant differences in student preferences, experiences, and even learning outcomes. A great number of environmental factors and confounding variables make such comparative research rather complicated and challenging. Nevertheless, the section articulates a need for further research and testing in this area of learning and instruction.

Summary

The presentation of the select research in this literature review indicates that there is a growing evidence of the importance of self-directed learning (SDL) methods and perceptions in completely online and hybrid formats of distance education that ideally are suited for adult learners. Adults are still a majority of all distance learners who tend to be more self-directed, motivated, and supported by the family. Because these learners comprise a considerable portion of social-studies students and considering this general field's challenges and educational needs, examining these factors in this dissertation proposal is both appropriate and theoretically sound. There is definitely a relationship between SDL and learning process in the e-learning environments as is evident from the research based on student perceptions, feedback, and researchers' observations, thus underlining the inherent SDL nature of the e-learning environment due to particularities

of the course design and learning-related factors (Boyd, 2004; Chung, 2001; Corbeil, 2003; Frey et al., 2004; O'Neill, 2004; Song & Hill, 2007; Tsai, 2005).

The findings of some of the studies presented in the Review of the Literature emphasize the need for course designs and experiences that encourage active learning and use a number of strategies and approaches that increase the success of learners, especially in the Web-based formats. The results indicate that the correct correspondence between the teacher's approach and the delivery methods plays a key role in student learning (Hodge et al. 2004; Rovai & Jordan's, 2004; Tallent-Runnels et al., 2006).

Several studies of the relationships between student perceptions, learning outcomes, and delivery formats indicate that there are observable correlations between these factors even though there is a noticeable range of levels of statistical significance of those correlations (Barnes et al., 2005; Lynch & Dembo, 2003; Shin & Chen, 2004). Many empirical investigations of perceptions and outcomes are inconclusive and suggest further exploration partially because of various reported limitations such as variability in the subjects' demographics, learning contexts (graduate or professional vs. undergraduate, corporate, and community-college levels), and other variables (Tallent-Runnels et al., 2006). The initial evidence presented in this review of literature leaves little doubt that further examination of relationships between learning characteristics, perceived outcomes, and select demographic factors (to close some of the research gaps and limitations those factors may have created) is warranted and is expected to contribute further to the understanding learners' attributes in various course-delivery formats.

CHAPTER III

METHODOLOGY

In this chapter, the methodology, the design, and procedures that were used in the study are presented. The purpose of the research was to identify and analyze the relationships between individual students' self-directed readiness (SDLR) variables (self-management, desire for learning, self-control) and course learning outcomes in the affective domain (online learning engagement, that is, course weekly logins and enjoyment in online discussion participation; perceived course learning outcomes; intent-to-persist; course satisfaction; and perceived institutional presence) as well as age and prior e-learning experience within and between online and hybrid formats. To achieve this purpose, the following sections address the study's setting and samples, the research design, and instruments that were used to measure student self-directedness and affective learning outcomes in the delivery formats in question—online and hybrid—followed by the data collection and analysis sections.

Research Design

Using a correlational design and nonrandom sampling, the relationships between adult students' self-directed learning and affective learning outcomes were investigated in two instructional formats—hybrid and online—at a private nonprofit university in the San Francisco Bay area. Respondents to the questionnaire assessed their individual levels of self-directedness and their perceptions of and satisfaction with the Web-based learning environments, learning outcomes, and learning support mechanisms on the basis of the most recently taken online or hybrid course of their choice that they were focusing their responses on throughout the instrument. The qualitative part consisted of the respondents'

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answers to the open-ended questions of the modified Online Learning Environments (OLE) instrument by Shin and Chan (2004), which is part of the instrument used in this design. The answers described the respondents' experiences and feedback about the instructional delivery formats of the courses (the choice of either online or hybrid) they had taken by the time of the survey administration. Several authors have recommended that any instrument studying learners' perceptions or attitudes would need to have a qualitative component to allow for a more thorough, balanced, and comprehensive analysis (Chou & Chen, 2007; Howland & Moore, 2002; Lynch & Dembo, 2004; Wu & Hiltz, 2004).

The self-reported perceptions of learning, course satisfaction and outcomes, and self-directed learning readiness were investigated using this design. The SDLR instrument developed by Fisher, King, and Tague (2001) and the OLE instrument, which were both modified for the purposes of this study, were administered to hybrid learners and online learners in 15- to 20-minute in-class sessions (see the details in the Data-Collection section).

To address the research questions, several dependent and independent variables were identified and analyzed in the course of multiple administration of the instruments. The three independent variables are as follows: (a) the prior e-learning experience, (b) the learners' age, and (c) course format (a grouping variable). The eight dependent variables are as follows: (a) self-management, (b) desire for learning, (c) self-control, (d) student online learning engagement, comprised of course weekly logins and enjoyment in online discussion participation, (e) perceived course learning outcomes, (f) intent to persist (in the program), (g) course satisfaction, and (h) perceived institutional presence.

Location and Sample

The study was carried out in several undergraduate and graduate degree programs in various areas of the social and management sciences (public administration, history, philosophy, organizational behavior, applied economics, and health management) designed for adult learners at a San Francisco Bay area private nonprofit university. All programs are of comparable size, length of program (24 to 28 months), academic history, philosophy, and student demographics as detailed in subsequent paragraphs of this section; all programs (through the professional study school they are hosted in) are regionally accredited by Western Association of Schools and Colleges. These adult-learning programs have comparable size of annual enrollment (each program's enrollment has a periodic fluctuation of approximately 40 to 65 new students annually) and are mostly mixtures of traditional and hybrid delivery systems with some courses offered entirely online. The programs are taught primarily by adjunct faculty even though there are full-time faculty members.

The instrument was administered to two comparable groups comprised of approximately 100 to 150 students each who had completed at least their first year of professional-academic graduate or undergraduate education and who had taken at least one hybrid or entirely online course. The respondent sample consisted of 273 graduate and undergraduate adult students; complete data were available only for 240 students. The online and hybrid groups and their settings were comparable in terms of their demographic distributions and adult-learning professional-study programs.

Although the entire student population in the adult-learning professional-study programs was heterogeneous in age and types (and lengths) of prior professional

experience, the majority of students (59%) were female in all programs. According to the

Fall 2007 and Fall 2008 registration data, there were 729 undergraduate students total in

all programs and 534 graduate students in the total population of 1,263. Program-based

ethnicity data showed that approximately 44% of adult students were European

American, 12% Hispanic American, almost 13 % were Asian American, 11% were

African American, and the remaining 20% were undecided, international, undeclared, or

multiethnic. According to the 2006 census data, the largest age group of the student

population was 31 to 40 years (38%). The average age was 35. 2 years (Table 2). There

were no data available on the age groups broken down by course format or level.

According to the Fall 2007-2008 Registration Data for all programs, the majority

of students (over 70%) received some financial aid from the state or federal government

in the form of loans or grants. Over 90% of the students were domestic and native

English speakers. Regardless of whether the students had taken online or hybrid courses

(or both), predominantly they were in their second year of academic programs and

already had developed fairly good perceptions of learning outcomes in their courses in

addition to more balanced perceptions of course satisfaction. Graduate and undergraduate

adult programs are very similar in terms of the student population (mostly adults working

in a variety of public and private organizations), age, and gender distribution. The main

differences between graduate and undergraduate programs are in the course-delivery

format: only hybrid mode in some courses of the graduate programs, and hybrid and

completely online mode in some courses of the undergraduate programs.

The convenience sampling method was used. Only students who have completed

respective online and hybrid courses after their first year in respective programs and to

whom faculty allowed the researcher's access were approached and asked to participate in the study.

In all, 273 students (approximately 22% of the entire College's student population) in 18 student cohorts that ranged from 8 to 25 students each received the questionnaire (see the Data-collection section for more details). The average age was 34. 5 years. Of those 273 students, 268 returned questionnaires that constituted a 98% return rate. Twenty-eight responses were eliminated from the analysis due to incomplete answers or because of the missing pages. Hence, only complete (240) responses were included in the data analysis for research considerations: 88 participants chose online courses for their responses (online group), and 152 chose hybrid courses

Table 2
Demographic Profiles of the Student Population (2006-2007) and of the Sample (All numbers are Frequencies and Percentages: N=1,263; n=240) Broken Down by Student Level

Demographic variables	Student population			Sample		
	undergrad	graduate	total	undergrad	graduate	Total
Student Level	729	534	1,263	153	87	240
	57.8%	42.2%	100%	63.7%	36.3%	100%
Age (Years)		n/a				
20-30			366	30	37	67
			29%	12.5%	15.5%	28%
31-40			480	70	27	97
			38%	29.2%	11.2%	40.4%
41+			417	53	23	76
			33%	22.1%	9.5%	31.6%
Gender						
Males	317	235	552	61	31	92
	43.5%	44%	43.7%	25.4%	12.9%	38.3%
Females	412	299	711	92	56	148
	56.5%	56%	56.3%	38.3%	23.3%	61.6%

(hybrid group). Over 60% of the total number of respondents replied to qualitative

questions, asking to comment on the advantages and limitations of either online for

hybrid courses; most of the responses were rather short: 2 to 3 short phrases per question.

Of all responses included in the analysis (n= 240), 153 were at an undergraduate level,

and 87 were at a graduate level.

Analysis of the sample's composition revealed that it was very representative of

the entire College population's demographics (Table 2). The sample's demographic

profile of 240 participants, who responded to the demographic questions, and the profile

of the student population are presented in Tables 2 and 3 for comparison purposes. There

were no graduate students responding to the instrument based on an online course.

Table 3
Demographic Profiles of the Sample Broken Down by Course Format (Frequencies and Percentages: n=240)

Course Format	Undergraduate	Graduate
Hybrid	65 42.5%	87 100%
Online	88 57.5%	0 0%
Total	153 100%	87 100%

Protection of Human Subjects

The study complied with the standards set by the American Psychological

Association (2002) and the standards set by the University of San Francisco Institutional

Review Board. Written permission from the instructors and from the Dean (or Associate

Dean) of the College were obtained in writing (see Appendixes C and D). The students'

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consent to participate in the study was given upon returning the completed paper-based questionnaires in class. None of the students declined participation in the survey and hence were not directed to read an article on online learning or conduct another activity for the duration of the administration procedure.

The student participants were informed of the study purposes and procedures by cover letter that was included in the survey packets (Appendix B). The general information and instructions pertaining to the survey's administration were read aloud in the beginning of the procedure for participants as well. The participants were made clear that their participation was voluntary and that all information was to be kept confidential.

Considering that the students were responding about the course that they had already completed, student anonymity and confidentiality were not compromised in this area either. In addition, the anonymity and confidentiality of the study's results were protected by having students fill out questionnaires anonymously and enclose them in sealed envelopes, similar to course evaluations. The researcher remained in the classroom to provide clarifications, additional guidance, if necessary, and collect the sealed envelopes from the respondents. The materials were not disclosed to anyone other than the researcher and the rater of qualitative answers. The responses were kept in a secure place until the results of the study were assessed.

Instrumentation

Two instruments were distributed as one set of 80 items including a section containing students' demographic information (Appendix A): the 50-item version of Self-Directed Learning Readiness scale (SDLR) by Fisher et al. (2001) and the 30-item version of Online Learning Environment (OLE) instrument by Shin and Chan (2004),

both modified for the purposes of this study and its setting. The overall characteristics, validity, reliability, other related applications of the instruments, and modifications of the instruments for the research are presented in this section.

<p align="center">*Self-Directed Learning Readiness Scale (SDLR)*</p>

Self-directed learning (SDL) has a direct relevance to the electronic learning (e-learning) environment in both online and hybrid delivery formats. SDL highlights a learner's responsibility and willingness to interact with the course website and online materials independently and in a self-paced manner. Although no SDL or SDLR-related instruments have been developed specifically for electronic learning (e-learning) environments, this section is dedicated specifically to the review of the SDLR instrument by Fisher et al. (2001) that were used in this study to answer some of the research questions. The section contains a description of the instrument's development, its validity and reliability testing, the modification mode, and selected results of the SDLR survey instrument.

Instrument's Development

Fisher et al. (2001) developed a scale to measure self-directed learning readiness (SDLR) in response to multiple critics (Field, 1989, 1991; Long & Agyckum, 1983, 1984; Straka, 1995; Straka & Hinz, 1996) who for years had been questioning the construct validity and reliability of the original eight-factor SDLR scale developed by Guglielmino (1977). Although the instrument was designed for nurse educators to diagnose students' self-directed learning attributes, it is applicable to any adult-learning context due to the professional nature of the programs designed primarily for working

adults and comparable levels of self-directedness in nursing and other similar academic settings.

Fisher et al. (2001) originally designed the 52-item instrument in two stages on the basis of the Guglielmino's (1977) 58-item SDLR instrument. The first stage involved the modified SDLR development, including massive research of all similar scales and rigorous validity panel's review by 11 nurse academics and educators (with a minimum of 5 years of teaching experience in the area of self-directed learning) who assessed the instrument's construct and content validity with each member rating it individually and independently on a 5-point Likert scale (the so-called Delphi technique). In order to retain an item, the panel had to reach at least 80% consensus agreement in several rounds of deliberations.

At the end of the second stage, the number of items in the SDLR instrument by Fisher et al. (2001) was reduced to 52 items following the validity panel's recommendation. The 52-item instrument was piloted in Australia; it was administered to a convenience sample of 201 undergraduate nursing students (mixture of adult and traditional) at the University of Sydney during a regular semester. Students were encouraged to seek clarification if questions were unclear or confusing; they completed the questionnaire anonymously by describing their self-directed characteristics on a 5-point Likert scale ranging from *"strongly disagree"* (1) to *"strongly agree"* (5) to the extent the questions were deemed clear and relevant.

When compared with the Guglielmino's (1977) original 58-item SDLR instrument, the modified SDLR instrument by Fisher et al. (2001) included fewer items (even though the 52-item instrument was used for the pilot study, it was reduced to 40

items in its final version), a revised wording of a number of them following the validity panel's recommendations, a different set of subscales, and a more focused and clear administration guidelines. For example, with respect to subscales, if Guglielmino's SDLR instrument was comprised of eight subscales or factors, the Fisher et al. (2001) SDLR instrument is comprised of three subscales: (a) self-management, (b) desire for learning, and (c) self-control (the exact item composition of each of the subscales is presented in the next section). The Guglielmino's SDLR instrument included the following eight subscales: (a) self-concept as an effective learner, (b) openness to learning opportunities, (c) initiative and independence in learning, (d) acceptance of responsibilities for one's own learning, (e) love of learning, (f) creativity, (g) problem-solving skills, and (h) positive orientation to the future. An initial factor analysis performed on the eight factors indicated that the first factor (self-concept as an effective learner) accounted for 17.6% of the total variance, whereas successive factors accounted for substantially less. Unfortunately, the exact numbers of items comprising each of the subscales are not available.

