POSTSECONDARY STUDENTS' PERCEPTIONS OF ENGAGEMENT IN ONLINE DEVELOPMENTAL CLASSES

A Dissertation Presented to the
Faculty of the College of Education
University of Houston

In Partial Fulfillment
of the Requirements for the Degree

Doctor of Education

by

Beverly Still

December 2012

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Abstract

The number of students who must complete developmental coursework before enrolling in college-level classes is increasing. There are numerous reasons for this increase, including the inability of many public schools to prepare students for higher education. There are also growing numbers of students enrolling in online courses. Responding to the increasing numbers of developmental students along with a rising demand for online education, some colleges and universities are now offering online developmental classes. There is a critical need to research the support of students in these courses. Examining, activating, and enhancing the engagement of these students may be the best means of promoting their success. Investigating student perceptions of engagement is a critical component of this research.

For students at every level, in a wide variety of educational environments, studies have shown that student engagement promotes learning. Students who are academically engaged demonstrate a high degree of involvement in their own learning. Engaged students are characterized by positive attitudes toward learning.

This study investigated the perceptions of students enrolled in online developmental math classes and English classes at the research site, a large two-year college in the Southwest. A survey consisting of 10 items that describe instructional practices and student behaviors associated with engagement was designed for the study.

The 10 survey items queried students for the number of times the instructional strategy or student behavior occurred during the semester (*how often*) and how much, if

at all, the practice or behavior affected the student's engagement (*how much*). Allowing students to share their perceptions on engagement gives the students a very real voice in the teaching-learning process. With their survey responses, students were given the ability to tell educators what engages them, rather than having educators, authors, researchers, and others generate multiple "second source" hypotheses on student engagement. Effects on engagement were also examined based on gender, age, and ethnicity. In addition, effects on engagement were examined by discipline: math or English. Data was analyzed through the use of frequencies, multiple linear regressions, correlations, t-tests, and ANOVAs.

The survey responses suggest that students feel that some of their own classroom behaviors have an effect on engagement. Their responses indicate, as well, that what instructors do in the classroom has a significant effect on student perceptions of engagement. Analysis of the survey data suggests there are both instructional strategies and student behaviors that predict student engagement. Statistical tests identified instructional strategies and student behaviors that predict engagement. Results indicated that there were gender-related differences in perceived effects on engagement. Finally, analysis based on each discipline, math or English, indicated that students' perceptions of engagement are affected by the classes in which they are enrolled.

Keywords: developmental learning, online education, postsecondary education, student engagement

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Chapter I

Introduction

Almost hourly, across the globe, various theories, models, and paradigms on the topic of education are created, implemented, reviewed or discarded. The differences between and among educational attitudes and philosophies seem, at times, far greater than the similarities. Proponents of the numerous educational doctrines currently in vogue are many times reluctant to consider, much less embrace, new or different educational dogma. Voluminous reports, both print and electronic, are written to advocate one particular educational agenda over the myriad selection of others. There seems to be little or no consensus regarding academic practice or policy. However, there is one precept to which all stakeholders subscribe. This single tenet is the critical and ever-increasing need to offer relevant, innovative education that will equip individuals and nations with the knowledge necessary for survival in the 21st century (United Nations Educational, Scientific and Cultural Organization, 2010). President Barack Obama, addressing Congress in 2009, stressed the importance of education: "In a global economy, where the most valuable skill you can sell is your knowledge, a good education is no longer a pathway to opportunity – it is a prerequisite" (Obama, 2009, para. 64). President Obama's remarks bear witness to the current educational horizon. Education, along with the parallel ability to locate information, may be the single most significant commodity for individuals and organizations today and for the foreseeable future. Educating Americans and equipping them with that ability to locate relevant information must be a priority of paramount importance. Individuals with limited education are restricted to few employment options and, of those options, many are menial, manual or mindless (United States Census Bureau, 2002).

For too many Americans, the quest for higher education is suspended because their knowledge and skills will not support success in traditional "for credit" college courses. The need for developmental, or what are sometimes called remedial, courses is a reality for increasing numbers of Americans (National Center for Education Statistics, 2010).

There are many reasons why individuals need to complete developmental classes. These reasons may be relative to the individual, or they may be an indictment of the inequities that plague the American public educational system. In discussing those Americans who, without remediation, face the grim prospects that accompany a lack of education, assigning responsibility must not supersede the more immediate issue of giving these learners the best educational opportunities possible.

Some of those individuals whose knowledge or skills require remediation are unable to attend face-to-face classes. That inability may be associated with the loss of income that would result from attending scheduled classes on a campus (Allen & Seaman, 2006). Additionally, issues such as lack of transportation or lack of financial resources for childcare can make face-to-face classes impractical or impossible (Allen & Seaman, 2006). Moreover, students who have physical challenges may not be able to travel easily to a campus or navigate in such an environment when they arrive (Radford, 2011). For these individuals, online learning may be the only viable option to further their education. The accessibility that online education affords those learners - and all learners - is evident (Steenhausen, 2010).

The purpose of this study was to increase our understanding of how best to engage developmental learners who need and want to take classes in the online format

that is so readily available to other students. Students in developmental classes must be supported, encouraged, and assisted in their academic efforts since the successes of these students are America's successes as well.

Developmental students are at risk for academic struggles (Levine-Brown, Bonham, Saxon & Boylan, 2008). Every strategy to support these students and enhance their opportunities for academic success must be employed. One such strategy that may be of particular interest is increasing student engagement. Student engagement is characterized by "sustained behavioral involvement in learning activities accompanied by a positive emotional tone" (Skinner & Belmont, 1993, p. 572). Student disengagement is, as the term suggests, a lack of interest in learning, apathy toward knowledge and instruction (Harward, 2008).

While the subject of student engagement in postsecondary education demands additional research, there have been some significant studies on the phenomenon of student engagement among postsecondary learners. Some of those have focused on student engagement and the methods, assignments, activities, and projects that students in face-to-face venues find engaging. There has been, as well, some investigation of what students in online classes consider engaging. However, there has been little inquiry into what students in developmental online classes consider engaging. There is a pressing need for such inquiry, particularly in light of the increased number of schools that are offering online developmental classes. In 1995, 3% of postsecondary institutions offered developmental courses through distance education; in 2000, that increased to 13% (Parsad & Lewis, 2003).

Developmental students may be apprehensive or anxious; they may be unaccustomed to the technology associated with online education. These students are frequently vulnerable to the obstacles that accompany disengagement. They are also responsive to the positive effects associated with student engagement. Student engagement, while advantageous for all students, may be essential for developmental students (Nora, 2000). It becomes, then, imperative to determine what developmental students themselves consider "engaging" in online learning environments.

Purpose of the Study

The purpose of the study was to determine which, among the instructional strategies their instructors provided as well as their own behaviors, students enrolled in online developmental courses identified as strategies and behaviors that affected their engagement. A survey querying students on their perceptions of engagement was designed and administered to students in online developmental classes. The results provide data on what strategies and behaviors the students find engaging and the extent to which their engagement is affected. This study can help determine optimal designs for enhancing student engagement and, with it, student success.

Chapter II of this study includes a review of some of the research, reports, articles, and analyses associated with developmental learning, student engagement and online education. Chapter II presents definitions of developmental learning as well as concerns associated with those definitions. Also included in this chapter are characteristics of developmental learners, and a brief description of the increased need for developmental courses. Chapter II focuses then on definitions of student engagement along with strategies for enhancing engagement and effects associated with enhanced

student engagement. The chapter provides, as well, reviews of some of the literature on online education: definitions of online education, a discussion of the increased interest in online education and models associated with online education. The focus of Chapter II turns to studies of online developmental learning and then to studies of student engagement in online education. Finally, the results of some of the limited studies on the triadic relationship between student engagement, online education, and developmental learning are presented.

Chapter III describes the methodology for conducting the research that drove the study. This study investigated perceptions of students enrolled in online developmental math classes and English classes at the research site, a large two-year college in the Southwest. A survey consisting of 10 items that describe instructional practices and student behaviors frequently associated with engagement was designed for the study. Students at the research site were invited to respond to the survey. Students were asked about the number of times the instructional strategy or student behavior occurred during the semester (*how often*) and for how much, if at all, the practice or behavior affected their engagement (*how much*). Effects on engagement were also examined based on gender, age, and ethnicity. In addition, effects on engagement were analyzed by discipline: math or English. Data was analyzed through the use of frequencies, multiple regressions, correlations, t-tests and ANOVAs.