SDLR Validity and Reliability Testing

The 52-item instrument developed by Fisher et al. (2001) was analyzed using principal components factor analysis with varimax rotations to search for a general factor (self-directed learning readiness (SDLR)), Cronbach's coefficient *alpha* to measure internal consistency, and item-to-total score correlations for unidimensionality (each item measuring the same underlying concept) to provide validity and reliability evidence (Fisher et al., 2001). The 201 students in the sample was too small a sample for a comprehensive and completely valid factor analysis.

The analyses resulted in 12 additional items being dropped after the pilot study by computing the Kaiser-Meyer-Olkin (KMO) measure and analyzing the inter-item correlations and the Cronbach's coefficient *alpha* values for the dropped items. The final 40-item version of the instrument was offered for future research, although it was never administered by Fisher et al. (2001). The overall Cronbach's coefficient *alpha* of .92 was obtained for the SDLR instrument of 40 items. Cronbach's coefficients *alpha* for other scales revealed a very solid level of the instrument's reliability and internal consistency: (a) Self-management (13 items) at .86, (b) Desire for learning (12 items) at .85, and (c) Self-control (15 items) at .83. The subtest interitem correlations ranged from .27 to .84 and allowed for a more precise reliability analysis.

The Cronbach's coefficient alpha was used to calculate the test's reliability for the SDLR part of the instrument as well as for the entire instrument of eight variables (SDLR and OLE combined) on the basis of the 240 student sample in this dissertation (Table 4). The reliability evidence for the OLE instrument is discussed in the next section.

Table 4
SDLR and OLE Scale Reliability Statistics Based on the Sample (n=240)

Scales	No. of Items	Cronbach's coefficient alpha
OLE Composite	30	.95
Online engagement	2	.37
Learning outcomes	9	.96
Intent-to-persist	4	.65
Course satisfaction	6	.89
Institutional presence	9	.85
SDLR Composite	50	.93
Self-management	16	.86
Desire for learning	18	.87
Self-control	16	.84

Regarding the SDLR instrument, the Cronbach's coefficient alpha for the three scales was measured at .93, and the scales ranged from .84 to .87. The interscale Pearson product-moment correlation coefficients ranged from .57 to .72 for self-management and self-control (see Table 5 below).

Table 5

Interscale Pearson Product-moment Correlation Coefficients for SDLR Questionnaire (n=240)

Scales	Self-management	Desire for learning
Desire for learning	.57*	
Self-control	.72*	.71*

*Statistically significant when overall error is controlled at the .05 level.

Descriptive Statistics of the SDLR Results and Application of the SDLR-based Individual Learner's Scores

The descriptive statistical analysis was performed on the basis of the data collected by administering the instrument (Table 6). For the sample of 201, the subscale total means ranged from 44.26 to 58.98, amounting to the total mean of 150.55. The minimum total score is 101 and the maximum is 194, with minimum and maximum total scores for each subscale being 24 and 65, 27 and 60, and 41 and 74, respectively.

Table 6

Means and Standard Deviations for Scales of the SDLR Questionnaire by Fisher et al.

Scales	n	M	SD
Self-management	201	44.26	8.04
Desire for learning	201	47.31	6.62
Self-control	201	58.98	6.98

The total mean was determined to be a threshold for SDL readiness for a respondent who has a total score of greater than 150. Students whose total self-directed readiness score fell below 150 were considered lacking self-directed readiness (Fisher et al., 2001; Smedley, 2007) and thus not ready for SDL approaches. In the Fisher et al.'s study, slightly less than half of the respondents had a sufficiently high self-directed learning readiness total mean (150 and above) to be considered self-directed learners, who hypothetically would benefit the most from SDL approach and methods. No additional information was presented in the article describing the instrument.

The reliability and validity evidence is used to justify the selection of the SDRL instrument for measuring self-directed learning readiness in this study. The selected instrument is still being used widely in nurse education and other fields for the purposes of diagnosing student learning needs in order to implement necessary curricular changes and teaching strategies and to gauge potential as well as actual learning outcomes. A recent empirical study conducted by Smedley (2007) confirmed the results reported by Fisher et al. (2001) by administering the 40-item scale to a sample of 93 undergraduate nursing students (mixture of adult and traditional students) at a private university in Australia (72% return rate) and subsequently re-affirming the reliability and internal consistency of the SDLR instrument. Cronbach's coefficient alpha for each of the subscales in the Smedley's report were statistically significant and very similar to those reported by Fisher et al. (2001): (a) Self-management (13 items) at .81, (b) Desire for learning (12 items) at .78, and (c) Self-control (15 items) at .84. The distribution of SDLR total scores from 100 to 197 (with the maximum possible score of 200) within the sample with a mean of 151.09 was remarkably similar to the one reported by Fisher et al.

(2001) of 150.55. The total means and standard deviations for each of the subscales in Smedley's study also were very similar to that of Fisher et al. (2001). Of all students surveyed, 30 students' total scores (32.2%) were below the 150 cut-off accepted as the SDLR mean, thus indicating these participants' lack of readiness for SDL learning methods (Smedley, 2007).

Because the results of Smedley's (2007) research, including the reliability statistics, were remarkably similar to the results of Fisher et al. (2001) study after a significant time gap of 6 years, it could be concluded that the SDLR instrument is valid and reliable. Based on the analysis of demographic characteristics conducted in the study, it was identified that younger students (18- to 19-year olds) tend to have a somewhat lower degree of individual self-directedness than students with more life and work experience. The fact that there were a rather large number of students in both studies who fell below the minimal threshold of acceptable self-directedness (score of 150) indicates that even adult students may have SDL challenges and might benefit from developing their SDL skills further. At the same time, the overwhelming majority of students in Smedley's sample (2007) were traditional students rather than those who belonged to the adult student group.

Although the purpose of this dissertation was not replicating the Fisher et al. (2001) study, using the expanded version of the instrument in a different setting and with a different sample (all students in this study's sample are adult learners) would be useful for retesting the items, the scales the items comprise, and similarities of SDLR levels across various student populations and learning environments.

SDLR Instrument Modification for the Purposes of the Study

In this dissertation research, the slightly modified 50-item version of the original SDLR instrument was applied to gather more data and test the expanded scales. Identical questions from the 52-item questionnaire by Fisher et al. (2001) were selected with the exception of two questions that had no relevance for the population used in this study and subsequently were dropped—this is how the SDLR version used in this study became the 50-item instrument used on the 240-strong sample. Some minor change of wording also took place for four other items for the same purposes of relevance of the SDLR instrument for the student population. Sixteen items comprised the *self-management scale:* "I believe the role of the teacher is to act as a resource person," and "I need minimal help to find information," "I can find out information for myself," and so on. Eighteen items comprised the *desire for learning scale*: "I like to solve (answer) puzzles/ questions," "I often review the way professional practices are conducted," "I will ask for help in my learning when necessary," "I will alter my practices when presented with the facts," "I am open to new learning opportunities," "I am willing to change my ideas," and so on. Sixteen items comprised the *self-control scale*: "I prefer to direct my own learning," "I am assertive," "I need to be in control of what I learn," and so on.

Online Learning Environment (OLE) Instrument

The second instrument used in the study, the Online Learning Environment (OLE), provided the affective-learning-outcomes relevance based on the nature of the instrument's items and subscales. In addition, the OLE's reliability and validity evidence made the instrument a good candidate to be used in combination with the SDLR scale. The relationships between the variables such as individual perceptions of learning

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outcomes, course satisfaction, and others were operationalized partially via the OLE instrument. These relationships were congruent with the research questions posed in this study (Shin & Chan, 2004). In this section, the OLE's development, its design, validity and reliability testing, and initial results are presented.

Instrument's Development

The OLE instrument was developed as part of an exploratory correlational study on the effects of online learning (broadly construed) on various aspects of distance education at the Open University of Hong Kong on the basis of courses taught in both English and Chinese to a diverse body of Chinese and international students. Building on previous relevant studies while acknowledging a major theoretical gap that exists in the area of online learning and learning outcomes (especially in terms of valid empirical studies), Shin and Chan (2004) designed the Online Learning Environment (OLE) instrument to examine relationships between students' self-reported engagement in online learning and perceived learning outcomes, satisfaction with learning experience in courses, and intent-to-persist with online learning in future. Another aspect of the study was to explore a relationship between students' perceptions of institutional presence (quality of services) in the online environment and student online involvement (or engagement), course learning outcomes, satisfaction with online learning experience, and finally the intent-to-persist with online learning in future.

The 30-item instrument was composed of items that most of which began with phrases such as "I feel" or "I believe" to emphasize the affective domain of perceived values and, consequently, a subjective state of mind of respondents. The participants were directed to indicate their agreement to the items on a 5-point Likert scale ranging

from *"strongly disagree"* (1) to *"strongly agree"* (5). The engagement in the OLE was measured by the frequency of a student's login to the course site per week on the scale ranging from 0 to 3 times through 16 times plus. The frequency of a student's login was the only item from the entire instrument that was modified for the purposes of this study by being converted into a self-reported item on online engagement.

The four major subscales of the instrument were labeled as *institutional presence* (9 items), *learning outcomes* (10 items), *course satisfaction* (6 items), and *intent-to-persist* (4 items) in addition to the measure of *online engagement* (2 items) and the respondents' demographic data in a separate section, including the level of Internet skill, experience with online courses, the level of prior education, age, gender, and so on (Appendix A). The *institutional presence* subscale comprised the following questions asked "I find it easy to contact student support staff in my program," "I feel a sense of belonging to my university," "I feel attached to my university," and so on. The *learning outcomes subscale* include the following: "I gained practical ideas to be applied to my work," "The online/hybrid course provided me with professional knowledge for work," and "The online/ hybrid course provided me with an opportunity to develop time management skills for learning." The *course satisfaction subscale* comprised the following items: "Taking the hybrid/online course was a valuable experience for me," "I was able to learn a lot from the hybrid/ online course in my program," "I felt that I was continuously growing due to a variety of activities that I was engaged in the hybrid/ online course," and so on. The *intent-to-persist* subscale included some of these items: "It is important for me to earn the intended degree at my university," "I will try hard to overcome obstacles encountered in the course of studying in my program," "I will enroll

for the next semester, if I have courses to complete," and so on. The online engagement

scale includes the following item: "How often did you login to the course site per week?"

An additional item was added to the scale, that is level of enjoyment participating in

online discussion forums.

OLE Validity and Reliability Evidence

The content of the instrument and its subscales were subjected to a validity panel

of educational experts from the US, Canada, and Hong Kong with expertise in online

learning and educational assessment. The questionnaire for the panel included items

concerning a respondent's background such as the level of previous education,

experience of online courses, the level of Internet skill, and so forth. The panel eliminated

several items (especially in the intent-to-persist scale) and suggested new or modified

items for both the outcomes and the institutional presence scales (Shin & Chan, 2004).

Reliability results are as follows: *the institutional presence* subscale's Cronbach's

coefficient *alpha* was .84, the *learning outcomes* items were selected from Kember et

al.'s (2001) item pool to form the subscale with .89 for the Cronbach's coefficient *alpha*

*(*the highest among all four subscales), the *satisfaction* scale had .84 for the Cronbach's

coefficient *alpha*, and the *intent-to-persist* with only 4 items had the lowest Cronbach's

coefficient *alpha* at .63 (Shin & Chan, 2004). Because the Cronbach's coefficient alpha

values of three out of four subscales (with the exception only for the *intent-to-persist*

scale of 4 items) are above the .70 value, which is considered to be minimally acceptable

level of internal consistency, the overall reliability of the 30-item instrument is adequate.

Even the *intent-to-persist* subscale's Cronbach's coefficient *alpha* is only slightly below

the .70 reliability threshold.

For this dissertation's sample, the overall Cronbach's coefficient *alpha* reliability coefficient for the OLE instrument of 30 items measured at the very high .95. The scale coefficients ranged from .37 to .96 and were very consistent with the reliability test results obtained by the instruments' designers (Shin & Chan, 2004). The high measure of reliability and internal consistency for the learning outcomes scale is notable due to the rather diverse sample of student population in terms of level, degree program, and course format participation (see Table 4 in a previous section). The scale also had the highest value in the reliability evaluation of the original OLE version administered in Hong Kong by Shin and Chan.

Of the four principal OLE factors, excluding the 2-item online engagement scale, the lowest coefficient *alpha* was obtained for the 4-item intent-to-persist scale (.65), which almost mirrored the results reported by Shin and Chan (2004) and could be attributed partially to the small number of items included. The scale's reliability could not be made stronger to obtain a higher Cronbach's coefficient *alpha* even by deleting some of the items comprising the scale as part of the factor analysis. Because the scale's reliability coefficient is very close to .70, which is considered the desired minimum of reliability testing, the intent-to-persist was used for further analysis. At the same time, the very low Cronbach's coefficient *alpha* for the online engagement factor (.37) indicated that it could not be used as a 2-item scale (online engagements 1 and 2) for further analysis purposes. Instead the two individual items comprising it— enjoyment of participation in online discussion forums (online engagement 1) and frequency of student logins per week (online engagement 2)—were used separately as independent variables

for regression and for correlational analyses. The interscale correlation coefficients for the OLE instrument measuring affective outcomes ranged from .13 to .91 (Table 7).

Table 7

Interscale Pearson Product-moment Correlation Coefficients for OLE Questionnaire
(n=240)

Scales	Online engagement item 1	Online engagement item 2	Learning outcomes	Intent to persist	Course satisfaction
Online engagement item 2	.22[*]				
Learning outcomes	.69[*]	.32[*]			
Intent to persist	.24[*]	.15[*]	.37[*]		
Course satisfaction	.68[*]	.31[*]	.91[*]	.47[*]	
Institutional presence	.26[*]	.13[*]	.46[*]	.36[*]	.51[*]

*Statistically significant when overall error is controlled at the .05 level.

As part of the OLE instrument administration, Shin and Chan (2004) had 746 questionnaires both mailed via the Postal Service and electronically mailed to graduate and undergraduate participants in the selected four courses in Business Administration at the Open University in 2002 in several stages to maximize response rate. It is noteworthy that the researchers emphasized the adult-learning nature of survey participants rather than the course level (graduate or undergraduate) based on the recent research that largely discounted the differences among the levels in the adult-student population (Rovai, 2002; Wu & Hiltz, 2004). Shin and Chan (2004) were able to collect 285 completed questionnaires that constituted a 38.2% response rate. After sorting out the demographic and various subgroups-related data, 15 correlation coefficients were obtained between the two major groups: compulsory (mandatory) courses and optional courses (both graduate and undergraduate). The results showed statistically significant moderate Pearson product

moment correlation coefficients between perceptions of institutional presence and learning outcomes (r= .40 for optional courses and r= .43 for compulsory ones) and between presence and intent-to-persist (r= .36 for optional model and r=.46 for compulsory one). The results showed moderate-to-strong statistically significant correlation coefficients between institutional presence and learning satisfaction (r= .61 for optional mode and r= .63 for compulsory one; Table 8). If compared, some of the correlation coefficients reported by Shin and Chan (2004) are very similar to the interscale correlation coefficients obtained for the sample of this research study (Table 7).