The study results are presented in Chapter IV. The results of this examination of engagement revealed that significant relationships between perceived effects on engagement associated with some student behaviors and perceived effects on engagement associated with some instructional strategies exist. Additionally, the analyses revealed

the abilities of some behaviors and some strategies to predict engagement. Gender-related differences associated with specific strategies and behaviors were identified. Finally, the data suggests that discipline, math or English, has some perceived effects on engagement.

Finally, Chapter V addresses the study's conclusions along with discussions of the data analyses and the research questions. Limitations and possibilities for further study are also presented in Chapter V.

Research Questions

1. What were the student-reported frequencies of the instructional strategies and student behaviors denoted in the survey items?
2. What percent of the variance in student-perceived effects on engagement was predicted by different instructional strategies?
3. What percent of the variance in student-perceived effects on engagement was predicted by different student behaviors?
4. Were there different relationships when the effect of instructor-based strategies was compared to student-based behaviors?
5. Were the results different for the following demographic groups?
    a. gender (male/female)
    b. race/ethnicity (American Indian or other Native American; Asian, Asian American or Pacific Islander; Black or African American, Non-Hispanic; White, Non-Hispanic; Hispanic, Latino, Spanish; Other)
    c. age (18 – 24; 25 – 32; 33 – 39; 40 – 47; 48 – 55; 56 – 63)
6. Were the results different for the following academic disciplines?
    a. math
    b. English

Chapter II

Literature Review

Chapter II is an examination of the three components of the study: developmental learning, student engagement and online education. Chapter II focuses first on developmental learning, including definitions of developmental learning, characteristics of developmental learners and insights into the increased need for developmental courses. The next section includes definitions and descriptors of student engagement with strategies and activities for enhancing student engagement; there is also a discussion of the effects of student engagement. The following section addresses definitions of online education, a discussion of the increased interest in online education, and models associated with online education. The remainder of the chapter provides observations on some of the research that examines shared components of developmental learning, student engagement and online education.

Developmental Learning

This section of the study provides definitions of developmental learning and information on some of the issues that surround that term. An overview of the characteristics of developmental learners follows. Information on the increased need for developmental classes is also included in this section of Chapter II.

Defining developmental learning. In defining the term "developmental learning," it is necessary to examine similarities and differences between that term and the term "remedial education." Both terms are present in academic settings and throughout academic literature. Some colleges and universities seem to be using the terms almost interchangeably. The confusion associated with the various terms for

remedial and developmental learning leaves many instructors – and, even more troubling, students – uncertain and anxious.

Because its use is pervasive, a close consideration of the term "remedial" is particularly relevant. As even the most informal and casual survey reveals, the word remedial may, in fact, be accompanied by negative connotations in the minds of some students and some instructors. There is concern that "remedial" evokes impressions of failure, possibly associated with the prefix "re" which denotes "again" or "over." Many definitions of remedial refer to repeating and reteaching knowledge and skills. These terms may suggest, however inadvertently, that the student is somehow inadequate or incompetent because he or she did not master the instruction that was (or should have been) already presented.

Confirming the inference that remedial indicates the need to "redo," while contrasting that term with developmental, Bettinger and Long (2006) posit "the literature defines 'remediation' as coursework that is retaken while classes that focus on new material are termed 'developmental' " (p. 1). At the time of their 2006 study, *Addressing the Needs of Under-Prepared Students in Higher Education: Does College Remediation Work,* the authors deemed the word remedial more appropriate for their purposes. While the use of the term "under-prepared" in Bettinger and Long's title is almost assuredly not intentionally critical, that term, like remedial, may involuntarily imply some deficiency. It is, however, to Bettinger and Long's credit that they clarify their understanding of the terms remedial and developmental, since many authors do not.

The National Center for Education Statistics (NCES) offers this definition: "Remedial courses, usually in mathematics, English, or writing, provide instruction to

shore up the basic fundamentals within a subject and to develop studying and social habits related to academic success" (NCES, 2008a, para. 1).

A report prepared for the Institute of Higher Education Policy defines remedial education as "those courses and support services in basic academic skills which address the needs of a diverse population of underprepared students" (Phipps, 1998, p. 10). This report refers to underprepared, as does Bettinger and Long's (2006). However, with the inclusion of "support services," Phipps' definition of remedial transcends that of Bettlinger and Long, which refers only to coursework. Significantly, Phipps' definition refers to a diverse population, altogether appropriate since these students represent a range of varying ethnicities, ages, and educational experiences.

Introducing *State Policies on Community College Remedial Education: Findings from a National Study*, Jenkins and Boswell (2002) refer to remedial classes as "what educators call 'developmental' education courses" (p. 4). This statement, which seems almost to amplify the ambiguity already associated with the two terms, is indicative of the uncertainty with which the terms are understood and used, or, all too frequently, misunderstood and misused. The authors later include their own definition of remedial as "those courses in reading, writing or mathematics offered to students lacking the necessary academic skills to perform college-level work" (p. 5). However, the term "college level" defies definition, once again compounding the confusion associated with the terms remedial and developmental.

Offering some measure of assurance that there is at least a relative shared understanding of the term remedial, Kirst (2007) contends that there is a general consensus among some colleges that the term is applied to work that is lower than college

level. The controversy, according to Kirst, is with the definition of the term college level, a concern already noted. Kirst's assertion is apropos: American colleges and universities are largely autonomous in terms of academic standards. However, Kirst's position does little toward establishing a shared definition for remedial – or developmental - learning. Kirst acknowledges that regardless of how most colleges use it, the term remedial is "murky at best" (p. 1). Kirst states further that a term used "so frequently, and so freely, might seem to call for a clear definition" (p. 1). Kirst's call for clarification seems particularly timely: the number of students who are enrolling in remedial or developmental courses has never been greater and there is little indication that the trend will slow anytime soon.

Challenging the term remedial, Boylan (2001) refers to the use of that term as anachronistic and narrow, making his preference for the term developmental apparent. Boylan writes that student failure can be the result of issues such as poorly developed self-esteem, or lack of self-efficacy. In light of all of the issues that can result in student failure, it is not, Boylan posits, solely a function of academic deficiencies as the term remedial may suggest. Developmental learning, suggests Boylan, includes elements of remediation along with a significant array of interventions and programs designed to augment academic and personal abilities. Developmental learning, he maintains, is a much more descriptive and appropriate term and, according to Boylan, is the term used by institutions which are "representative of current scholarly thought" (p. 2). "Scholarly thought" notwithstanding, and regardless of those who find the term "remedial" belittling, it is still a term that is frequently used.

However, even those who disagree with use of the term remedial do not always acknowledge the potential of developmental learners. Sadly, a recurring theme that appears all too frequently in postsecondary education is the attitude – expressed at times in oblique or implied terms – that many or most developmental learners are far more limited in their ability to learn than their peers in general education classes (Damashek, 1999; Bahr, 2008). These negative views are unfair, incorrect, and archaic. While avoiding the use of inconsiderate terms and phrases is surely a step in the right direction, the most significant transformations in developmental education will occur when there is universal recognition that each of us is gifted and talented in some disciplines and there are other disciplines in which each of us, as individuals, would benefit from additional support.

Clearly, there are concerns associated with the use of the term remedial because of the implied negativity. The term developmental is also problematic because it has multiple meanings, among them the processes and progresses that accompany traditional or conventional learning. Moreover, some colleges and universities choose different terms altogether such as compensatory education, basic skills, college prep or transition courses.

In spite of the possible ambiguity associated with it, the term developmental is used in this study. Developmental education refers to instruction and support services designed to identify and correct deficiencies in knowledge and skills among diverse populations for the purpose of enrolling in and completing college-credit courses. In other words, developmental instruction "closes the gap" between what students know and

are able to do and what students need to know and need to be able to do to be successful in postsecondary education.

Characteristics of developmental learners. Referring to the "vast numbers of students [who] enter community college remedial classes every year" and the "few [who] are ever heard from again," developmental education has been termed "higher ed's Bermuda Triangle" (Esch, 2009, para. 1).

While developmental students cannot be categorically defined by their characteristics, there is research that suggests demographic trends. Aud et al., in their 2011 study on remedial courses, report that "A higher percentage of female than male undergraduate students reported in 2007–08 that they had ever taken for a remedial course (39 percent vs. 33 percent) (p. 70). The National Center for Education Statistics (2010) provides additional insights: among students enrolled in postsecondary classes, a 2010 analysis of the ethnicities is as follows: among white students, 31.3% took at least one developmental course. Among black students, the percentage was 45.1%. Among Hispanic students, 43.3% took at least one developmental class. These figures confirm Hearn and Holdsworth's (2002) contention that a disproportionate number of students in developmental classes are students of color. The authors continue by commenting that developmental students are frequently of lower socioeconomic status . Attewell, Lavin, Domina and Levey (2006) add that "students for whom English is a second language are also overrepresented in postsecondary remedial programs" (p. 887).