Thus, the differences between groups of students in compulsory and self-selected online courses were not statistically significant (Shin & Chan, 2004). The correlational analysis highlighted the overall statistical significance of institutional presence as one of the key elements of the students' perception of positive learning outcomes and course

Table 8

Comparative Analysis of Reported Pearson Product-Moment Correlation Coefficients for Select OLE Scales in Optional and Compulsory OLE Courses (Shin & Chan, 2004)

Scales	OLE Optional Courses by Shin and Chan			OLE Compulsory Courses by Shin and Chan		
	Learning outcomes	Intent to persist	Course satisfaction	Learning outcomes	Intent to persist	Course satisfaction
Institutional Presence	$.40^*$	$.36^*$	$.61^*$	$.43^*$	$.46^*$	$.63^*$
Online engagement	$.20^*$	**	**	**	$.20^*$	**

*Statistically significant when overall error is controlled at the .05 level.
** Correlation coefficients were not reported by Shin and Chan (2004).

satisfaction. Also, it was evident that students in compulsory OLE courses were more active users of online materials and discussion features than those in optional OLE courses. At the same time, no difference between graduate and undergraduate students in

online behaviors such as average time spent per visit, level of the Internet usage skill, logon frequency, and some others was found. Therefore, it can be assumed that other factors, such as levels of overall motivation, interest, level of self-directedness, and course delivery format may be involved.

OLE Instrument Modification for the Purposes of the Study

The modification of the OLE part included minimal change of wording to make some of the questions more understandable to the U.S. respondents because of the original instrument's potentially confusing grammar, spelling, some educational jargon, as well as the instrument's specific references to the unique design of the college where data collection was conducted by original designers. In addition, one of the original items in the learning outcomes scale (item #19) was dropped because of the almost exact wording displayed by another item in the scale; the change transformed the learning outcomes scale into the 9-item scale. The dropped item was replaced with an item on the level of enjoyment participating in online discussion forums (measured on the 5-point Likert scale) to enhance the OLE online engagement scale, which comprised only one item (the frequency of a student's log-in to the course site per week) in the original instrument. The above modification has not changed the total number of items of the scale (i.e., 30).

Finally, another additional element added to the OLE instrument for this dissertation was the Evaluative Comments section at the end. The Comments section was not part of the original OLE instrument was to provide an area for student comments, which were included in the overall analysis, coded, and further assessed by determining general themes, patterns, and specific issues. Such qualitative feedback was expected to

enrich the study by providing additional data and refine some of the emerging themes and issues reviewed as a result of the survey instrument's administration (see the Research Design and Proposed Data Analysis for more specific information).

Data Collection

The procedure for the administration involved obtaining 2008-2009 cohort registration information from the college's database (upon making an official request and obtaining special permission) on numbers of students who had taken online and hybrid courses in 2008 and early 2009 and their relative distribution among several programs at the college.

The modified OLE and SDLR instruments were administered to 273 graduate and undergraduate students as a two-part instrument (the OLE and the SDLR) in class sessions of various adult-learning courses of 8 to 25 students in each cohort, where regular classes took place on alternate Saturdays or weekdays in the Spring and Summer semesters of 2009.

To facilitate the process and ensure the procedure's appropriateness, the researcher obtained special advance permission in writing from the deans of the school and select individual instructors of the courses in which the survey administration took place (see Appendixes C and D).

Students were provided with the paper-based instruments in individual packets. The students were allowed at least 20 minutes of the class time in the beginning of each class session or right after the first break (depending on the cohort) to complete the questionnaires, including the brief orientation and instruction session for survey participants. More time was provided sometimes, if necessary, depending on the students'

progress with the instrument and the agreements reached with individual course instructors. To minimize possible disruption and other negative effects caused by latecomers, the instrument administration usually started 5 to 10 minutes after the official start time of class sessions preceded by the instructors' and the researcher's interaction with cohorts. Extreme latecomers (more than 15 minutes past the administration's start) were provided with a choice of returning to the class later or were invited to read an article on online education provided by the researcher. If open to participation, the latecomers were given an opportunity to complete the instruments at the end of the class session or during breaks.

The researcher administered the instruments by reading the instructions out loud in class prior to distributing the packets supplied in blank envelopes for the responses to be returned in as well. He remained in the classroom to provide clarifications, additional guidance, if necessary, and collect the sealed envelopes from the respondents. The respondents were asked to remain seated if they completed the instrument prior to the end of the administration and read the enclosed article or do other quite activities rather than getting up and leaving the classroom, thus causing disruption to the rest of the cohort.

The students were invited to participate in the study during their regular classes and were asked specifically to read the definitions of hybrid and online course-delivery modes in the beginning of the survey. The students then were asked to respond to the instrument by selecting either a hybrid or an online most recent course and focusing on the delivery format selected throughout the survey to for consistency purposes.

There were no students who declined to participate. Very few arrived late, and if they did, they were offered to read an article on online learning for the duration of the

survey administration, join the ongoing administration, or complete it at later time during the class sessions. As expected, given the logistics of class schedules, obtaining of instructors' permissions, and requirements of instrument administration, the entire data collection involving both online and hybrid groups of 100 to 150 graduate and undergraduate students each took over 5 months to complete.

Data Analysis

There were four research questions posed for this study as follows:

1. To what extent were the learning outcomes in the affective domain (online learning engagement [frequency of logins and enjoyment of participation in online discussion forums], perceived institutional presence, perceived course learning outcomes, course satisfaction, and intent-to-persist) related to the adult students' SDL readiness (self-management, desire for learning, self-control), age, and prior e-learning experience in both hybrid and online course-delivery formats combined?

2. To what extent were the learning outcomes in the affective domain (online learning engagement [frequency of logins and enjoyment of participation in online discussion forums], perceived institutional presence, perceived course learning outcomes, course satisfaction, and intent-to-persist) related to adult students' SDL readiness (self-management, desire for learning, self-control) in an online course-delivery format?

3. To what extent were the learning outcomes in the affective domain (online learning engagement [frequency of logins and enjoyment of participation in online discussion forums], perceived institutional presence, perceived course learning outcomes, course satisfaction, and intent-to-persist) related to the adult students' SDL readiness (self-management, desire for learning, self-control) in a hybrid course-delivery format?

4. To what extent was there a difference in the relationship between SDLR and OLE scores for students in hybrid and online courses?

In order to answer the research questions, the analysis included subscale (variables) scores for each of the two groups (online and hybrid). The following variables-- self-management, desire for learning, self-control, perceived learning outcomes, intent to persist in the program, course satisfaction, institutional presence, and online engagement-- form the study's set of dependent variables. The students' prior e-learning experience, age (five categories), and course format form the study's set of independent variables.

Because there were not undergraduate respondents for online course and because of the unequal subsample sizes (graduate vs. undergraduate) of the respondents, it was necessary to investigate whether there were statistically significant differences between graduate and undergraduate groups in terms of perceptions of learning and self as tested by the combined SDLR and OLE instruments. To accomplish such investigation of differences, an independent-samples t test was administered to graduate and undergraduate groups responding hybrid to test for mean differences between the two groups in order for the researcher to combine the two for further analysis and consideration.

To address the first three research questions, the analysis used Pearson product-moment correlation coefficients to analyze relationships between all of the dependent and independent variables within each group (online or hybrid) at an overall error level of .05. The correlational analysis generated over 15 correlation coefficients for each of the first three questions (see the Results chapter).

In addition, self-management, self-control, and desire for learning operationalized as independent variables (SDLR) and perceived course learning outcomes, course satisfaction, institutional presence, intent-to-persist, and online engagement as dependent variables (OLE-based affective learning outcomes) were analyzed by conducting multiple regression analysis.

The fourth research question was addressed by analyzing the comparisons of the correlation coefficients between SDLR and OLE scores that were obtained to answer the first three research questions for students in hybrid and online courses with due consideration of age and prior e-learning experience for which correlation coefficients were also obtained. To conduct such comparative analysis, the independent-sample z test for differences in correlations was used on the basis of sufficient numbers in all of the categories necessary to compute valid correlations.

Also, to aid in answering research questions and add richness to the study's analysis, the qualitative section of the OLE instrument was transcribed and analyzed as part of the qualitative component of this study. The most frequently mentioned phrases, examples, and specific recommendations were grouped and categorized accordingly by examining their frequency, intensity, and major thrust of their arguments. Such analysis was helpful for corroborating some of the general themes of the qualitative feedback with the statistically significant results of the quantitative part of the OLE instrument (Creswell, 2002; Krathwohl, 2002; Miles & Huberman, 1994).

The following three steps were used for the analysis of the qualitative data gathered by administering the instrument: organizing the data, describing the data, and summarizing the data (Creswell, 2002). The data from the qualitative comments at the

end of the OLE part of the instrument were organized by coding using a marginal coding technique (Miles & Huberman, 1994). The right-hand margins comprised various qualitative comments provided, and the left-hand margins comprised codes developed on the basis of the OLE subscales consistent with some of the research questions (e.g., perceived learning outcomes (personal gains), intent-to-persist, engagement in online learning (weekly course logins and enjoyment of online board participation), perceived institutional presence (administrative issues), course satisfaction). This coding technique accomplished the first step in the qualitative data processing analysis (Creswell, 2002).

Upon qualitative data organization, a cross-case analysis was utilized to help deepen the understanding and explanation of the data by identifying recurring themes and issues, grouping them into larger clusters, and then analyzing those clusters in connection with the research questions (Miles & Huberman, 1994). Such analysis helped organizing, describing, and eventually summarizing the findings on the basis of qualitative comments. Because the comments were not extensive, there was no need for a special form or matrix to cluster or partition the qualitative data in a more comprehensive and detailed fashion. The researcher looked for recurring themes and issues that would fall into the larger categories identified by OLE subscales, such as online engagement, perceived course learning outcomes, intent to persist in the program, course satisfaction, and perceived institutional presence (Shin & Chan, 2004). These larger OLE categories served as the basis for further analysis of the qualitative data, especially if student responses were consistent and could be clustered and partitioned into cases more easily.

The qualitative element of this research provided richness to the study and helped gather additional data for the analysis. Only two qualitative questions were asked.

Establishing reliability and internal consistency of coding, decoding, and subsequent cross-case analysis proved to be a challenge considering the limited quality and quantity of feedback and limited resources. Two raters with knowledge of qualitative methods were approached, but only one eventually participated in establishing the reliability and validity of codes and themes. Both raters are faculty members who have taught graduate-level research methodology courses for over 15 years at several regionally accredited universities; both also have had an extensive practitioner experience in program evaluation and in psychological research.

Effective and consistent coding over time became crucial to maximizing the analysis' reliability. To control for the consistency of codes and related themes over time, responses that had been coded earlier by the researcher were recoded randomly later by both the researcher and the other rater to look for major differences, gaps, and inconsistencies. It was a laborious process but necessary for research reliability purposes nonetheless (Miles & Huberman, 1994).

Significant inconsistencies in coding, computation of responses, and thus developing principal themes were discovered and corrected partially. Because of the broad range of responses that did not belong to any of the earlier established themes, a compromise was reached to establish two themes that would encompass all of the course-design- and facilitation-related responses (Themes 5 and 6 on Course Design and Course Procedures discussed in the next chapter). In the process of establishing reliability and consistency of the coding process and of the emerging themes, the readers targeted the 80% agreement ($\geq 80\%$) as a minimum threshold for establishing a theme before proceeding. Disagreements were resolved by means of discussion and revisiting the

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qualitative data collected. Two of the themes (general course design and course

facilitation process issues) never received the desired 80% agreement level because of the

themes' broad-based content. Because of the percentage was close enough, the reliability

level is reported at 80%.

CHAPTER IV

RESULTS

The purpose of the research was to identify and analyze the relationships between individual students' self-directed learning readiness (SDLR) variables (self-management, desire for learning, self-control) and course learning outcomes in the affective domain (student online engagement [frequency of logins and enjoyment of participation in online discussion forums], perceived course learning outcomes, intent-to-persist in the program, course satisfaction, and perceived institutional presence) as measured by the Self-directed Learning Readiness (SDLR) instrument of Fisher et al. (2001) and Online Learning Engagement (OLE) instrument of Shin and Chan (2004), as well as prior electronic learning experience and age, within and between online and hybrid formats. The two slightly modified instruments were combined into the two-part questionnaire and supplemented with the two open-ended questions for the respondents' qualitative feedback and with the demographic form. The two-part instrument included three SDLR scales and five OLE scales (one consisting of two items) as listed above in addition to factors of age and prior e-learning experience.

The previous chapter described the study design and methodology, including the method used for selecting the sample, and the description of the analysis to address the stated research questions within the framework of the study. In this chapter, the results and findings of the study are presented. The chapter includes several sections, starting with the overall findings and proceeding with sections that focus on the results related to four research questions directly.

The four research questions posed in this dissertation research are as follows:

1. To what extent were the learning outcomes in the affective domain (online learning engagement [frequency of logins and enjoyment of participation in online discussion forums], perceived institutional presence, perceived course learning outcomes, course satisfaction, and intent-to-persist) related to the adult students' SDL readiness (self-management, desire for learning, self-control), age, and prior e-learning experience in both hybrid and online course-delivery formats combined?

2. To what extent were the learning outcomes in the affective domain (online learning engagement [frequency of logins and enjoyment of participation in online discussion forums], perceived institutional presence, perceived course learning outcomes, course satisfaction, and intent-to-persist) related to adult students' SDL readiness (self-management, desire for learning, self-control) in an online course-delivery format?

3. To what extent were the learning outcomes in the affective domain (online learning engagement [frequency of logins and enjoyment of participation in online discussion forums], perceived institutional presence, perceived course learning outcomes, course satisfaction, and intent-to-persist) related to the adult students' SDL readiness (self-management, desire for learning, self-control) in a hybrid course-delivery format?

4. To what extent was there a difference in the relationship between SDLR and OLE scores for students in hybrid and online courses?

Results of the Descriptive Statistical Analysis

The results of the descriptive statistical analysis for the entire sample used in the study are presented in this section. First, the comparisons between graduate and undergraduate groups of the sample are investigated by giving the results of the

independent-samples t test. Second, the results of the descriptive statistical analysis for the total group are reviewed on the basis of means and standard deviations of each of the subscales that comprise the SDLR and OLE instruments utilized in this dissertation research. The descriptive analysis of the sample and subgroups provides the necessary foundation for answering the research questions formulated for this study in the subsequent sections.

Comparisons Between the Graduate and Undergraduate Groups

The sample used in the study is comprised of graduate and undergraduate students who had taken online and hybrid courses in various adult-learning programs. Although the literature indicated that the level of academic program is not a statistically significant factor when adult students are part of the sample, the difference between the groups may have been confounded with student level. The independent-samples t test was used to investigate the group differences with control of overall error rate at .05. The assumptions of normality (given the relatively large sample size for the Central Limit Theorem to apply) and homogeneity of variance (based on the Levene's Test for Equity of Variances) for the t test were met. The results of the test indicate that the difference between means of the scales in both graduate and undergraduate groups is not statistically significant. Therefore, graduates and undergraduates were combined within the hybrid and online groups for further correlational and regression analyses. Based on the obtained results, one can assume a very low likelihood of the student level being a confounding variable affecting other results of the study (Table 9).