Jenkins and Boswell (2002) describe postsecondary developmental learners as recent high school graduates or adults who have been out of high school for a considerable period of time. Jenkins and Boswell also characterize some developmental

students as refugees or immigrants. While their use of the terms refugees and immigrants may be problematic, Jenkins and Boswell's point is well made. It is likely that developmental student populations include both of those population subsets.

In many cases, developmental students in community colleges are "first generation," the first in their families to attend college. As such, they have little input from parents or other family members. Often, they enroll electronically without meeting, first, with a school counselor or advisor (Esch, 2009).

All too frequently, students must enroll in developmental courses because they attended high schools that prepared them for neither the workforce nor college (Alliance for Excellent Education, 2006). Referring to the high incidence of low-performing schools in economically depressed neighborhoods, Arendale (2011a) suggests that our future successes may be determined by our zip codes. Arendale (2011a) goes on to suggest that the topic of developmental education is "not race and class neutral" (Arendale, 2011b, para. 3) and that it may actually be a civil rights issue (2011a). In fact, given the demographics of students who are most frequently assigned to developmental coursework, Arendale's (2011a) contention speaks to the inequities that characterize American public education. As such, the need for postsecondary developmental coursework because of poor secondary schooling may prove to be a catalyst. The need for postsecondary developmental coursework may drive efforts to provide better elementary and secondary schools for children who have historically been educated – based on the communities in which they live – by inexpert educators in second-rate schools. In so doing, the nation may solve what Arendale (2011b) sees as a civil rights issue.

Increased need for developmental classes. The 21st century paradox that should concern all of those in higher education is the troubling correlation beween two distinct realities. The first of those is the pressing need, both personal and professional, for education. The second is the number of individuals who cannot succeed educationally because they are not academically equipped for college and university classes. These individuals are thwarted in their educational efforts unless they enroll in and complete developmental courses. The parallel between the need for education and the inability of many to acquire education is disturbing. There is little to indicate the second reality, the growing numbers of Americans who are thwarted in their educational quests, is waning. Those numbers are, in fact, increasing at alarming rates. That distressing trend should catalyze instructors in elementary, secondary, and postsecondary education.

Problems and concerns associated with American education are both numerous and complex. Clearly, there is a critical need for an in-depth analysis of how and why public schools continue to disappoint their constituents. Students who have suffered because of shortcomings in public education are struggling, many times unsuccessfully, to pass entry level college courses. There are unprecedented numbers of students whose gaps in knowledge and skills speak to the inadequacies that abound in public education in the U.S. Many of these students are enrolling, in record numbers, in developmental courses. In a brief prepared for the White House Summit on Community Colleges, Bailey and Cho (2010) report that among incoming community college students, around 60% of students are referred to at least one developmental class. Jenkins and Boswell (2002) give the following percentages for students who were placed in developmental classes: 70.9% in Tennessee, 66% in Louisiana, 50% in North Carolina, and 50% in New

Mexico. As in Jenkins and Boswell's report, several other states have similar percentages for placement in developmental classes. In Texas, the percentage of students entering a two-year school who required remediation was 61.3%. Of the 28 states that reported percentages of students requiring remediation in two-year colleges, the average was over 45%. One report suggests that the percent of students enrolling in community colleges in California may be as high as 85% (Esch, 2009).

Getting Past Go is a national initiative which has been established to address the concerns associated with developmental learners in postsecondary education. Vandal (2010), writing for *Getting Past Go*, authored a report on the challenges associated with developmental education. Vandal's report includes U.S. Department of Education data: 43% of students enrolled in community colleges require some developmental education. The data indicates, as well, that 34% of all students (in both two and four-year schools) entering college for the first time requires at least one developmental class. Referring to United States Census data, Vandal writes that "42 million Americans are candidates for postsecondary education, but are not adequately prepared" (p. 4). The task of reteaching students, some 42 million of them, who were not adequately prepared for the education that today's world demands is daunting. However, failing to provide such remediation cripples not only those individuals who struggle academically; the nation, confronted with an uneducated workforce, suffers as well.

Student Engagement

The topic of student engagement is pervasive throughout educational research. For developmental learners, the topic is particularly meaningful. Developmental learning may be one of the educational environments in which the presence or absence of student

engagement is most apparent and most significant. While there may have been a time, perhaps relatively recently, when students were expected to initiate their own engagement, current pedagogy suggests that student engagement should be a function of teaching, as deliberate and purposeful as instruction (Bhagyavati, 2005). An awareness of student engagement should be requisite for all professional educators. For those whose goal is the support and instruction of developmental students, ensuring student engagement must be a priority.

Three points relative to student engagement are presented in the following paragraphs. The first of the three will be definitions of student engagement. Following the definitions of student engagement are strategies for enhancing student engagement. Finally, the effects of student engagement are presented.

Defining student engagement. There are many definitions of student engagement. A recent online search of the web for the term "student engagement" yielded over 120,000,000 results. In light of those numbers, determining where to look first can be almost overwhelming. A closer examination of the search results, however, suggests a starting point that is both relevant and relatable: a student authored literature review on the definitions of student engagement. Writing for *SoundOut, Student Voice in Schools,* an organization that calls for greater student voice, involvement, and engagement, Adam Fletcher, at that time a graduate student, wrote *Defining Student Engagement: A Literature Review* in 2007. Fletcher's interest in and commitment to student engagement has culminated in his current status as an internationally recognized authority in the field of youth engagement in schools and communities (Freechild Project, n.d.).

The literature review Fletcher created is brief: two and one-half pages. It is, however, a rich resource that includes 29 citations and 25 references. While most of Fletcher's references are recent (almost half of the books and articles were written in the 2000s), there is, as well, a reference dated 1938: John Dewey's book, *Experience and Education*. Dewey, Fletcher writes, "proposed the radical transformation of schools that led to the creation of career and technical education courses over the next 90 years, all in the name of student engagement" (p. 3).

Fletcher paraphrases throughout most of the literature review, but chooses to quote Skinner and Belmont (1993):

> [Students] who are engaged show sustained behavioral involvement in learning activities accompanied by a positive emotional tone. They select tasks at the border of their competencies, initiate action when given the opportunity, and exert intense effort and concentration in the implementation of learning tasks; they show generally positive emotions during ongoing action, including enthusiasm, optimism, curiosity, and interest. (p. 572)

With their references to behavioral involvement and emotional tone, Skinner and Belmont confirm Fletcher's observation that definitions of student engagement "usually include a psychological and behavioral component" (p. 1). Similar references to this dual nature of student engagement appear frequently in scholarly works on the subject.

Fletcher concludes his literature review with a call for all schools to persist in their efforts to provide more engaging environments for all students: "it is tantamount that all schools continue to evolve towards becoming more engaging, more meaningful and more powerful learning environments for all students" (p. 3). Fletcher's own efforts

to promote student engagement in schools and communities continue to impact students. He continues to publish extensively on topics germane to student engagement.

The National Survey of Student Engagement (NSSE) provides information on a number of issues associated with student engagement. The following items, descriptors of student engagement as identified by NSSE, were included in a 2006 NSSE survey administered to postsecondary students.

- The amount of time and effort devoted to various in-class and out-of-class activities, including reading and writing, and the frequency with which students participate in class discussions, make class presentations, work with peers on problem solving, and interact with faculty members,
- participation in enriching educational activities (study abroad, internships, and so on),
- gains in personal and educational development, and
- perceptions of the college environment, including overall satisfaction with college and quality of academic advising. (p. 39)

As cited in Voke (2002), Newmann describes engaged students as having "a psychological investment in learning. They try hard to learn what school offers. They take pride not simply in earning the formal indicators of success (grades), but in understanding the material and incorporating or internalizing it in their lives" (pp. 2 - 3).

Although the definitions are worded differently, it is easy to recognize similarities between Newmann's "internalizing" and the NSSE's "personal and educational development."

Massey University, in their 2008 policy statement on student engagement, defines student engagement as "a sustained, embedded, and reciprocal exchange between students and the University that enhances the learning environment. Effective student management occurs formally and informally, at multiple levels of the institution and for multiple purposes…" (p. 1). Massey University includes a list of the purposes of student engagement, among them the creation of an environment in which constructive solutions to serious issues can be generated. Massey acknowledges the ability of student engagement to "enhance(s) the learning environment" and the ability of schools to affect student engagement with the creation of an environment that supports student engagement (p. 1).