Table 9

Means, Standard Deviations, Sample Sizes, and t-test Comparisons
of Student Level for OLE and SDLR Scales

Scales	Student Level	N	M	SD	T
		OLE			
Online part.	undergraduate	153	3.41	1.10	0.91
enjoyment	graduate	87	3.28	1.13	
Frequency of	undergraduate	153	2.23	1.09	-1.47
Course logins	graduate	87	2.45	1.15	
Learning	undergraduate	153	3.53	0.98	-0.03
Outcomes	graduate	87	3.54	0.82	
Intent-to-	undergraduate	153	4.34	0.27	-1.21
persist	graduate	87	4.43	0.42	
Course	undergraduate	153	3.68	0.87	0.50
Satisfaction	graduate	87	3.62	0.73	
Institutional	undergraduate	153	3.85	0.66	1.31
presence	graduate	87	3.74	0.56	
		SDLR			
Self-	undergraduate	153	3.96	0.52	-2.16
management	graduate	87	4.11	0.45	
Desire for	undergraduate	153	4.36	0.39	0.90
learning	graduate	87	4.32	0.36	
Self-control	undergraduate	153	4.25	0.40	-1.30
	graduate	87	4.32	0.37	

Results of the Descriptive Statistical Analysis for the Combined Group

The descriptive statistics for all the scales in the combined group (online and hybrid formats) are presented in this section. The analysis of the descriptive statistics for all of the scales (OLE and SDLR) revealed the means for scales in the combined group ranging from 2.30 (SD=1.12) for frequency of weekly course logins (OLE variable and part of the original variable of engagement in online learning) to 4.38 (SD=0.55) for intent-to-persist (OLE variable). As it was evident in the previous chapter, due to the very low reliability (Cronbach's coefficient alpha at .37), the engagement in online learning was excluded from further analysis as a two-item scale.

The highest mean of the six OLE scales for intent-to-persist shows a solid

agreement with the need to complete the respective programs, regardless of challenges,

and the sense of importance to earn an intended degree. The mean for the OLE learning

outcomes (M=3.55) reflects the average level of students' overall perception of both

online and hybrid course outcomes: although the students do not rate those courses high

or low (an element of indecisiveness), there also is a degree of appreciation of the amount

of knowledge gained, skills acquired, overall intellectual growth, and related learning.

There is a somewhat stronger degree of agreement with course satisfaction (M=3.69),

although the overall level of the satisfaction-related variable indicates that the

perceptional levels of learning outcomes and course satisfaction generally may not be too

far apart. The second highest OLE mean of 3.83 (SD=0.64) for institutional presence

indicates that respondents overall agreement with the institutional support and facilitation

being important factors of successful e-learning and positive learning outcomes (Table

10).

Because no averages were provided by Shin and Chan (2004) in the original

report, the comparison with the means obtained in this study is not possible. The means

for the three SDLS scales are, however, higher than the correspondent average scores for

the scales reported in the study by Fisher et al. (2001) with the self-management scale

displaying the largest difference in average scores—4.04 for the scale in this study as

compared with 3.40 in the original study by Fisher et al. (2001). It should be noted that

the effected sizes computed using the Fisher et al. standard deviations point to the

differences between the levels of means in the sample and the study by Fisher et al.

(2001; Table 11). Consequently, because 150 is a cumulative cutoff score for SDLR as

established by Fisher et al. (2001), only 0.4% of respondents in the sample fall below the

cutoff and can be viewed as lacking in SDLR.

Table 10
Means and Standard Deviations for Scales of OLE Questionnaire (n=240)

Scales	M	SD
Online participation enjoyment	3.37	1.14
Frequency of course logins	2.30	1.12
Learning outcomes	3.55	0.94
Intent-to-persist	4.38	0.55
Course satisfaction	3.69	0.84
Institutional presence	3.83	0.64

The online participation enjoyment, frequency of course logins, and learning

outcomes had a noticeably greater variability level compared with other scales of both

instruments (see Tables 10 and 11). At the same time, the levels of variability between

the SDLR scales in both the sample and the results by Fisher et al. are relatively

comparable; such comparability in the levels of standard deviation is noteworthy given

the differences between the means in both sets of SDLR scales.

Table 11
Means and Standard Deviations for SDLR Questionnaire and Fisher et al. (2001)

	Sample			Fisher et al.			
Scales	n	M	SD	N	M	SD	Effect Size
Self-management	240	4.04	0.47	201	3.40	0.62	1.03
Desire for Learning	240	4.36	0.38	201	3.94	0.55	.76
Self-control	240	4.28	0.38	201	3.93	0.46	.76

Relationship Between the Self-directed Learning Readiness (SDLR) and Affective Learning Outcomes (OLE) in the Combined Group

To answer the first research question regarding the extent to which individual

students' self-directed learning readiness (SDLR) variables (self-management, desire for

learning, self-control) are related to the course learning outcomes in the affective domain (OLE variables: student online engagement (frequency of course logins and enjoyment of online course participation), perceived course learning outcomes, intent-to-persist in the program, course satisfaction, and perceived institutional presence) in the entire sample, the Pearson product-moment correlation coefficients were computed and analyzed for the nine variables.

In order to answer the research questions more comprehensively, including age (variable of three levels) and prior e-learning experience, the Pearson product-moment correlation coefficients were utilized for those variables as well. The coefficients for the OLE and SDLR factors were compiled into a correlation matrix as presented in Table 12. Due to the low reliability level of the engagement in online learning scale (as discussed in chapter 3 and above), the two items that formed the scale will be analyzed as separate variables: (1) Frequency of Course Weekly Logins and (2) Enjoyment of Online Discussion Participation.

The analysis of relationships between all of the scales revealed a large number of weak-to-moderate and moderate correlation coefficients. Of the statistically significant correlation coefficients, the weakest ones were those between age and desire for learning and course logins and institutional presence (both were r=.13). The strongest relationship was found between the SDLR desire for learning and the OLE course outcomes and course satisfaction (both were r=.42)—moderate correlation coefficients, emphasizing the direct positive relationship between the self-reported desire for learning new things and the self-perceived student learning outcomes and satisfaction with the overall learning experience in a course (Table 12).

Table 12

Pearson Product-moment Correlation Coefficients for the SDLR and OLE Scales for the Combined Group (n=240)

	SDLR		
OLE	**Self-management**	**Desire for learning**	**Self-control**
Online participation enjoyment	.28[*]	.30[*]	.25[*]
Frequency of course logins	.18[*]	.22[*]	.17[*]
Learning outcomes	.37[*]	.42[*]	.37[*]
Intent-to-persist	.29[*]	.33[*]	.31[*]
Course satisfaction	.33[*]	.42[*]	.34[*]
Institutional presence	.24[*]	.32[*]	.34[*]

*Statistically significant when overall error is controlled at the .05 level.

Because Pearson product-moment correlation coefficients for prior e-learning experience and age were found to be either extremely weak (for example, r= .01 between age and intent-to-persist, and similar results) or statistically nonsignificant, the two scales were eliminated from further correlation and regression analyses as nonperforming variables. With the elimination of age and prior e-learning experience from the remaining statistical analysis, the part of the comparison of relationships between the OLE and SDLR scales in addition to age and prior e-learning were not addressed because the two variables' statistical insignificance would yield same results in the correlational analysis for subgroups as well as for their comparisons.

Regression Analysis for the Combined Group

Based on the results of the analysis of Pearson product-moment coefficients, the examination of the extent of the relationship between the SDLR and affective outcomes (OLE factors) in the combined group was performed using both a direct and stepwise multiple regression analyses. The following variables were selected as the predictor variables: the SDLR variable as a combined scale (a sum of the three scales) of self-management, desire for learning, and self-control; the OLE scales such as frequency of

weekly course logins, online discussion forum participation enjoyment, perceived course learning outcomes, intent-to-persist in the program, course satisfaction, and perceived institutional presence were selected as the criterion variables.

The results of the direct multiple regression analysis for the combined predictor (the three SDLR factors used as one scale) and criterion variables (OLE affective outcomes) are presented in Table 13. Based on the R^2, the SDLR variable combined is the strongest predictor of the OLE learning outcomes. The result means that, using the three SDLR scales as a combined SDLR predictor mentioned above, the SDLR variable accounted for 19% ($R^2 = .19$) of the course learning outcomes' variance. The result is closely followed by the prediction of course satisfaction with 17% of the variance

Table 13

Multiple Regression Summary Table for Combined Groups Predicting Affective Learning Outcomes Using Combined SDLR Scale (Sum of Three SDLR Scales)

OLE Scale	R^2
Online participation enjoyment	.10
Frequency of course logins	.05
Learning outcomes	.19
Intent-to-persist	.12
Course satisfaction	.17
Institutional presence	.11

accounted for by the SDLR scale. The SDLR scale is the weakest predictor of the OLE frequency of weekly course logins with $R^2 = .05$ accounting for 4.9% of variance (Table 13).

After performing the stepwise regression analysis using all three SDLR predictors separately (self-management, desire for learning, and self-control), the desire for learning was found to be the strongest predictor of the variance in all of the OLE scales with the exception of institutional presence, for which the self-control was revealed as the strongest predictor. The results of the stepwise regression were analyzed on the basis of R^2 Change and Beta statistics.

Relationship Between the Self-directed Learning Readiness (SDLR) and Affective Learning Outcomes (OLE) in the Hybrid Group

To answer the research question regarding the extent to which individual students' self-directed learning readiness (SDLR) variables (self-management, desire for learning, self-control) are related to the course learning outcomes in the affective domain (OLE variables: student online engagement (online discussion board participation enjoyment and frequency of weekly course logins), perceived course learning outcomes, intent-to-persist in the program, course satisfaction, and perceived institutional presence) in the hybrid group, the Pearson product-moment correlation coefficients were obtained for the nine variables of both instruments. The coefficients for the hybrid group are compiled into a correlation matrix for comparison purposes as presented in Table 14.

All of the correlation coefficients in the hybrid group range from weak to moderate. Similar to the results in the combined group, the strongest correlation coefficients are those between the SDLR desire for learning and the OLE course satisfaction (r=.40), and between the SDLR self-control and the OLE learning outcomes (r=.39). At the same time, the correlation coefficient between self-management and

Table 14

Pearson Product-moment Correlation Coefficients for the SDLR and OLE Scales
for the Hybrid Group (n=152)

OLE	SDLR		
	Self-management	Desire for learning	Self-control
Online participation enjoyment	.22[*]	.22[*]	.23[*]
Frequency of course logins	.22[*]	.26[*]	.23[*]
Learning outcomes	.34[*]	.36[*]	.39[*]
Intent-to-persist	.38[*]	.34[*]	.31[*]
Course satisfaction	.32[*]	.40[*]	.37[*]
Institutional presence	.28[*]	.32[*]	.31[*]

*Statistically significant when overall error is controlled at the .05 level.

intent-to-persist (r=.38) is higher than that of the combined group, and the correlation

coefficient between desire for learning and online participation enjoyment is lower

(r=.22). If compared with the combined group, the identical moderate correlation

coefficients were revealed between the SDLR desire for learning and the OLE

institutional presence (r=.32) and between the SDLR self-control and the OLE intent-to-

persist (r=.31; Table 14) in the hybrid group.

The overall conclusions for the hybrid and for the combined groups are similar:

moderate correlations were found between the student self-directed learning readiness

and the student affective learning outcomes in the hybrid group.

Relationship Between the Self-directed Learning Readiness (SDLR) and Affective
Learning Outcomes (OLE) in the Online Group

In this section, the research question of the extent to which individual students'

self-directed learning readiness (SDLR) variables (self-management, desire for learning,

self-control) are related to the course learning outcomes in the affective domain (OLE

variables: student online engagement (online discussion board participation enjoyment

and frequency of weekly course logins), perceived course learning outcomes, intent-to-

persist in the program, course satisfaction, and perceived institutional presence) in the online group is addressed. The researcher compiled the Pearson product-moment correlation coefficients for the OLE and SDLR variables in the correlational matrix (Table 15).

All of the correlation coefficients between one of the OLE frequency of weekly online course logins and the SDLR scales are not statistically significant; neither are the correlation coefficients between self-management and intent-to-persist and institutional presence. These also are the weakest correlation coefficients in the online group and are one of the weakest in the entire sample. Overall, the levels and distribution of most of the correlation coefficients are comparable with those for the hybrid group (Tables 14 and 15) with some notable differences. Of the statistically significant correlation coefficients in the online group, the strongest (moderate-level) correlations are between the SDLR desire for learning and the OLE learning outcomes (r=.49) and between the SDLR desire for learning and course satisfaction (r=.44; Table 15).

Table 15
Pearson Product-moment Correlation Coefficients for the SDLR and OLE Scales
for the Online Group (n=88)

OLE	SDLR		
	Self-management	Desire for learning	Self-control
Online participation enjoyment	.36[*]	.39[*]	.27[*]
Frequency of course logins	.06	.17	.02
Learning outcomes	.41[*]	.49[*]	.34[*]
Intent-to-persist	.17	.30[*]	.30[*]
Course satisfaction	.34[*]	.44[*]	.29[*]
Institutional presence	.18	.32[*]	.38[*]

*Statistically significant when overall error is controlled at the .05 level.

There is an overall moderate relationship between student self-directed-learning-readiness factors and the OLE factors, and especially the desire for learning, which

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approaches the moderate-strong level of correlation coefficients, and online course

satisfaction and outcomes. There are some visible differences in the strength of the

relationships between online and hybrid groups for various factors, but especially for the

weekly online course logins, for the perceptions of self-control and the OLE affective

learning outcomes scales, and for some comparable relationships between the two

groups. All of the correlation coefficients for self-control that differ between groups are

in the moderate range.

Comparative Analysis of the Relationships Between SDLR and OLE Scales in Hybrid and Online Course Formats

In this section, the final research question in regard with the extent of difference

in the relationships between SDLRS and OLE scores for students in hybrid and online

courses based on age and prior e-learning experience is addressed. The independent

sample Fisher's z-test was used for comparative purposes to analyze the differences

between the correlation coefficients of the SDLR and OLE factors in the online and

hybrid groups. As mentioned in the prior sections, age and prior e-learning as grouping

variables were excluded from the analysis of data as pertained to the final research

question. Only the 18 Pearson product-moment correlation coefficients based on the

analysis of three SDLR scales and six OLE scales were utilized for the Fisher's z-test

statistical analysis. The following formula of the Fisher's procedure was applied for

computing z statistics for comparing correlation coefficients: $z = \dfrac{r_1' - r_2'}{\sqrt{\dfrac{1}{n_1 - 3} + \dfrac{1}{n_2 - 3}}}$.

The results of the Fisher's z-test are summarized in the Table 16. Overall, sufficiently

strong evidence was obtained to conclude that there are no statistically significant

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differences between correlation coefficients of the student levels of self-directed learning

readiness (SDLR scales) with the OLE scales when hybrid and online groups are

compared regardless of age or prior-learning experience (Table 16).