In *The Impact of Teaching Strategies on Intrinsic Motivation*, Bomia, et al. (1997) refer to student engagement as a "student's willingness, need, desire and compulsion to participate and be successful in the learning process promoting higher level thinking for enduring understanding" (p. 4). In referring to higher-level thinking, the authors acknowledge the relationship between student engagement and critical, significant learning. The reference to enduring understanding speaks to the lifelong impact that accompanies engaged learning.

As Chapman (2003) suggests, some educators continue to define student engagement in orderly and systematic terms such as attending class, complying with teacher mandates, and submitting assigned coursework. Others like Fletcher, however, describe student engagement in terms that seem, somehow, of greater consequence than conformity. Fletcher speaks of "more engaging, more meaningful and more powerful

learning environments for all students" (p.3). Surely, these are the environments in which students will excel.

It is encouraging that there seem to be increasing numbers of stakeholders in the educational domain who subscribe to Fletcher's position. Student engagement is less frequently portrayed as a one-dimensional response to a stimulus. As student engagement is increasingly recognized as profoundly significant, the voices of students: their ideas, their interests, their needs, their frustrations, and their successes must be more critically evaluated.

Student engagement is associated with student enthusiasm and excitement. It is associated, as well, with increased student achievement. The very positive effects that student engagement can have in the academic arena will be fostered and furthered as agencies, institutions, programs and schools continue to investigate and invest in student engagement. For developmental learners, investigation and investment into student engagement must be prioritized.

Strategies for increasing student engagement. Just as there are many definitions of student engagement, there are, as well, many strategies and methods that have evolved or that have been developed to enhance student engagement.

There are principles that foster student engagement, such those included in a 2008 report, generated by the Center for Community College Student Engagement (CCCSE). The report, *Imagine Success,* calls for a "change in institutional culture – specifically with an affirmation of values and beliefs that place student success as the highest priority" (p. 2).

Ascribing highest priority to student success in the interest of promoting student engagement may seem obvious and incontrovertible. It would be well to remember, however, that instructors, administrators and teaching assistants - virtually all those associated with education - are charged with a myriad of responsibilities, each demanding, at various times, immediate and absolute attention. Too often student success, and the student engagement that can promote student success, becomes another item on a long list of things that must be done. Highlighting the critical role faculty play in student success, the 2008 CCCSE report indicates that students consider instructors their most important source for support and feedback. In one student's words, "Of course we can get encouragement from family and friends, but that instructor giving you that pat on the back, it makes coming to class more rewarding" (p. 6). In light of this student's comments, perhaps the "long list of thing which must be done" should be reconsidered, making student engagement a priority.

Another opportunity for enhancing opportunities for student engagement, again in the 2008 CCSSE report, is providing students with clear expectations about what they need to do in order to be successful. One student shared:

> They [college personnel] didn't tell me when I signed up for class that for every hour of class, I have to do two hours of studying. They didn't give me any expectations until I actually sat down in the classroom. I think that before you even enroll, you should be able to know what you are getting into. (p. 8)

As evidenced in this student's remarks, student engagement is enhanced when instructional personnel at all levels provide specific, explicit information and guidelines that explain how students can be successful in school. This is particularly important for

some student populations, such as developmental students, who may not know what they can do, and should do, to succeed in college.

Herrington, Oliver, and Reeves (2003), examining relationships between student engagement and authentic activities in Patterns of Engagement in Authentic Online Learning Environments, include:

- Authentic activities have real-world relevance.
- Authentic activities are ill-defined, requiring students to define the tasks and sub-tasks needed to complete the activity.
- Authentic activities comprise complex tasks to be investigated by students over a sustained period of time.
- Authentic activities provide the opportunity for students to examine the task from different perspectives, using a variety of resources.
- Authentic activities provide the opportunity to collaborate.
- Authentic activities provide the opportunity to reflect.
- Authentic activities can be integrated and applied across different subject areas and lead beyond domain-specific outcomes.
- Authentic activities are seamlessly integrated with assessment.
- Authentic activities create polished products valuable in their own right rather than as preparation for something else.
- Authentic activities allow competing solutions and diversity of outcome.

(pp. 3-4)

These activities seem to parallel real world scenarios with greater authenticity than extraneous (and too often meaningless) assignments confined to an academic vacuum. It

should be noted that there are instructors who consciously and conscientiously incorporate multiple strategies to enhance engagement. These exemplary educators, who can be found in all academic programs and all grade levels, are to be commended for their efforts - and their successes – in engaging their students.

Oliver (2003), who co-authored the previous article, provides a list of engaging activities in the form of 10 verbs: "comparing, contrasting, evaluating, planning, reflecting, arguing, discussing, mapping, articulating, and summarizing" (slide 4). In the same presentation, Oliver proposes the following learning designs for engagement:

- problem-based learning,
- case-based learning,
- inquiry-based learning,
- projects-based learning,
- role-playing and simulation, and
- exploration and investigation. (slide 13)

Effects of student engagement. The process of enhancing student engagement cannot be reduced to one simple strategy. Instructors must create repertoires of strategies that will engage their students. Definitions of student engagement, strategies for enhancing student engagement, and above all, the effects of student engagement should be included in teacher training programs at all levels, including postsecondary.

Shulman (as cited in Carini, Kuh, & Klein, 2006) says that engagement in college is followed by a creative and positive life. These students are, according to Carini et al., "developing habits of the mind and heart that enlarge their capacity for continuous learning and personal development" (pp. 2 – 3). This description of the results of student

engagement recalls previous definitions of student engagement that speak to deep, lifelong learning.

Chapman (2003) writes that engaged students "show generally positive emotions during ongoing action, including enthusiasm, optimism, curiosity, and interest" (p. 1). All of these qualities make for an engaged, productive student who can become an engaged, productive citizen.

McClenney, Marti, and Adkins (2006), writing for the *Community College Survey of Student Engagement*, report, "The more actively engaged students are – with college faculty and staff, with other students, with the subject matter being learned – the more likely they are to learn, to stick with their studies, and to attain their academic goals" (p. 1).

Stipek (as cited in Voke, 2002) offers:

> …engaged students are more likely to approach tasks eagerly and to persist in the face of difficulty. They are also more likely to seek opportunities for learning when the extrinsic awards are not available – for example, after formal schooling has been completed – positioning them to learn more over time than their disengaged peers. (p.1)

Stipek speaks to engaged students' enthusiasm and their commitment. He acknowledges the enduring effect of engagement beyond the scope of school.

It is appropriate to say that being engaged is beneficial for all students. While this is true, it is also appropriate to say that developmental learners may be more acutely affected by student engagement than students enrolled in general education classes. Because developmental students are frequently those students who have been

underserved or academically "left behind" and because minorities are over-represented in developmental student populations, Kuh, Cruce, Shoup, Kinzie, and Gonyea's (2007) statement to the American Educational Research Association is both relevant and revealing.

> Engagement had positive, statistically significant effects on grades and persistence between the first and second year of study for students from different racial and ethnic backgrounds. Equally important, engagement had compensatory effects for historically underserved students in that they benefited more from participating in educationally purposeful activities in terms of learning higher grades and being more likely to persist. (abstract)

While enhancing student engagement may not be the panacea educators and others have hoped for, there is evidence of its efficacy, as presented by Kuh et al. Evidence such as this of the significant potential inherent in student engagement makes rigorous research into student engagement imperative. Even more, much of that research must be focused on engaging students the nation's educational systems have failed, and failed repeatedly.

Student engagement is considered a motivating force for most students. Among other effects, student engagement affects academic success and student persistence. pportunities to capitalize on student engagement's potential to mediate some of the inequities that are associated with developmental education must be prioritized.

There are numerous sources for information on student engagement, and many of the suggestions for enhancing student engagement are fairly easy to implement. However, it is incumbent upon every educator to determine which strategies, which activities, and which methods of instruction will be most efficacious for his or her

students. With regard to student engagement, as with regard to instruction, there is no "one size fits all" program and educators must first be cognizant of the impact of student engagement and then purposefully infuse strategies to promote student engagement throughout their courses. Engaging students must be, as Bhagyavati (2005) posits, a function of teaching that is as significant as the instruction. For developmental learners, student engagement may well be the factor that determines their success in school, and by association, in life.

Online Education

The body of knowledge surrounding online education, much like online learning itself, is broad and far-reaching, multifaceted, and evolving at exponential rates. It would be impossible, in a study such as this, to discuss online education without narrowing the discussion to a very limited number of issues surrounding online education. The issues that were considered germane to this research were definitions of online education, a discussion of the increased interest in online education, and models associated with online education.

Defining online education. As with establishing a definition for developmental learning, determining how best to define online education is complex. A measure of that complexity arises from the variety of terms such as distance education, electronic learning, and computer-based learning. Distance education may currently be, in fact, the preferred term in higher education. It is likely, given education's penchant for variety in verbiage, that additional terms will be added to those currently in vogue. It is to be hoped, however, that there will eventually be some consensus, some accord, regarding terms and definitions for online education.

In addition to the multiple terms associated with online learning, there are other issues. As Mason (1998) observed:

> The mystification surrounding the term "online course" arises because it is used indiscriminately to apply to nearly any course which makes even a passing use of the Internet as to those where every aspect of the course is only accessible electronically. (abstract)

The "mystification" to which Mason refers has, if anything, become more pronounced since then. Glover (2002), sharing insights garnered from a study of online math courses, corroborates Mason's view, stating that "much of what is currently promoted as online education entails no more than placing a course syllabus on a web page" (p. 108).

Additional evidence of the uncertainty associated with the term "online education" is evident in the title of Tsai and Machado's (2009) *E-Learning, Online Learning, Web-based Learning, or Distance Learning: Unveiling the Ambiguity in Current Terminology.* Online learning, as defined by the authors, is "associated with learning materials delivered in a web browser, including when the materials are packaged on CD-ROM or other media" (p. 2).

Parsad and Lewis (2008), writing for the National Center for Education Statistics, define distance education as:

> …a formal education process in which the student and instructor are not in the same place. Thus, instruction may be synchronous or asynchronous, and it may involve communication through the use of video, audio, or computer

> technologies, or by correspondence (which may include both written correspondence and the use of technology such as CD-ROM). (p. 12)

While Parsad and Lewis do not refer specifically to internet-delivered instruction, they do include many of terms that appear frequently in definitions and descriptions of online education. Again, it should be noted that many schools seem to be migrating toward the use of "distance education" rather than online education, e-learning or any of the other terms that describe internet-delivered instruction. Parsad and Lewis also include the word correspondence; correspondence courses allow students to enroll in and complete courses by exchanging instruction, assignments, and assessments through the postal service. Though correspondence courses are still offered by some colleges and universities, it may be difficult for such courses to compete in a world that has been revolutionized by online capabilities.

Another definition of online education is "learning which utilizes the Internet and in which both learner and teacher utilize various subsets of the Internet repertoire of teaching and learning tools" (Arnold, Giroday, & Simmons, 2006, glossary). This definition may be particularly apropos since the term "repertoire" can be interpreted to include the most current and contemporary generation of tools. This is significant: new instructional tools, such as the hand-held mobile devices already referenced, are being introduced and adopted and in some cases discarded at remarkable rates.

Paulsen (2002) defines online education with these characteristics:

- the separation of teachers and learners which distinguishes it from face-to-face education,

- the influence of an educational organization which distinguishes itself from self-study and private tutoring,
- the use of a computer network to present or distribute some educational content, and
- the provision of two-way communication via a computer network, so that students may benefit from communication with each other, teachers, and staff. (para. 3)

It is, of course, in the last two items that Paulsen's definition heralds the technology that supports online education. In light of the most current developments, the educational options afforded by many hand-held mobile devices, there should be, perhaps, yet another revision to what Paulsen, and others, suggests as a definition for online education.

Until there is a definitive agreement on how best to define and describe online education, various terms will be used in research and literature. For the purposes of this study, the term online education is described as the use of networking technologies and multifaceted delivery systems to promote the free global exchange of ideas, information, knowledge, and skills between teachers and students regardless of physical proximity.

Increased interest in online education. While the use of technology, ubiquitous in contemporary society, is particularly pervasive among students, students are not alone in their fondness for technology. Smith, Rainie, and Zickuhr (2011) report on the role of technology in contemporary life. A higher rate of young adults, regardless of college enrollment, own technological "gadgets" than adults. Social networking sites are used by 60% of adults. Among non-students, ages 18 to 24, 88% use social networking sites. Undergraduates use these sites at a rate of 86%, graduate students at a rate of 82%, and

community college students at a rate of 78%. The percentages for wireless devices are 57% for all adults, 79% for non-students ages 18 to 24, 92% for undergraduates, 88% for graduate students, and 85% for community college students. It is little wonder, given their penchant for technology, that students welcome the inclusion of technology into their studies. Elementary, secondary, and postsecondary educators must be aware of the role that technology plays in the lives of their students. Equally, educators must first be aware of - and then capitalize on - the opportunities for engagement that technology provides.

It would not be inappropriate to surmise that student inclination toward technology is driving, at least in part, the remarkable growth online education is experiencing. In 2002, an estimated one in thirteen postsecondary students was enrolled in online education; it is likely that the number has increased (Ashby, 2002).

A report published by the National Center for Education Statistics (2008b), provides information on percentages of postsecondary institutions that provide online education. Among all institution types included in the report (public two-year, private for profit two-year, and public four-year), 66% offer online classes. Disaggregating the data, 97% of public two-year schools offer online education. It is significant that the category of schools that offers the highest percentage of online classes, two-year colleges, is also the same category of schools that offers the greatest number of developmental classes.

Models of online education. Increasingly, online education seems to be more accessible, more effective, and of greater instructional value. The continuous changes that characterize online education are accompanied by the evolution of different models

associated with online education. As is often the case with definitions in the academic world, there are numerous ways in which the term "models of online learning" can be interpreted. While there are similarities between some of these models, others are remarkable in their distinctiveness. Each of the models offers opportunities for a better understanding of online learning's potential.

Mason: Historical models of online education. Mason's (1998) "Models of Online Courses" is not among the most recent articles, particularly in an environment that continues to expand as rapidly as online education. Mason does, however, include some observations on the history and background of online education. This historical perspective makes Mason's work a relevant starting point.

Mason begins her description of historical models of education with what may have been one of the earliest models of electronic instruction: delivery of courses via command-line systems. Mason's depiction of command-driven technology calls to mind the skill – and patience – such endeavors demanded. "Instructions for using the evocatively named Archie, Veronica, and Gopher filled whole books" (Mason, 1998, para. 2). These books were lengthy and cumbersome, but the instructions in them were the only way to achieve the desired educational end. Online education no longer requires obscure protocols such as Gopher, or search services such as Archie and Veronica. It may be safe to say that today's online students will never need the technological proficiency required for those first versions of online education.

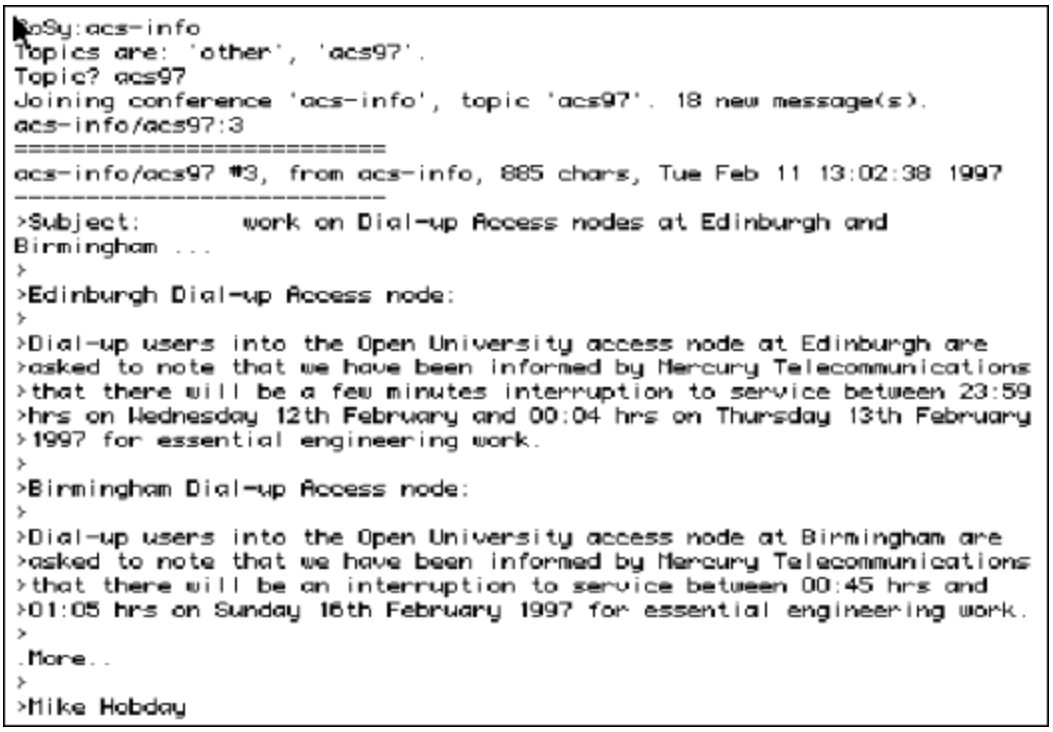

Figure 1. Command line conferencing.