Table 16

Results of Fisher's z test for Correlation Coefficients for the SDLR
and OLE Scales Between the Hybrid and Online Groups

SDLR	Online participation enjoyment	Frequency of course logins	Learning outcomes	Intent-to-persist	Course satisfaction	Institutional presence
Self-management	-1.03	1.18	-0.51	1.54	-0.15	0.73
Desire for learning	-1.25	0.66	-0.95	0.29	-0.29	0.00
Self-control	-0.29	1.54	0.37	0.07	0.59	-0.51

Specifically, the factors of perceived course satisfaction and learning outcomes

that measure learning outcomes in the affective domain more directly were analyzed for

statistical differences in correlation coefficients between the two groups. The findings of

the test confirmed the initial findings presented in previous sections regarding rather

small differences in correlation coefficients between the online and hybrid groups: the

student perceptions of their self-directed learning readiness (SDLR) and the SDLR

relationships with the course outcomes in the affective domain are rather similar overall

and are closely correlated regardless of the course format. The higher z-statistics for the

self-management and the intent-to-persist, and for the self-control and the weekly online

course logins could be explained by the statistically insignificant correlation coefficient

for these pairs of variables in the online group. The outcome is unusual given the level of

other SDLR and OLE correlation coefficients between the intent-to-persist and other

SDLR scales but may be explained by the overall higher level of persistence to complete

the Web-enhanced course and the program among online learners compared with hybrid

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learners. However, the z-statistic for the weekly course logins is predictable given the lower level of correlation coefficients for that OLE variable and the rest of the scales.

Analysis of Students' Qualitative Responses to Open-ended Questions

The research questions partially were addressed by analyzing the participants' responses to the two open-ended, free-response items in the qualitative section of the OLE instrument. The qualitative section was expected to help generate additional data and add richness to the study's analysis. Depending on the group (hybrid or online), the following questions were posed:

1. What were the principal advantages and strengths of the online or hybrid course that you took?

2. What were the principal disadvantages and weaknesses of the online or hybrid course that you took?

Of 265 questionnaires collected after the survey administration, including five respondents who did not specify the course format, 237 contained responses to the two open-ended questions and 28 left the qualitative feedback section blank (9 respondents in the online group and 19 in the hybrid group). Hence, overall 98.7% response rate for the qualitative response section was achieved in the combined group (87.5% in the hybrid group, n=152, and 89.8% in the online group, n=88). The responses ranged from single words and short phrases, such as "time-management," "instructor feedback was good," to several complete sentences and even short essays provided for each of the questions. The overwhelming majority of the survey participants responded with either short phrases or one-to-three complete sentences. There were typically several pertinent responses to each of the questions in each completed questionnaire: 189 responses overall in the online

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group, and 326 in the hybrid group. Consequently, students in the hybrid group provided richer and more extensive amount of feedback than students in the online group.

Based on the analysis of the feedback, the following six main themes were determined and categorized in the order of overall priority, consistency, and approximate frequency of responses: (a) flexibility and convenience of scheduling, access, and course completion process; (b) online discussion forum aspects: quality, advantages and disadvantages for learning, open communication, class management, and assessment; (c) perception of individual or group "disconnect" from others and from instructor; the resulting "impersonal nature" and insufficient richness of online learning experience; (d) the instructor's and students' feedback online; (e) course design, content, and materials; (f) course procedures, timing, and overall facilitation approach; and (g) technology (software- or Web-related) and IT support aspects and issues. The themes and the essences of correspondent perceptions are summarized in Table 17.

Flexibility and Convenience of Scheduling and Access

This category drew the most consistent, pointed, and proportionally frequent responses in both groups: 65 comments in the hybrid group (approximately 20% of the total of 326 comments) and 67 in the online group (approximately 35% of the total of 189 comments). Survey participants pointed out that ability to access the course materials, complete the assignments, and participate in discussions at any time during the day without having to travel to class was one single most important advantage of the Web-based format. Some of the most typical responses were as follows: "It was great to easily

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Table 17

Qualitative Results Describing Student Perceptions of Advantages and Disadvantages of Online and Hybrid Courses

Theme	Online	Hybrid	Student Perceptions
Course Format-related Responses (in percentages of the *n* of comments in each group)			
Theme 1: Flexibility and convenience of scheduling, access, and course completion process.	35	20	Ability to access course materials, to complete assignments, and to participate in discussions at any time without having to travel to class was referred to as one most important advantage of the Web-based format.
Theme 2: Online discussion forum aspects: quality, advantages and disadvantages for learning, open communication, class management, and assessment.			Learning advantages (including expanded knowledge, sharing experiences, often deeper analysis and learning), flexibilities (asynchronous nature), and overall usefulness of online discussion forums to enhance feedback provision, communication, and sense of community. Various disadvantages and natural limitations of online discussions and participation, including low quality and insufficient richness of discussion were pointed out
Advantages:	16	18.5	
Disadvantages:	0	6	
Theme 3: Perception of individual or group "disconnect" from others and from instructor; the resulting "impersonal nature" and insufficient richness of online learning experience.			Overall strong preference for a classroom environment, in which learners can communicate directly with an instructor and with each other, feel connected with and engaged in the group learning process, view each other's expressions, ask questions, and receive immediate feedback.
Disconnect from each other	12.5	8.5	
Disconnect from instructor	17.5	10.5	

Table 17 continues

Table 17 (continued)

Qualitative Results Describing Student Perceptions of Advantages and Disadvantages of
Online and Hybrid Courses

Theme	**Course Format-related Responses (in percentages of the *n* of comments in each group)**		Student Perceptions
	Online	Hybrid	
Theme 4: The instructor's and students' feedback online.	14	11	The level of interactivity in online discussion forums was pointed out as one of the major factors affecting the quality of the course and related student satisfaction.
Theme 5: Course design, content, and materials.	10	7.5	Broad range of perceptions and opinions pertaining to the course materials posted on the site, the way the site was designed and organized, and any other comments related to the course's curriculum design and content- the "hardware of the course." The answers ranged from concerns about the quality of materials posted ("poorly designed assignments," "attachments do not print well," and "spelling errors and typos galore") to comments regarding online design features and tools ("course tools are not activated" and/or "used properly").
Theme 6: Course procedures, timing, and overall facilitation approach.	6.5	4.5	A range of perceptions and opinions formed with respect to posting procedures, time-lines, workload, and instructor's facilitation style and related student motivational levels.
Theme 7: Technology and IT support aspects and issues.	4	5.5	Difficulties accessing or taking the course because of the Blackboard© software issues, site navigation, etc.

access course information and materials"; "Flexibility in timing and convenience"; "I was able to complete the course while taking other courses, working, and caring for the family"; "Easy way to pick up credit without having to come to class"; "I could access and participate in this class from anywhere and at any time that worked for me"; and "Completing coursework at my own pace and generally according to my own schedule without interruptions."

Students in the online group were consistent with pointing out the advantages associated with convenience and access because they did not need to come to class at all and hence benefitted greatly from the greatest degree of scheduling flexibility and access. Students in the hybrid group did not refer to the convenience and access aspects nearly as often but emphasized the design's flexibility, engagement of multiple learning styles, and the self-paced nature of blended courses.

Online Discussion Forum Aspects: Quality, Advantages, and Disadvantages for Learning, Open Communication, Class Management, and Assessment

Respondents emphasized the learning advantages (including expanded knowledge, sharing experiences, often deeper analysis and learning), flexibilities (asynchronous nature), and overall usefulness of online discussion forums to enhance feedback provision and communication: 60 responses in the hybrid group (18.5%) and 30 responses in the online group (16%). Some of the typical comments were as follows: "Learned a lot from my peers' postings and feedback to my posts. They also had taken the time to think through the material versus sometimes casual class discussions"; "It was very helpful to see others' responses and feedback to improve my understanding of the subject matter"; "The other students taught me so much! I was able to think of different topics in ways I would have not thought before—it was so insightful and the experience

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was very eye-opening"; "Fellow students and instructor providing helpful feedback to move the discussion along"; "I liked to be able to see what everyone else was doing for the course"; and "Excellent information, feedback, and resource sharing…Very engaging" Others made more specific comments about advantages of different ways of learning and assessment associated with online forums: "I liked how the professor would highlight the important aspects of the topic and tell us where we were off-base and how it might impact our grade"; "Accountability for learning, time constraints, and the way the instructor called on some of the low performers for lack of posting"; "Focus. I really had to think deeply and articulate succinctly my thoughts and viewpoints."

Some negative feedback and particular disadvantages of open asynchronous online discussion were provided in response to open-ended questions with regard to this theme—19 in the hybrid group (6%): "It was hard to follow so many different and sometimes repeated posts. Information got all mixed up and was not useful"; "Sometimes I am not comfortable sharing or discussing my views with others, only with instructor"; and "Discussion board—difficult to have ongoing discussion due to students logging in at different times." A number of respondents pointed out the natural limitations of online discussions and participation, including quality and insufficient richness: "Not enough development of discussion. Discussion was stilted and limited"; "Postings. Usually other student postings were minimal and not very engaged with the reading/ topic, so the final response was difficult—there was nothing to reply to"; "Not everyone participated fully and even the instructor may not respond well due to poorly written discussion. It is harder for instructor to moderate the 'class discussion' (online), and it is harder for students to get motivated to participate"; and "Ideas shared were sometimes identical—people were

sort of stepping on each other points. That's not the best learning." Several students commented on the superfluous and forced nature of online discussions: "I felt the discussion was very shallow and pointless. I learned little from it"; "The posting routine was very tedious. It did not feel natural or engaging"; and "You could tell people were responding just to get credit, not to enrich the discussion."

Mainly the hybrid and especially the online learners focused on the advantages of online discussions and re-iterated the importance of information and feedback sharing as well as the openness aspect of online learning. However, many were critical of the ways in which such interaction was being facilitated; they offered multiple and often conflicting solutions to achieving a more effective and productive online discussion without providing the necessary specifics.

Perception of Individual or Group "Disconnect" from Others and from Instructor: Impersonal Nature of Online Learning

The theme of feeling a "disconnect" from the rest of the class in the online environment is persistent in many discussions of online and hybrid learning because of the wide-spread perception of and experience with the medium. Participants in both groups reported the almost identical sentiments, which was remarkable provided that the hybrid format includes face-to-face interaction. The feedback refers to the overall strong preference for a classroom environment, in which learners can communicate directly with an instructor and with each other, feel connected and engaged in the group learning process, view each other's expressions, ask questions, and receive immediate feedback. In the hybrid group, 34 responses (10.5%) reflected the feeling of disconnect from instructor's immediate feedback, class facilitation, and direct involvement; 28 responses (8.5%) indicated the same disappointment about the lack of connection with fellow

students, and thus a very impersonal, "lonely" nature of online course work. The online

group made these perceptions just as clear by providing 24 responses (12.5%) directly

relevant to the lack of direct interaction with other learners in class, and 14 responses

(7.5%) with respect to the instructor. The comments ranged widely in terms of richness

and topical emphasis, but there were several that were characteristic of the overall

feedback in response to the question about the course's disadvantages: "Format is very

impersonal (teacher/ student feel)"; "No connection to the instructor or peers including

the ability to ask questions and receive an immediate response"; "The impersonal nature

of online courses makes it difficult to ascertain the intentions, as related to their tone, of

classmates…there was a profound sense of being neglected"; and "Discussion board

misinterpreted by reader based on their perception, mood, etc. Unable to see facial

expression- non-verbal communication"; "It is horrible for auditory learners or

participatory learners."

Given both formats' characteristics, it is unusual to see proportionately almost the

same percentage of responses related to the perception of disconnect in the online (20%)

and hybrid (19%) groups. The perception may be engrained deeply among all types of e-

learners irrespective of the course design and the extent of online component: for most of

the respondents, online course work is associated with the "disconnect" directly, and the

level of association may vary depending on the degree of prior online learning experience

and personal learning attributes.

The Instructor's and Students' Feedback Online

In the OLE part of the study's questionnaire, the level of interactivity in online

discussion forums was pointed out often as one of the major advantages or disadvantages

by 35 respondents in the hybrid group (11%) and 26 respondents (14%) in the online group. Specifically, students made the following comments: "Instructor was absent from online discussion for the duration of the course—sometimes I wonder if he was even checking the site"; " The class and the teacher's engagement was very minimal. That did not help my motivation—I was constantly checking the status, and there was hardly anything there"; "Sometimes it would take forever to get a comment on my post- very frustrating"; and "Instructor could have been more responsive to student postings." There also were multiple positive comments on feedback and interactivity: "I was impressed with the amount of feedback we were receiving from the instructor on every online post made. He must have been online 24/7! He really cared about our learning and kept us engaged during the course" Other respondents commented on the quality and frequency of feedback delivered by their classmates: "If not for my cohort and their helpful comments to guide me along, I would have been lost in cyberspace. They would point me in the right direction and often send me copies of earlier posts to save me time sifting through online threads. My cohort is amazing!" "It was such a quick tempo of online exchange and it was so interesting that I could hardly keep up but was always looking forward to my evening "online debates" with my group. I really learned a lot from their contributions."

The recurring nature of comments and similar response rates to this theme in both online and hybrid groups may indicate that the concern with the level of online interaction is quite consistent among e-learners regardless of the combination of online and face-to-face contact as long as there are online discussion forums where such interaction takes place.

Course Design, Content, and Materials

The next two themes of the course design and procedures are broad and were created because other responses did not fit in any of the categories more directly related to the online discussion forum learning, participation, and overall sense of engagement. In the theme of course design, content, and materials, answers pertaining to the course resources posted on the site, the way the site was designed and organized, and any other comments related to the course's curriculum architecture and references were grouped together and analyzed. In the hybrid group, 25 responses (7.5%) formed this category; in the online group, 19 responses (10%) were categorized as properly fitting this theme. The answers ranged from concerns about the amount of materials posted to the way students believed their motivation was impacted negatively by "busy work" and "poorly designed assignments." As one student pointed out, "The course was not thought through very well." Students made the following comments: "The advantages were good tools such as drop box, chat room, and the announcement board. The disadvantages were the readings (some were irrelevant or too long), the reflection papers (very unclear), and the deadlines schedule (confusing)." Another respondent offered: "The case studies posted were old and not very interesting. Who cares about the 80s? The online analysis of the cases was not developed well and was a waste of time."

At same time, a number of positive comments were recorded that showed appreciation of the course structure, the format, and the way the discussion questions were weaved into the class topics: "The strength of the course was weekly questionnaires which were like open book tests—they made good review tools, and forced me to read the textbook. I also liked getting answers to questions right away"; "The class online

portfolio was a nice piece to practice our writing and get constructive feedback by instructor without jeopardizing my grade."

The richness of comments and strength of the sentiment were pronounced in the hybrid group, where issues of the course and the Web-page design, quality of reading materials, and their pertinence were discussed at both graduate and undergraduate levels by a wider variety of learners. Because of the "blended" nature of the course design, the hybrid group respondents were sensitive especially to the issues of curriculum architecture, planning, and requisite delivery mechanisms.