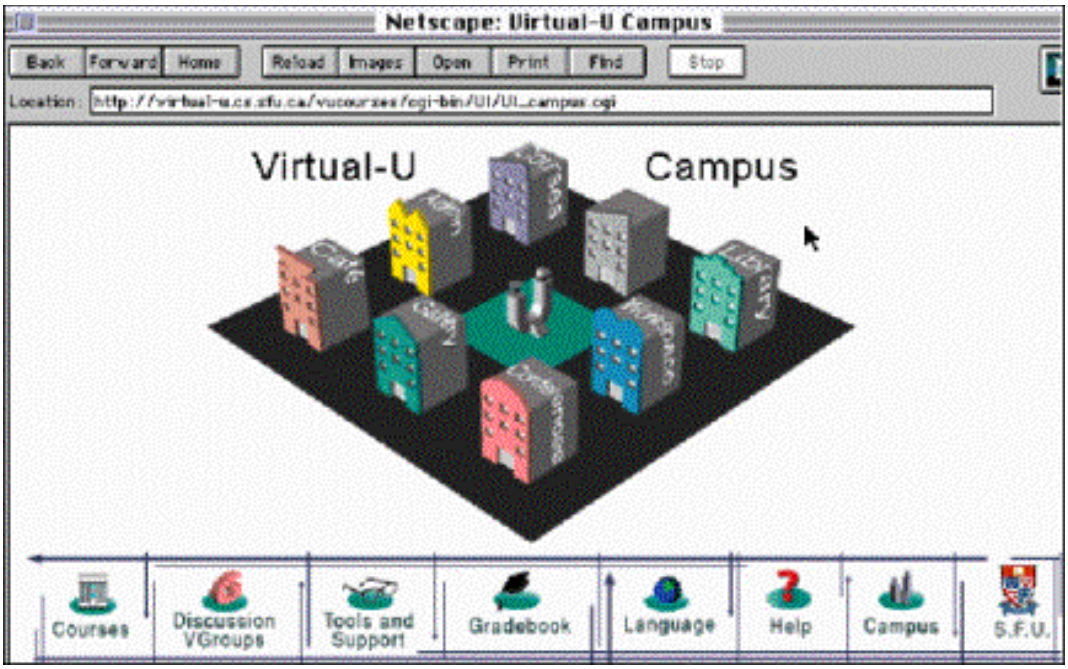

Figure 2. Virtual-U.

Figure 2, representative of online education in 1998, depicts the latest online educational opportunities of that time. While most of the online courses of the 21st century may appear more sophisticated and perhaps more attractive than the screenshot of Virtual-U that Mason includes in her article, there are some shared aspects, such as the use of icons. Even so, sites such as Virtual-U were not the user-friendly sites that today's learners enjoy. The generation of online courses that followed Virtual-U would alter education forever.

Mason: Recent models of online education. Following the historical background in her article, Mason offers three models of more contemporary online courses. The first is the content and support model. This model represents courses in which packaged instructional materials are given to the instructor, who does not modify or revise the materials. In the content and support model, interaction (instructor to student, or student to student) is limited. Instructors may be reluctant to encourage collaboration or discussion, since the instructional materials were beyond their purview. Instructors' attempts to add to the packaged curriculum in which they had no "voice" in creating may lack relevance and continuity. This, Mason shares, can be problematic for students. Mason's concerns seem valid. Students who see little or no cohesion between instruction and assignments may become, understandably, disengaged.

The next model Mason offers is the wrap around model. This, she says, is a combination of "tailor made materials (study guide, activities, and discussion) wrapped around existing materials (textbooks, CD-ROM resources, or tutorials)" (para. 22). In most courses, according to Mason, each of those two - the tailored components and the existing components - comprise approximately 50% of the course. In these types of

classes, the instructor's input and involvement is generally greater than in the content and support model since less of the course is prescribed.

The integrated model, the third model, is the reverse of the content and support model. Rather than packaged, this model represents a fluid process. In the integrated model, learning is a collaborative teacher-student effort with shared resources, and shared assignments. The hub of the course, Mason says, is generated online through communication, including student-initiated communication.

Mason concludes her work by sharing the two concepts which she says best communicate her attitude about emerging trends in online education. The first is a "breakdown of the distinction between teacher and taught" and that online education is the "ideal medium to realize the teaching potential of the student, to the advantage of all participants" (para. 34). The second of Mason's concepts is the "collective construction of the course" (para. 35). Mason seems to recognize, as do many others, the ability of online technologies to elicit, to draw out and develop, proficiencies and competencies. Allowing all online learning stakeholders to have a voice results in an educational environment in which all have something to teach, and all have something to learn.

Twigg: Course redesign. Twigg's (2003) *Improving Learning and Reducing Costs: New Models for Online Learning* gives an account of 30 postsecondary institutions who each received $200,000 from the Pew Charitable Trusts as part of the Program in Course Redesign. The 30 schools were charged with redesigning courses, so that the courses would enhance learning while simultaneously reducing costs. In examining the redesigned courses that were developed by the schools, five models emerged. Twigg provides a review of each of the five models.

The first model Twigg reviews, the supplemental model, does not modify the number of times the class convenes. The term "supplemental" refers to the technology that is added to the existing course. The universities that implemented the supplemental design retained the number and form (lecture) of the class meetings but added various technology-based assignments to be completed on computers. Some schools elected to give these technology-based assignments as in-class activities, others as out-of-class activities and some schools assigned both kinds of activities. This form of redesign resulted in gains in student achievement and reductions in cost.

The second model, the replacement model, is characterized by replacing some class time with online learning activities and online interaction:

> Rather than assuming that face-to-face meetings are the best setting for student learning, these projects have thought about why (and how often) classes need to meet in real time and the content of that meeting in relation to the desired learning outcomes. (p.33)

Some of the schools who implemented the replacement model allowed students to take assessments online. One financial implication for those schools is the increased number of students that can be taught by the same instructor because of the advantages of online assistance for students and automatic online grading for the instructors. Both of those, the online assistance and grading, freed a portion of the instructors' time. Additionally, some of the instructors used the additional time they gained from the replacement model to plan in-class activities and projects that purposefully enhanced student communication and collaboration. In that manner, the schools accomplished both goals, reduction of costs and improvement in learning. The replacement model may be similar to the hybrid

model of classes, a blend of face-to-face meetings along with online activities and assignments.

The emporium model, the third model Twigg assesses, gives the students the ability to decide, based on their own educational needs, when to access online course materials and the kinds of course materials to use. Students decide, as well, how quickly to proceed through the course. Students who need academic support can receive the help they need from instructional software or from one-on-one face-to-face personalized assistance. Such assistance is typically provided in a computer lab, or a classroom in which every student has a computer. In the emporium model of instruction, teachers and teaching assistants are always present in the computer lab/classroom. They respond immediately to students' requests for assistance. This model frequently employs instructional software; the software may offer activities such as computational exercises, quizzes and solutions to frequently asked questions. Based on the ever-increasing availability of online opportunities for instruction, it is possible that those may eventually supplant educational software in many academic venues, including emporium classrooms. The emporium model is associated with cost reductions and greater student engagement.

The fully online model, the fourth model, makes the instructor responsible for all aspects of the course, including design and delivery. Instructors are also responsible for interaction with students, responding to questions and comments. Few of the schools in the Program in Course Redesign project followed a fully online model; it was considered labor-intensive for instructors.

The fifth and final model is the buffet model. In this model of learning, each student is afforded numerous options within each course. "Since students learn in different ways, even the best 'fixed menu' of teaching strategies will fail for *some* students" (p. 36). A buffet of learning opportunities could include practice exams, taped lectures, live lectures, videos, labs (live and Web-based), texts, Web-based resources, and hands-on experiences, along with other education options. Students in the buffet model of learning scored higher on standardized exams than students in traditional classes.