Course Procedures, Timing, and Overall Facilitation Approach

In the theme of course procedures, timing, and facilitation approach, the student feedback related to the course "rules and regulations," the posting schedule, the system of rewards and punishments, the "culture" and "software" of the course, and related concerns were grouped together, reviewed, and rated. In the hybrid group, 15 responses (4.5%) were included in this theme, and in the online group, 12 responses (6.5 %) were selected as the most closely related to the premise of the theme. The following comments were typical of the responses included in this category: "The assignments were not synchronized with the reading schedule—we were either ahead of the game or falling behind" and "Being in the dark as to what to post and when"; "I really learned a lot from the course assignments in class and online. I liked the half-class and half-online approach, and the great job the teacher did to stimulate our participation"; "We were able to discuss stuff that we missed in class in the discussion forum, so we closed all the gaps"; "Grading was way too harsh. The instructor made no accommodations for working parents. In addition, she stifled the discussion by posting extensive comments

and responding very critically to every post. The course was torture;" "The amount of work was unreasonable—we could not retain anything with such quantity and at such neck-breaking pace."

The comments and perceptions did not reveal any particular tendencies or trends in either online or hybrid groups and were distributed relatively evenly between the two course formats. The proportion of critical comments and positive feedback also was relatively equal between the online and hybrid learners and focused primarily on issues of workload, grading, and instruction facilitation styles.

Technology and IT Support Aspects and Issues

Comments in response to the question on disadvantages of online or hybrid courses that were directly or indirectly related to difficulties that learners experienced accessing or taking the course because of the Blackboard® software issues or related problems were grouped and categorized into the theme of Web technology and support problems. The theme included also the respondents' personal difficulties navigating the online platform (other than issues pertaining to the actual course design) and lack of program or administrative support for online learning, and related issues. Eighteen responses in the hybrid group (5.5%) and eight (4%) in the online group formed this theme. Typical answers included the following: "Being constantly logged out by the system did not make it an enjoyable experience"; "I think Blackboard is an antiquated system which does not allow for all the flexibilities necessary for quality online communication"; "I had difficulties understanding and using Blackboard, but neither the teacher nor IT staff provided much help"; and "Limited technological capacity of my computer and the school's tech support made it a 'perfect storm' of problems during this

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class." It is evident that the level of frustration and difficulties experienced by learners is consistent in both formats (groups) and is not related to the course format.

Summary

In this chapter, the results of the quantitative and qualitative analyses of the study are presented and discussed to address the research questions. The results of the descriptive statistical analysis, including comparing means, suggested that there was no statistically significant difference between graduate and undergraduate students.

The first research question concerning the overall relationships between student self-directed-learning readiness (as measured by the SDLR scales) and affective learning outcomes (as measured by the OLE scales) for the entire sample (both online and hybrid groups) was answered by analyzing the correlation coefficients for respective factors of both instruments. The findings revealed that there is an overall moderate relationship between self-directed-learning readiness and learning outcomes in the affective domain. The SDLR predictors were found to be moderately useful in predicting both the students' course satisfaction and course learning outcomes in online and hybrid courses combined. At the same time, student age and prior e-learning experience showed very weak correlations for the combined group and were found to be poor predictors of any of the affective learning outcomes. Hence, age and e-learning experience were considered irrelevant and were excluded from further analysis of relationships between variables in each of the groups (online and hybrid) and for comparative purposes.

The second and third research questions were addressed by analyzing Pearson product-moment correlation coefficients between the SDLR and OLE factors separately in the online and hybrid formats (groups). The overall relationships between the variables

displayed similarity in both instruments: there was a moderate level of direct positive

relationships between self-directed learning readiness scales and learning outcomes in the

affective domain (OLE scales) among the online course participants and among the

hybrid learners. The comparative analysis of the SDLR and OLE variables' correlations

conducted in response to the final research question about the extent of difference in the

relationship between SDLRS and OLE scores for students in hybrid and online courses

based on age and prior e-learning experience found no statistical significance of

difference in the relationship between any of the group of variables. The independent

samples z-test for comparing correlations produced no sufficiently strong evidence to

conclude that there are statistically significant differences in the relationships between

SDLR and learning outcomes in the affective domain (OLE scores) among hybrid and

online learners regardless of age or prior-learning experience.

The qualitative analysis of the student responses regarding strengths and

weaknesses of online and hybrid courses revealed rather consistent concerns about the

insufficiently interactive level of discussion forums (especially the level of instructors'

involvement), impersonal nature of Web-enhanced learning, disconnect from the

instructor and classmates, and some limitations with respect of overall richness of

learning experience, course design issues, workload, and so on. The list of advantages

and strengths included scheduling convenience and flexibility, access, time-management,

especially in terms of the asynchronous nature of online and hybrid courses, qualities of

the open forum discussion, reflective (deeper) learning (depending on the subject),

interactivity level, quality of feedback, and some course design and process-related

advantages.

CHAPTER V

DISCUSSION, IMPLICATIONS, AND CONCLUSIONS

The purpose of this research was to identify and analyze the relationships between individual students' self-directed readiness (SDLR) variables (self-management, desire for learning, self-control) and course learning outcomes in the affective domain (student online engagement (frequency of logins and enjoyment of participation in online discussion forums), perceived course learning outcomes, intent-to-persist in the program, course satisfaction, and perceived institutional presence) as measured by the Self-directed Learning Readiness (SDLR) instrument of Fisher, King, and Taque (2001) and the Online Learning Environment (OLE) instrument of Shin and Chan (2004) within and between online and hybrid course-format-associated groups. The relationships with prior electronic learning experience and age were considered as well. The two instruments were combined into the two-part instrument in addition to the two open-ended questions for the respondents' qualitative feedback and the demographic form.

In previous chapters, articulation of the research problem, principal issues of self-directed learning readiness (SDLR) and affective learning domain based on the review of contemporary literature, the study's design and development, and analysis of findings were presented. In this final chapter, the overall results are summarized, limitations are given, and implications of the study are presented along with pertinent conclusions. This chapter also provides additional insight on the issues necessary for understanding the implications of the research for online and hybrid learning in the context of the student SDLR and other variables included in the instruments' design.

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Summary

Contemporary research in learning and instruction indicates that there is a direct positive relationship between the level of student self-directed learning readiness and success in electronic learning (e-learning) as tested by a variety of instruments, using different sets of measures associated with self-perceived and externally assessed learning outcomes. In addition to re-examining such relationship by using Self-Directed-Learning-Readiness (SDLRS) and Online Learning Environment (OLE) instruments, this study expanded the research task by comparing the main two Web-based delivery formats (hybrid and online) for differences in SDLR and affective learning outcomes, as well as possible differences and relationships associated with prior e-learning experience and age. First of all, the extent of the relationships between the SDLR and OLE factors in the combined group is explained. Second of all, the explanation is followed by the discussion of the extent of the relationship between the SDLR and OLE factors within and between hybrid and online groups. Finally, the results of the groups' comparison and relationships age and prior e-learning experience are elaborated upon.

To gather necessary data and obtain preliminary findings, the convenience sample of 273 graduate and undergraduate students in several degree programs at a private university in Northern California was selected and asked to complete an 80-item combined questionnaire, which comprised both SDLR and OLE modified instruments. The respondents answered questions on the basis of either hybrid or online experience in their respective programs, thus forming two groups within the sample: online and hybrid groups. Course format is the grouping variable in the study.

Moderate and weak-moderate positive relationships ranging from $r=.17$ to $r=.42$ between the level of perceived self-directed learning readiness (SDLR scales) and the affective learning outcomes (OLE variables) were discovered in the online and hybrid groups combined. Furthermore, the SDLR factors combined into one scale and used as part of the direct multiple regression analysis were found to have some prediction value for both OLE variables of course satisfaction ($R^2 =.17$) and course outcomes ($R^2 =.19$). The stepwise regression analysis identified desire for learning as the most powerful of the three SDLR factors used in the analysis; desire for learning has the strongest prediction value in explaining variance within the affective learning outcomes measured by the OLE instrument.

At the same time, the study did not find any statistically significant relationships between age, prior learning experience, and the SDLR and the OLE scales. More importantly, no statistically significant differences between online and hybrid formats in terms of differences in relationships between the two groups for any of the variables were discovered. The latter finding was an important answer to one of the study's central research questions.

The most pronounced themes derived from the qualitative part of the analysis were the following: (a) flexibility and convenience of scheduling, access, and course completion process; (b) online discussion forum aspects: quality, advantages and disadvantages for learning, open communication, class management, and assessment; (c) perception of individual or group "disconnect" from others and from instructor; the resulting "impersonal nature" and insufficient richness of online learning experience; (d) the instructor's and students' feedback online; (e) course design, content, and materials;

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(f) course procedures, timing, and overall facilitation approach; and (g) technology (software- or Web-related) and IT support aspects and issues. The flexibility and convenience of scheduling and access, the perception of individual or group "disconnect," and the importance of the online interactivity level were the themes that attracted the most frequent and rich responses from the sample participants.

Limitations of the Study

There are several limitations for this study. The researcher used a convenience sample of graduate and undergraduate students of only one selected university. The university does not offer completely online or even hybrid programs, only select courses, so the student population predominantly is used to and have a stronger preference for a more traditional face-to-face instructional format.

The participants took two types of courses: a hybrid format and a completely online one. The type of the course (online or hybrid) may have been a decisive factor for students' self-selecting either one or another that shaped their course expectations and subsequent satisfaction irrespective of their self-directed learning readiness (SDLR) as measured while in the program.

In connection with the course format, another limitation should be mentioned: no graduate-level responses were collected for the online format, only undergraduate ones, whereas there were both undergraduate- and graduate-level participants in the hybrid group. Such lack of graduate online responses may have had some effect on the data distribution and overall results.

Scores on SDLR have been observed to be skewed negatively due to the self-reporting nature of the SDLR data collected for this study. For example, the

overwhelming majority of respondents have identified themselves as highly self-directed learners compared with the number of those identifying themselves as not self-directed learners. There is an element of social desirability bias that may have affected the final SDLR scores (Chou & Chen, 2007; Kirkman, Coughlin, & Kromrey, 2007).

More importantly, student population used for the sample is different from adult students in other institutions and educational settings: there historically has been a higher-than-usual proportion of highly professional and accomplished midcareer adults, who possess stronger perceptions of self-worth and self-efficacy. Such perceptions may have had a stronger impact on their assumptions of own SDLR compared with other student populations. Because there is little variation in SDLR scores reported in this study (only 4% scored below the threshold SDLR score of 150), the lack of variation affected the analysis that impact the magnitude of the conclusions.

The issue of an instrument's applicability is relevant to the Online Learning Environment (OLE) questionnaire used in this research. The OLE instrument originally was designed for online students enrolled in completely online programs. The instrument was not designed for or tested previously on hybrid or traditional learners, who are part of this study's sample, notwithstanding the apparent relevance of the majority of the items to any type of Web-based learning population. Hence, there may be some limitations with the applicability of the OLE instrument to the mixed (hybrid and online) learners enrolled in traditional programs.

Finally, the way the factor of age was measured presents a limitation of the study. The age-related data distribution for adult learners in their 20s through 40s and above was such that clustering age groups became necessary: from five categories to three. Although

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the correlation coefficients between age and other factors in the study were computed using the original five categories, the results may have reflected some of the methodological challenges and limitations with clustering age groups.

Discussion

The discussion of the most important study's findings and related issues is presented in this section. The discussion is centered on addressing the most notable outcomes of the research pertaining to the research questions formulated for this investigation. Although the first research question is discussed in a separate section, the remaining three research questions yield themselves to be grouped together in a section for comparison purposes of discussing the study's results.

Extent of the Relationship Between SDLR and Affective Learning Outcomes in the Combined Online and Hybrid Learning Group

The results of the independent-samples t test confirmed some of the findings of earlier research of adult learners that did not discover statistically significant differences in perceptions and overall learning between graduate- and undergraduate-level adult students. The student level in adult education is believed to play a lesser role than in the traditional-student-age education as shown in the review of contemporary research. Student demographics data have been examined in various Web-based formats since the late 1990s, and the results have been showing consistently that students in Web-infused and online courses generally comprise a more mature population: working adults in their 30s and 40s who find the Web-based formats' convenience being one of the main reasons for selecting such courses (Bocchi, Eastman, & Swift, 2004; Shin & Chan, 2004; Tallent-Runnels et al., 2006). No studies have been identified in which mixing undergraduate and graduate adult students for sampling purposes has been viewed as problematic

methodologically, and this investigation's results, reporting no statistical significance between graduate and undergraduate groups, confirmed the theoretical assumption further (Tallent-Runnels et al., 2006). Furthermore, Shin and Chan (2004), whose OLE instrument was used in this study, found no statistically significant differences in online behaviors such as login frequency, average time spent per visit, and other self-perceived learning outcomes between undergraduate and graduate students. The findings challenged some practitioners' perspectives that online learning may be more suitable and ultimately effective for graduate students due to the relatively more mature and academically enhanced attitudes and perceptions. One of the outcomes of this dissertation study—no statistical significance found between graduate and undergraduate student SDLR levels and OLE-related perceptions—may have some relevance with the Shin and Chan's findings. However, there is an important difference between the student populations and hence samples used in both studies: more mature adult learners (for example, 31.6% of the sample's undergraduates were 41 years and above) were part of the study's sample, whereas Shin and Chan collected mostly traditional-student-based data.

Several observations can be made upon reviewing the descriptive statistics for the scales in the combined group. For example, among the OLE scales, the second highest mean of the five scales is 3.83 (SD=0.64) for institutional presence. The study participants responded that they agreed, on average, that the institutional support and facilitation of e-learning were factors of successful Web-enhanced learning and positive outcomes. The finding is consistent with the research outcomes pointed out by Rivera, McAlister, and Rice (2002) and Roach and Lemasters (2006), who emphasized school

support, in addition to faculty performance, as single most important prerequisites for success in e-learning, especially in the online format.

The mean for the OLE learning outcomes (M=3.55) indicates that the students agree for their overall perception of both online and hybrid course outcomes, including their perceptions of the amount of knowledge gained, professional enrichment, and specific skills acquired, overall intellectual growth, and so on. The mean together with the high degree of variability for the perceived learning outcomes (SD=0.94) could be attributed to a rather varied typology of courses in organizational behavior, public administration, applied economics, social ethics, and so on. The evidence highlights a degree of inconclusiveness in assessing learning outcomes, specifically those based on self-reported perspectives. Several studies referenced in this investigation have not been able to develop effective measures or pinpoint decisive factors that influence learning outcomes in the e-learning environments both separately or on the comparative basis, often arriving at contradictory or only partial conclusions. Many have emphasized the multiplicity of factors and levels of analysis that likely contribute to the difficulty of assessment and the results that vary widely (Reasons, Valadares, & Slavkin, 2005; Tallent-Runnels et al., 2006).

The descriptive results for the OLE intent-to-persist, which has the highest mean of all OLE variables (M=4.38) together with the lowest variability level (SD=0.55) reflects agreement in overall motivation to continue in and complete the respective programs, regardless of obstacles and difficulties, and the sense of importance to earn an intended degree. The findings are consistent with the outcomes of research efforts in the area of adult learning (both online and inclass) that show a generally high level of

motivation and persistence to complete their studies (especially in the online environment) among adult learners regardless of the academic level or an area of study. Such persistence often is connected theoretically and empirically with the self-directed nature of adult learners in general (Boyd, 2004; Frey, Alman, Barron, & Steffens 2004; Guglielmino & Guglielmino, 2003; Shin & Chan, 2004).

It also is likely, however, that students perceived some of the questions, comprising the intent-to-persist scale, as self-explanatory because the programs they are enrolled in are the "lock-step" cohort-model programs, in which students followed a prescribed sequence of courses and experienced an element of the extrinsic "cohort pressure" to continue. The intent-to-persist scale is comprised of only four items and has a rather low reliability coefficient (Table 4). The results reflect a somewhat higher level of self-directed learning readiness (based on self-perceptions) and understanding of course learning outcomes among adult students due to a longer professional and overall life experience as compared with traditional students.

The means of the SDLR factors (self-management, desire for Learning, and self-control—ranging from M= 4.04 to M= 4.36) indicate, on average, agreement to strong agreement, and the SDLR-related data are skewed negatively. When compared with Fisher et al. reported means and standard deviations, the difference measured in terms of effect size is large (see Table 11). The results may be explained by the respondents' higher level of self-perceptions and a degree of social-desirability bias expected among students in general and adult learners in particular. Such assumptions related to the SDLR factors often are supported in the literature, which shows repeatedly high level of adult learners' self-perception, self-motivation, and strong belief in the uniqueness of their

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educational process based on experiential learning (Corbeil, 2003; Fischer et al., 2001; Guglielmino, 1977; Smedley, 2007). In this study, the SDLR total scores indicating that students have developed SDLR skills (M=150 and above) are discovered for 99.6% of all students in the sample—a considerably higher percentage than those with the requisite SDLR scores in the Smedley's study (2007) replicating the Fisher et al. (2001) instrument; in that study, 32.2% of the participants earned scores lower than the cutoff point of 150 that indicated that they were not ready for SDL approaches. It is noteworthy that the Smedley's (2007) sample consisted of mostly younger (18 to 21 years) traditional students.

The relationships between student self-directed-learning readiness (as measured by the SDLR scales) and affective learning outcomes (as measured by the OLE scales) for the entire sample are found to be not only statistically significant between almost all of the factors examined in the study but also ranging from weak-moderate to moderate for most of the variables (r=.17 to r=.42). Mostly moderate correlations between SDLR variables and affective learning outcomes (OLE factors) emphasize the established direct positive relationship between SDLR and perceived learning outcomes in the affective domain. The results are reflective of the overall importance of the SDLR level for understanding student perceptions of satisfaction with, experience, and success in e-learning.

The evidence from the analysis validated some earlier research on the direct positive relationship between self-directed learning and student assumptions of their performance in Web-enhanced courses. For example, Corbeil (2003) found the direct positive relationship between the combined SDL factors and academic performance

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(r=.51) in the correlational analysis using both Pearson product-moment correlation coefficients and an even stronger indication of the SDL's utility as a predictor variable. Nevertheless, the proponents of the SDL role in e-learning point out that the relationship between the factors remains moderate at best. Although they confirm the SDL utility and point out related assumptions tested in several research studies, the researchers continue to call for additional investigation of the SDL function in different Web-based environments (Corbeil, 2003; Hodge, Tucker, & Williams, 2004; Lynch & Dembo, 2004; Tallent-Runnels et al., 2006). Self-directed learning readiness is a widely-recognized and tested variable in e-learning and should be accepted as an important measure of understanding student success and satisfaction in the Web-enhanced course. This study has made a contribution in strengthening that argument.

Separately, the correlation coefficients obtained for age and prior e-learning experience and all of the SDLR and OLE factors in this study either bear no statistical significance regardless at what level the overall error is controlled, or, if statistically, significant are very low in only two cases. The correlation coefficients for age and e-learning experience ranges from r=.01 to r=.17.

The findings are contrary to some of the arguments made in the literature on the topic of age and prior e-learning experience: although the results varied dramatically (which may explain this study's results for age and e-learning experience testing), several studies indicated that learners with previous e-learning experience generally had better perceptions of the Web-enhanced design and environment in both online and hybrid courses than learners without or with very limited e-learning experience. The studies reported overall positive relationships between the number of hybrid and online courses

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completed by learners (or other measures of e-learning experience) and perceptions of achieving more learning outcomes and feeling of more satisfaction with such experience. At the same time, the age factor's relationship with any of the e-learning variables has not been found statistically significant (Hodge et al., 2004; Muilenburg & Berge, 2005; Swan, Polhemus, Shih, & Rogers, 2001; Tallent-Runnels et al., 2006). The results of this dissertation research did not support either of the arguments made in the e-learning-experience-related literature. At the same time, this study's results supported the no-statistical-significance finding for the relationship between the factor of student age and the factor of e-learning satisfaction and perceived outcomes (performance) echoed in the literature.

Based on the results of the correlational testing, the regression analysis for the SDLR scales as predictor variables and for the OLE variables as criterion variables led to the conclusion that there are statistically significant linear relationships between the factors. The relationships are the strongest between the SDLR factors and the course satisfaction ($R^2 = .17$) and between SLDR and the course outcomes ($R^2 = .19$). The SDLR desire for learning was found to be the strongest predictor of variance in the OLE affective learning outcomes of the three SDLR factors used in the study. There is evidence of some predictor value of the SDLR variables for the assessment of affective learning outcomes in the electronic learning environment. The course satisfaction and student performance (measured as outcomes, such as grades, or course perceptions) in Web-based courses has been linked in empirical literature on almost every aspect of e-learning since the early 2000s (Buzzetto-More, 2008; Koohang & Durante, 2003; Lynch & Dembo, 2004: Reasons, Valadares, & Slavkin, 2005). Students' experiences in the e-

learning environment and their satisfaction also have been examined in a number of

descriptive and empirical studies dating back to late 1990s (Althaus, 1997; Edwards &

Fritz, 1997; Hansen & Gladfelter, 1996; Richards & Ridley, 1997; Sullivan, 2002).

Although statistically significant, the SDLR predictor value for course outcomes

and satisfaction in this study is much lower than what was reported by Corbeil (2003),

who used a different instrument for the self-directed-learning-related data collection and

obtained (R^2=.55), but much higher than what was reported by Lynch and Dembo (2004)

for self-efficacy (R^2=.07): a variable closely related and sometimes included as a factor in

SDLR instruments. There clearly is no consensus at present on the SDLR's level of

predictability, but there is an emerging consensus on the predictor's statistical

significance. Additional studies would be useful for testing SDLR and related factors as

predictor variables by utilizing different instruments and varied samples.

*Extent of the Relationship Between SDLR and Affective Learning Outcomes in the Online
and Hybrid Learning Groups Separately and by Comparison*

In response to the second and third research questions, the extent of the

relationships between SDLR variables and affective learning outcomes (OLE factors)

were examined within online and hybrid groups separately on the basis of the Pearson

product-moment correlation coefficients. The relationships between respective variables

were very similar in both groups ranging from weak-to-moderate to moderate direct

positive relationships. Age and prior e-learning experience variables were excluded from

consideration for the remainder of the study (specifically the fourth research question)

because no statistically significant relationships involving the two factors were found

after testing them in the combined group.

The high level of engagement in the online format, especially in the level of enjoyment participating in online forums, in both hybrid and online groups was an expected result given the degree and frequency of learners' involvement in online courses dictated by the format's nature and course design when compared with hybrid courses.

The more in-depth comparative analysis of the correlation coefficients between the SDLR and OLE variables using the independent samples z-test for comparing correlations also found no statistically significant differences in the relationship between all of the variables. The analysis was conducted in response to the final research question about the extent of difference in the relationship between SDLRS and OLE scores for students in hybrid and online courses. Hence, no sufficiently strong evidence was discovered to conclude that there are statistically significant differences in the relationships between the SDLR factors and the OLE affective learning outcomes among hybrid and online learners.

Although the above conclusions are based on differences in the relationships between factors, those findings may remind us of the research outcomes achieved by Koohang and Durante (2003), Lynch and Dembo (2004), Reasons et al. (2005) who have questioned any significant differences in learning outcomes, student performance, and satisfaction between different learning formats, and specifically the online and the hybrid ones. The notion of the hybrid format being the "best of both worlds" (Lindsay, 2004) by combining faculty-supported, face-to-face environment of a traditional classroom with flexible and dynamic elements of online education is widely accepted and has a very strong scholarly following. For example, some researchers offered empirical studies pointing out that hybrid-course format enhances the students' sense of community,

supports cohort learning, and increases course attendance and hence retention (Riffell & Sibley, 2004; Rovai & Jourdan, 2004). No consensus on the topic is within reach, and this research study has added arguments to those who believe that real differences between the two e-learning formats are minimal even though research investigation should continue to strengthen or weaken the arguments further.

Discussion of Qualitative Data Pertaining to the Research Questions

The respondents' qualitative feedback on the level of involvement and the importance of interactivity in online discussions was almost 30% more frequent in the online group compared with the hybrid groups, thus confirming the quantitative results on online engagement and reiterating the factor's weight in the online group. The theme of the level of interactivity in the Web-based learning is recurring in the literature on the topic and is one of the most tested variables in empirical research. Online interactivity often is viewed somewhat differently from strictly the issue of online discussion forums, as the former refers more directly to frequency and timeliness of online responses rather than their quality and helpfulness per se. Interactivity in the Web-based or enhanced courses has been found to be positively and directly correlated with course satisfaction (Bee & Usip, 1998; Gunawardena & Duphorne, 2001; Mortensen & Young, 2000; Swan et al., 2001; Wells, 2000). Students tend to view the level of online interaction as a measure of engagement in the online course and as a helpful technique to overcome the somewhat impersonal nature of e-learning. In the respondents' mind, online interaction may not be always topical or very informative, but it helps to facilitate the discussion and minimize some of the "disconnect" issues discussed in the section above.

Both the qualitative and quantitative sets of results are consistent with findings published in the literature on completely online courses that point out the course design and online interaction as the most recognized components of students' performance, perceived learning, and satisfaction with experience in the online classes (Buzzetto-More, 2008; Wu & Hiltz, 2004). In contrast, Rivera, McAlister, and Rice (2002) and Roach and Lemasters (2006) emphasized school support and faculty performance as more important prerequisites for success in the online format: results that were not confirmed in this study by analyzing the correlation coefficients between OLE institutional presence and each of the other factors.

At the same time, the disconnect from the instructor comprised an almost 50% more frequent qualitative response for the online group as compared with the hybrid group emphasizing the importance of the instructor's factor in the completely online environment. The theme of disconnect from fellow learners in the online format also had an approximately 50% more frequent qualitative response than the response frequency in the hybrid format. Once again, provided the nature of the format, which has no face-to-face classes, such perception of disconnect is natural and is expected to be high. The sentiment, reflecting a learner's isolation, is typical for descriptive and empirical studies on e-learning and often is highlighted as one of the main disadvantages of e-learning in general and completely online formatting in particular (Tallent-Runnels et al., 2006). The findings of the dissertation research confirm the assumptions and results described in the literature.

Online technologies and completely online courses generally support more individualized and asynchronous learning process. Online courses are more acceptable to

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and effective for the type of learners who tend to rely on the Internet constantly because of convenience and flexibility of scheduling and for those who express preference for completely online programs in general (Buzzetto-More, 2008; Gallini & Barron, 2002; Sharma & Fiedler, 2004; Taylor & McWilliam, 1998).

Although most of the themes identified on the basis of the qualitative feedback were emphasized consistently and frequently in both hybrid and online groups, the advantages of time flexibility and access, the concerns about the course design, the overall workload, and the importance, level, and quality of online discussions (especially those of the instructor) were more frequent proportionately and were often more pronounced among online learners compared with those in the hybrid course format. For example, the frequency of the qualitative responses to the theme on the convenience and flexibility of the online course scheduling and access is 65% higher in the online group as compared with the hybrid one.

Implications for Practice

There are several important implications of the study's results for higher education practice and specifically for adult learning. The fact that SDLR factors are correlated moderately with some of the self-perceived learning outcomes in the affective domain confirmed the results of previous research that students' self-directed learning readiness (SDLR) indeed has an established relationship with their success in e-learning formats whether the success is observed (as some of the literature points out) or self-perceived. If prior research was mostly focused on online courses, the evidence in this dissertation research adds to a small but growing body of research that points out the equally important implications of SDLR for hybrid courses as well. Students and advisers

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may have to be cognizant of the SDLR skills' importance in hybrid courses to the same degree as they are with respect to online course environment.

It would be useful to adjust admission or enrollment decisions accordingly and avoid assumptions that students lacking in SDLR skills would find a more favorable and supportive environment in a hybrid course as compared with an online one. It is likely that students in a hybrid course will find themselves equally challenged in terms of the need for employing their SDLR-related skills to meet course expectations and maximize the course learning outcomes. Faculty and curriculum designers might benefit from focusing their efforts on developing Web-based programs that would incorporate content-related (or general) exercises (either as part of the required assignments or separately) for developing SDLR appreciation and related skills early in the program sequence. Regardless of the format, such efforts would allow faculty to improve monitoring of their students' progress in either developing or strengthening their SDLR skills that would be helpful for their academic success. The SDLR exercises could include weekly self-directed journals that would be part of the 1- to 2-year-long portfolio process designed to build up the students' SDLR knowledge and skills; the journals periodically could be reviewed by faculty or student advisers for completion purposes (based on predetermined) interim stages and for extra grade. Alternatively, study groups could be assigned to work on the SDLR-related curriculum and assess each other's SDL learning via the peer review process.

The student level of SDLR as a predictor of success in online and hybrid courses also can be a valid measure to be taken into account as concluded by this study and discussed in the review of literature. The results may offer additional insight to faculty

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and educational administrators who advise adult students on the degree completion, other aspects of academic life, and design curriculum to maximize course and program learning outcomes. The results have implications for students themselves who select courses and formats in which the courses (and degree programs) are offered by a multitude of academic institutions in the US alone. For example, a desired level of SDLR (however measured and assessed) could be listed next to particularly challenging courses offered in the hybrid or online format. Advisers may choose to recommend against enrolling in some Web-enhanced courses or programs (especially those with challenging contents, such as statistics, philosophy, or chemistry) to some students who may have had a mixed academic performance record or perhaps may be lacking in SDLR. Students who may be lacking SDLR skills could be advised to take special SDLR-based classes or tutorials as part of the schools' learning centers. Alternatively, such students could be directed to look into academic or programmatic alternatives that do not require strong SDLR skills where more faculty-directed methods are emphasized. Developing SDLR-related academic assessment procedures or, even more so, making appropriate SDLR-based administrative judgments would be a real challenge. Nevertheless, such recommendation is appropriate considering the body of literature associating SDLR increasingly with effective learning.