Twigg concludes her article on the five different models by stating the obvious: without the learning opportunities that technology affords, it would not be possible to give students these multiple ways to learn. With technology, Twigg says, instructors can "add, replace, correct, and improve an ever-growing, ever-improving body of learning materials" (p. 38). In reality, the *ability* of 21st century instructors to incorporate those instructional opportunities is exceeded by the *responsibility* of educators to include multiple learning opportunities whenever possible.

Downes: Quest model. In *The Future of Online Learning: Ten Years On*, Downes (2008) describes an educational system characterized by a variety of teaching and learning venues, strategies, and options that the student creates for himself or herself. Today, students – perhaps more appropriately termed learners – have a vast array of resources from which they can research, explore, investigate, and learn. While certainly some of those resources are educators, other opportunities for teaching and learning abound in contemporary culture. Downes' vision includes personal learning environments (PLEs). PLEs are learning (and teaching) opportunities that individuals create for themselves. PLE resources include the almost limitless array of instructional

options available in contemporary society. Those resources include print text, personal communication, electronic communication, and any (or perhaps all) of the mobile devices that are omnipresent in most developed countries. While traditional forms of instruction, such as lecture, are not precluded in Downes' model, they are not the monolithic and monopolistic authorities that characterize traditional education. Downes maintains that with the creation of PLEs, the intent of education will be more on

> …creation and communication than on consumption and completion. It is best to think of the interfaces facilitated by a personal learning environment as ways to create and manipulate content, as applications rather than resources. (para. 87)
>
> In particular, that the various channels created by the PLE [personal learning environment] enable a student to form a set of connections with a collection of individuals at any given point. (para. 88)

This model of online education is noteworthy in that it portrays the learning that occurs in academic venues and – perhaps even more importantly – beyond academic venues. Currently, says Downes, learning systems are basically designed to deliver content, evocative of a linear model. A PLE, however, should be viewed as a "mechanism to interact with multiple services" (para. 88). The reference to multiple services speaks to the diversity of learning experiences and sources of instruction – again, many of those electronic - associated with this model. The Quest model is "based on the idea of ad hoc collections of people grouping together to solve puzzles in online multi-user environments such as MultiUser Dungeons (MUDs)" (para. 89). Also, the Quest model includes less emphasis on automated systems, such as systems that evaluate by machine scoring. Evaluation as included in this model consists of a comprehensive, complex

multipart portfolio of projects, collaborative efforts, online activities, and "products created through the process of engagement and interaction" (para. 90). This, according to Downes, allows "not only for the measurement of learning, but also for the recognition of learning" (para. 91).

Schools, Downes predicts, will have to consider themselves as one part of an educational puzzle, rather than having a monopoly on learning. There will still be degrees, according to Downes, but those will not be the standardized, prescribed culmination of an educational system that dictates a rigid curriculum. Degrees, as envisioned by Downes, "will, in such a world, resemble less a series of tests and hurdles, and will come to resemble more a process of making a name for oneself in the community" (para. 108). He theorized that the Quest Model , initially introduced in 1998, would represent learning in the decades following the article. In reality, Downes' model may never be realized – or it may become a reality sooner than Downes envisions.

Attwell: Personal learning environments. Attwell (2007) joins Downes (2008) in predicting that personal learning environments will be fundamental to the future of education. Attwell, director of the Welsh research institute, Pontydysgu, or "Bridge to Learning," appears frequently at conferences and publishes extensively in books and journals on topics such as open source software and personal learning environments. Attwell offers the following:

> Personal Learning environments are not an application but rather a new approach to the use of new technologies for learning. There remain many issues to be resolved. But, at the end of the day, the argument for the use of Personal

> Learning environments is not technical but rather is philosophical, ethical and pedagogic. (para. 56)

Guiliana: Personal learning environments. Because many teachers and learners are now recognizing their potential, there are numerous visualized representations of personal learning environments. This comes as no surprise, since the very term suggests learning that is specific and unique to one learner. So while each of us would describe our own personal learning environments differently, Guiliana (2009) offers the following representation. Guiliana's awareness of and appreciation for the role technology plays in the lives of her students - and others – is demonstrated in the diagram.

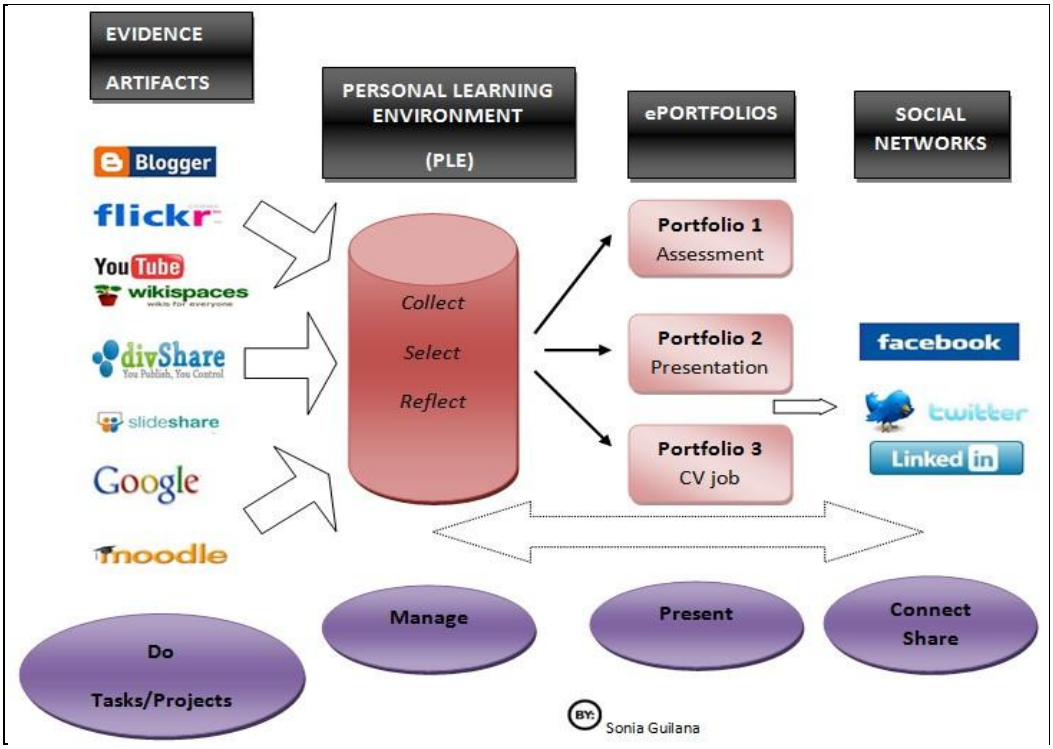

Figure 3. Personal Learning Environment.

The tremendous opportunities inherent in personal learning systems, educational programs that take advantage of the multiple sources of knowledge and learning available, must not be overlooked. Moreover, many of today's students have embraced and now effectively control the very technologies that drive personal learning environments. That reality, coupled with the effect of enhanced engagement, make personal learning environments an idea whose time is now.

This section of the paper began with definitions of online learning. Those definitions attempt to identify and describe the innovations and transformations that computers, and in particular the Internet, have generated in the world of education. The definitions and terms associated with online education are constantly changing, as is the form of learning itself. Early command-driven instruction bears little resemblance to the user-friendly online educational programs available today. New models of online education, each adding to the body of knowledge and contributing to the understanding of how best to construct future courses, appear almost daily.

The evolution of online education has been rapid and remarkable. There will be, soon, a generation of learners who cannot imagine learning without the advantages technology affords. That generation, or perhaps even the current generation of students, will affirm Seymour Papert's (1999) vision: "We imagine a school that revolutionizes learning for the next century…not one that reconditions learning as we have known it in the past" (section IX). Online technology has the ability to usher in the revolution of which Papert speaks. It is imperative that educators everywhere play a part in realizing the potential that is possible in Papert's vision.

Online Developmental Learning

The recurring theme throughout this report is the pressing need for research into the correlation between engagement, developmental learners, and online education. There has been little investigation of this relatively recent but significant triadic trend in education. There is also a critical need for further examination of issues associated with the relationship between the two components of developmental learning and online education.

Burgess (2009) states, "To date, only a few researchers have conducted studies in which they have investigated developmental reading and online learning, despite the rapid implementation of online learning opportunities in many colleges and universities" (p. 9). Since reading and writing, along with math, are typically those classes in which most students require remediation, Burgess' observation may be seen as applicable to all disciplines associated with developmental learning.