Similarly, the profound student preference for and the level of appreciation of the online discussions as evidenced in the qualitative part of the study (Themes 2 and 4) provides a set of useful indicators for the success of Web-based course work. Students may be able to anticipate a rewarding experience and favorable learning outcomes if the course's online discussion is well-designed overall, connected with the assigned course

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materials, and includes well-spelled-out and meaningful expectations not only from students but from instructors as well. Assignments that are posted to fill in the time and online space (so-called "busy work") are singularly detrimental to the success and developing positive perceptions of a Web-based course. Instructors are encouraged to make logical and explicit connections between online assignments (especially interactive exercises (discussions)), and course objectives. It is also important to be very selective about the reading materials posted online in connection with discussions to avoid visual and cognitive overload for online and hybrid learners and to stimulate the student motivation to respond. Equally, breaking online discussion assignments into manageable chunks would improve the response quality, frequency rate, and overall learning. Well-timed, properly spaced-out, and pertinent online assignments also are likely to make a positive contribution to the enhancement of the student SDLR skills.

Indeed, high level of engagement and interactivity of an online forum is an important characteristic of a successful online forum: the themes derived from the student feedback make the quantity and frequency of the student and instructor online posting (the interactivity level) the single most important characteristic of successful online learning. Ideally, online interactions become a daily occurrence, and the discussion assignments are broken down in small segments and are highly topical to stimulate student interest and increase the response rate. An instructor should anticipate positive results from such an interactive course and may need to design the course and adjust online teaching strategies and techniques accordingly: for example, a higher percentage of the final grade could be assigned to online discussions, and students should be encouraged to lead threaded discussions rather than wait for peer posts. By the same

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token, instructional efforts to stimulate online interactions by faculty's frequent and welcoming remarks should be emphasized. Instructor's leadership and management skills would stimulate online interaction and would encourage less proactive students to participate. As the student feedback indicates, nothing undermines the online discussion more than the faculty infrequent or discouraging online contributions.

Additionally, in order to address the instructional concern over the perceived "disconnect" between learners and instructors in a Web-based course, utilization of multimedia learning tools is recommended. Such tools consist of special course programming that incorporate elements of podcasting, short educational films and video clips to add to the visual aspect of learning and synchronize it with other instructional tools. The contemporary research and practice have been focusing on multimedia learning for several years, so there is sufficient practical literature in addition to curricular resources available for utilization in e-learning environments.

The research findings pointed out that age and prior e-learning experience do not have statistically significant relationships with any of the factors of self-directed learning readiness and affective learning outcomes examined in this study: yet another inconclusive outcome that is echoed in some of the literature on the topic. It is apparent that more studies using much larger samples would need to be conducted to assess the two factors' (age and prior e-learning experience) statistical significance and the factors' value as predictors of student performance in and satisfaction with Web-based learning formats. In the meantime, gauging student performance in Web-based courses on the basis of age and prior e-learning experience may be considered a fruitless exercise and certainly not an evidence-based practice in the curricular and academic advising

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procedures. Curriculum designers and advisers should be recommended against factoring in age and e-learning experience in their curriculum-planning or implementation efforts. The two factors should not play any role in the process of making Web-based courses or programs more appealing to certain student demographic populations. Less mature or more Internet-savvy students are likely to perform equally well with their demographic counterparts in the e-learning environments.

The overarching goal of this research was to compare the two e-learning formats—hybrid and online—by means of comparing the relationships between the SDLR and OLE factors in each format. The overall finding that no statistically significant differences exist between relationships for the two formats provides evidence for those in the field who believe in the equal value and learning utility of both formats. Such proponents of equal standing of hybrid and online learning modes attribute often any significant differences to confounding variables that had little to do with the design and pedagogical characteristics of both formats. Hence, an argument can be made that an institution's organizational and human capacities vis-à-vis overall learning goals may need to be taken into consideration rather than perceived educational advantage of one format over the other. The qualitative section of this research defines one overwhelming theme in terms of quantity and consistency of student feedback: students' most pronounced perception of Web-based courses is that of convenience and flexibility of scheduling and access. Consequently, the students appreciate both the hybrid and online formats' asynchronous nature that allows them to self-pace and self-direct their learning efforts (a very clear connection with SDLR). In practical terms, this students' perception could guide the curriculum design efforts to focus on and strengthen the asynchronous

features of online and hybrid courses (discussion forums, self-paced online exercises and test, flexible timelines, and so on) rather than synchronous components (online chat rooms, videoconferencing, and so on) that appear to be less appreciated by adult learners.

The said recommendation, however, is conditional on the type of the student population targeted for e-learning. For example, completely online courses and programs designed for a more traditional distance learner (especially for out-of-state and international students), in fact, may benefit more from having a balanced composition of asynchronous and synchronous online features to minimize the perceptions of "disconnect" from other learners and the instructor as evidenced strongly by the qualitative student feedback in this study (both online and hybrid groups).

Suggestions for Future Research

Several suggestions for future research efforts can be made after drawing conclusions from the results of this correlational study that examined relationships between self-directed learning readiness (SDLR) and course learning outcomes in the affective domain in the two Web-based formats.

A different set of variables could be developed and used as indicators of course learning outcomes and satisfaction to continue testing relationships between these variables and SDLR. In contrast with the self-perceived, self-reported nature of affective outcomes, additional and improved efforts could be made to operationalize learning outcomes on the basis of evidence established externally: specific competencies developed, new skills acquired, or other academic or professional advancements achieved. Additionally, more research and analysis are needed to define and operationalize affective learning outcomes further. Notwithstanding of such outcomes

being self-reported and utterly subjective, they form a useful variable and are expected to provide scholars with additional insight on student perceptions of the learning process and related successes and failures as well as the on the function of the curriculum in various settings.

Although this study makes a contribution to the body of research on the relationship between SDLR and learning outcomes, there still is a need for additional and especially comparative studies on the basis of various e-learning formats and student populations in various contexts. The area of e-learning especially can benefit from evidence-based, richer, and more comprehensive empirical, mixed, and qualitative studies. There are numerous limitations with the quality, quantity, and reliability of qualitative feedback provided to supplement a questionnaire (such as the case in this study). Hence, a well-designed qualitative study (perhaps one based on the grounded-theory research method) may be instrumental in analyzing an array of student and faculty perceptions of the role of SDLR in online and hybrid learning more comprehensively.

A great deal of research has been focusing on assessing online or hybrid learning at the course level. At the same time, few studies have been conducted on entire online or hybrid programs. Such research could integrate multiple variables based on program design, quality of instruction, student and faculty perceptions, SDLR factors, and measured learning outcomes. Programs indeed are complex constructs that would require a longer-term commitment and perhaps more systematic and integrated analysis rather than what typically individual-course-based assessments entail. Such analysis could integrate various measures of actual student achievement (competencies and skills

developed), individual perceptions, in addition to measures of faculty effectiveness (self-perceived and externally assessed).

More specifically, the extensive literature review included in this study has not been successful in locating a single longitudinal study on self-directed-learning readiness (SDLR) in various aspects of hybrid or online learning. For example, a longitudinal study assessing the degree to which student SDLR characteristics and skills are developed after spending several years in college or in a postgraduate program would be invaluable for testing of the validity of SDLR instruments and for assessing the impact of various degree levels or programs on SDLR. The study ideally would be of mixed quantitative and qualitative design, including an element of pre- and post-testing, and would be based on a large random sample drawn from the student population of several colleges and programs nation-wide or perhaps even internationally. Such research undertaking would be a daunting but not an impossible task provided the contemporary level of cooperation, networking, and data-sharing between leading electronic-learning-oriented universities in different parts of the world. Of course, a possible confound of sociocultural factors would be a matter of methodological concern. Nevertheless, there is a definite need for a large longitudinal multifactorial study of this magnitude.

Because research results based on using factors of age and prior e-learning experience remain inconclusive, additional empirical studies using these two variables would be a helpful contribution. Such studies may continue using correlational design while looking into the specific effects of age and prior electronic learning (e-learning). Age and e-learning could be operationalized as independent variables and assessed on the

basis of students' success, satisfaction, and other measures of perceived and direct learning in both hybrid and online courses or programs.

Testing for differences between Web-based delivery formats (specifically hybrid and completely online courses and programs) should continue as the body of such comparative literature is in the early development stage. No particular methodology has been accepted as the most appropriate for the comparative analysis. Such research might help with not only challenging established assumptions but also with searching for alternative factors that may impact the differences between both formats and hence developing more relevant criteria for future analysis.

Conclusions

Theoretically, notwithstanding some degree of inconclusiveness, a reasonable link has been established between self-directed learning readiness (SDLR) and learning outcomes (operationalized differently) in the Web-based courses. Whether the learning environment is a traditional classroom or is in various forms of e-learning, a good deal of contemporary research supports the statement conceptually (Barnes, Gooden, & Preziosi, 2004; Boyd, 2004; Gallini & Barron, 2002; Hodge et al., 2004; Long, 2001; Nuckles, Kimora, & Pilling-Cormick, 2001; Redding & Rotzien, 2001; Song & Hill, 2007; Young, 2002). Although the results of this study reveal only a moderate level of relationship between self-directed learning readiness and affective learning outcomes, including course satisfaction, there is sufficient evidence to believe that the relationship is not accidental and that SDLR factors can be used, together with other variables, for the assessment and some degree of prediction of academic success in e-learning.

At this point, proclaiming an empirical breakthrough or downplaying the importance of self-directed learning would not be appropriate because a number of factors could affect the result of this and other studies in the area of e-learning. Such factors could be reliability of affective learning outcomes as measures, students' learning style, time for distributing the SDLR or OLE instruments, quality of online learning materials and level of online interactivity, the sample's demographics, students' educational background, prior knowledge for contents, measurement of self-directed learning readiness, sample sizes, and many other variables partially discussed in the prior sections. There is no doubt about various limitations associated with such studies, and future research is expected to account for such limitations and continue closing remaining gaps.

Another important outcome of this research is the results of multifaceted correlational testing of OLE and SDLR variables that led to the conclusion that there is no statistically significant difference between online and hybrid course formats. Such conclusion is bound to sound controversial to those who have often proclaimed hybrid learning being "the best of both worlds," or viewed online learning as inherently inferior to other types of learning formats (Buzzetto-More & Sweat-Guy, 2006; Lindsay, 2004; Skibba, 2003).

E-learning (or Web-based learning) is growing at an extremely rapid rate around the world. The more the factors impacting successful e-learning are found and proven empirically further, the more researchers, instructors, and administrators must be able to find feasible pedagogical and curricular strategies to put those factors to an effective use, such as using online activities to enhance self-directed learning and the reverse. In the

future, it may be feasible to predict major changes associated with e-learning, including

the decrease of overall costs and increase of learning outcomes, satisfaction, and hence

benefits to learning communities.

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Appendix A

Demographic Form for Study

Directions: Please provide the following information about **yourself** below

1. **Which type of student are you?**

   __ Undergraduate

   __ Graduate

2. Please indicate **the number of web-enhanced courses** (hybrid and/ or completely online) you have taken to this date anywhere (USF and elsewhere)?

   __ Web-enhanced courses

3. What is your gender?

   __ Female

   __ Male

4. What is your age?

   __ 20-25
   __ 26-30
   __ 31-35
   __ 36-40
   __ 41+

Appendix B

Cover Letter for Student Participants

Dear Student,

I am inviting you to participate in my research project designed to find out about learning attributes and perceptions of online learners. The study is part of my dissertation research at the University of San Francisco. I have attached a survey about your individual learning perceptions and experiences of taking Web-based courses in a university setting that I am hoping you will fill out and return to me.

It should not take you longer than 35 minutes to complete. Your answers are extremely important! I will use what I find out through this survey not only for writing my dissertation but also for bringing the university administration's attention to student learning perceptions and characteristics. Our actions might help improve student advising and learning satisfaction significantly!

If you choose to participate in my survey, please fill in your answers and enclose the survey sheets in provided envelopes. You should not put your name on the survey when you fill it out, and you can rest assured that your privacy and confidentiality will be fully respected. Your responses will be collected, sealed, and stored in a secure location under lock and key until the results of the study are assessed. There is no way of knowing about how each of you has responded as each completed package will be assigned a random case number only. The responses will be kept in the secure place.

If you decide not to participate, you have been provided with reading for the duration of survey administration. Just return your surveys in the envelope. Everyone is provided with the reading to keep for your information. Even if you decide not to respond, I would be happy to share my results with you if you are interested. To obtain a copy of my results or ask any questions about the survey, please contact me at 415-XXX-XXXX.

Thank you very much for your time and consideration!

Sincerely,

Gleb Nikitenko

Appendix C

Letter of Permission from Instructors to Conduct Study in Their Classes

Dear Professor _____:

This letter confirms that you have been provided with a brief description of my dissertation research concerning adult students' learning attributes and perceptions in hybrid and online courses respectively. Your signature below indicates that you have agreed to allow my access on a date and at a time of your choosing to students enrolled in your course who I will be asking to participate in this research.

The students will receive from me a packet containing a cover letter, the two survey instruments (one on Self-Directed Learning Scale, another one on Perceptions of Online Learning Environment), the demographics form, and a reading. The entire survey administration should not take longer than 35 minutes of your valuable time, including the brief orientation for participants. The students' agreement to participate will be confirmed by their completion of the surveys that will be returned to you in enclosed, sealed envelopes when they are finished. I will then collect the sealed envelopes and will secure the responses in full compliance with anonymity and confidentiality rules. I will do my very best to minimize inconvenience to you and to all of the participants, as well as any possible disruption of your class. Students who choose not to participate in the survey have been provided with online-learning related reading for the duration of the instruments' administration.

After my research project is completed, I would be very happy to share my results with you if you are interested. Please feel free to contact me if you have any further questions about this study at 415-XXX-XXXX.

Many thanks for your invaluable assistance, flexibility, and understanding.

Sincerely,

Gleb Nikitenko, MA, MPA
University of San Francisco

Signature_____ Date_____

Appendix D

Letter of Permission from Deans or Department Chairs of Schools

Dear Dean_____:

This letter confirms that you have been provided with a brief description of my dissertation research concerning adult students' learning attributes and perceptions in hybrid and online courses respectively. Your signature below indicates that you have agreed to allow my access to students enrolled in various programs at your school who I will be asking to participate in this research.

The students will receive from me a packet containing a cover letter, the two survey instruments (one on Self-Directed Learning Scale, another one on Perceptions of Online Learning Environment), the demographics form, and a reading. The entire survey administration should not take longer than 35 minutes, including the brief orientation for participants (enclosed). The students' agreement to participate will be confirmed by their completion of the surveys that will be returned in sealed envelopes after they are finished. I will then collect the sealed envelopes and will secure the responses in full compliance with anonymity and confidentiality rules. I will also do my very best to minimize inconvenience to your faculty, staff, and all of the participants. Students who choose not to participate in the survey will be provided with online-learning-related reading for the duration of the instruments' administration.

After my research project is completed, I would be very happy to share my results with you if you are interested. Please feel free to contact me if you have any further questions about this study at 415-XXX-XXXX.

Many thanks for your invaluable assistance, flexibility, and understanding.

Sincerely,

Gleb Nikitenko, MA, MPA
University of San Francisco

Signature_____   Date_____