The increases in numbers of students who must enroll in developmental courses, coupled with the increases in numbers of students for whom online courses may be the only option, make this research imperative. Two-year, or community colleges, are more likely than other types of institutions to provide developmental education (National Center for Education Statistics, 2004). Simultaneously, community colleges, like other postsecondary institutions, are increasing the number of courses they offer in electronic, or online, formats. These two critical components of community colleges indicate their utility in the examination of students' perceptions of engagement in online developmental classes. The research Burgess (2009) calls for can best be realized, then, in the two-year schools that most frequently offer students online developmental classes.

The National Association for Developmental Education (NADE) examines multiple topics associated with developmental education; online developmental courses are among those. Glover (2002), whose article is included in NADE's 2002 Policy and Practice Report, taught an online developmental math class. In addition to sharing her experiences as a teacher, Glover offers her insights and observations on the phenomenon of online developmental coursework. She suggests that many online developmental classes may not offer the interaction and exchange of ideas between instructors, students, and peers, adding that the lack of interaction and exchange may diminish student academic success. While Glover does not use the term "student engagement," it is clear that she recognizes the significance of the communication that frequently characterizes engagement. Glover's research calls for additional investigation into student engagement among online developmental learners. Such investigation can best be accomplished by surveying the students in online developmental classes for their thoughts and reflections on this very timely topic.

Rientes, Rehm, and Dijkstra (2005) examine the multiple components that provide optimal learning experiences for developmental students in online courses. While each of the components included in the figure should be present, Rientes et al. add that the importance of the components can vary from one educational setting to the next. For example, in online contexts in which student collaboration is desired, student-to-student communication will be encouraged. In other contexts, such as teacher-centered contexts, the level and frequency of student-to-student communication will not be as critical. The study is certainly a valuable reference for educators and others. Of particular interest is the authors' acknowledgement of the two-way flow of teaching and

learning between students and other students and students and teachers. This demonstrates the paradigm shift away from the traditional if dated perception that the role of the teacher is to impart – and never to receive – knowledge. While Rientes, Rehm, and Dijkstra validate the value of interaction, a critical component of engagement, their study does not explore the impact of student engagement in online developmental classes. The current study builds on the findings of Rientes, Rehm, Dijkstra and others in the provision of exceptional instruction to the very students who may well benefit the most from engagement.

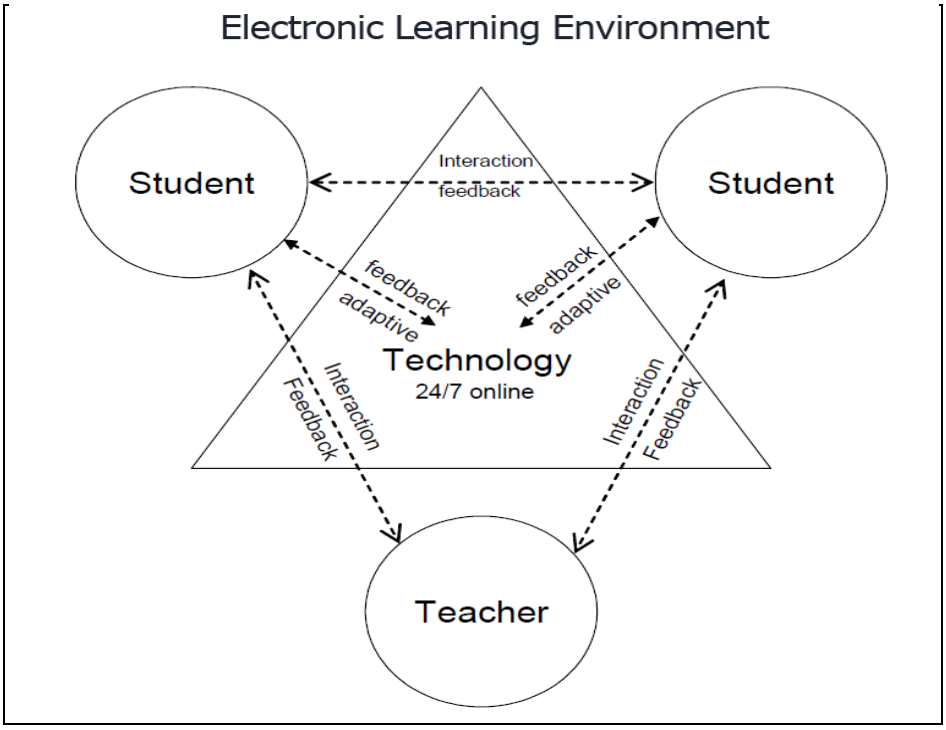

Figure 4. Online Remedial Teaching Model.

Another of the few forays into this area is Perez and Foshay's (2002) work, *Adding Up the Distance: Can Developmental Studies Work in a Distance Learning Environment?* The authors' understanding of the complexities associated with developmental learning is manifest. Their study focuses on four areas of investigation:

- development of effective, individualized and open entry/open exit programs (courses for which enrollment and completion are not defined) for developmental learners via distance education,
- cultivation of learners' motivations through the use of technology in developmental studies programs using distance education,
- exploration of successful developmental learner profiles using distance learning technology, and
- effective combinations of campus-based support service and distance learning delivery systems as models of success for developmental learners. (para. 4)

Perez and Foshay's report on the alignment of online learning and developmental learning provides benchmarks in an educational phenomenon that has not, to date, been adequately examined. Opportunities to remedy academic inequities, particularly for students who have historically been underserved by public schools, cannot be ignored. Perez and Forshay's work offers constructive recommendations. It should be noted that their observations on increasing motivation through the use of technology suggest enhanced engagement. That observation, along with the writers' other recommendations, can be utilized in the creation of online learning experiences. Moreover, while those can complement an examination of student engagement, the need for a purposeful, focused analysis of online developmental student engagement remains.

Student Engagement in Online Education

As with online education and developmental learning, there needs to be much more research into online education and student engagement. The benefits of student engagement include student commitment to academic success. In addition, the effects of

student engagement are significant in and beyond the duration of formal schooling (Stipek as cited in Voke, 2002).

While more studies must be undertaken, particularly in light of the increased numbers of students who are enrolling in online education, there are some significant bodies of work that can be discussed. One of those is authored by Robinson and Hullinger (2008). These researchers acknowledge the validity of traditional measures of student achievement, citing the significance of those measures to students, teachers, and schools. However, Robinson and Hullinger call for a "consideration of the quality of the learning experience as a whole" (p. 101). They submit that measuring student engagement can provide such an analysis. Robinson and Hullinger administered a modified version of the National Survey of Student Engagement. The survey results prompt the authors to formulate this recommendation: "The online curriculum should actively engage students through challenging academic rigor, consistent and timely student-faculty interaction, a collaborative learning environment, and activities that enrich the development of the student" (Robinson & Hullinger, p. 107).

Robinson and Hullinger's (2008) position on engagement in online education is comparable to the Community College Survey of Student Engagement's (2011) benchmarks for engagement: "active and collaborative learning, student effort, academic challenge, student-faculty interaction, and support for learners" (para. 3). The survey items created for this study, the examination of student engagement among learners enrolled in online developmental classes, were designed to reflect these recommendations for engagement.

Another of the endeavors to study, and thereby enhance, online student engagement, is Oliver's (2003) "Patterns of Engagement in Authentic Online Learning Environments." Oliver offers a framework for engaged online learning that incorporates three components: learning activities, learning supports, and learning resources. Learning activities that promote student engagement in online courses are, as defined by Oliver, those that include problems, tasks, investigations, projects, and case studies. Additionally, all of the online activities must be authentic. As defined by Oliver, authenticity:

- provides real-world contexts,
- is ill-defined and requires decomposition,
- entails complexity and takes time to complete,
- provides the opportunity for different perspectives,
- provides the opportunity to collaborate,
- provides the opportunity to reflect,
- can be integrated and applied across different subjects,
- is seamlessly integrated with assessment,
- creates polished products valuable in their own right, and
- allows competing solutions and diversity of outcome. (pg. 3)

Online learning resources, says Oliver, are web sites, files, documents, books and samples, manuals, policies, and plans. It the component of learning supports that is most evocative of student engagement; Oliver suggests these are discussions, teams, buddies, mentors, and other collaborative efforts. Oliver's presentation also includes his understanding of contemporary learning which is, he offers:

- student-centered,
- resource-based,
- teacher-as-coach,
- knowledge as means to an end,
- meaningful assessments,
- lifelong learning, and
- high levels of engagement. (p. 1)

Of these seven descriptors, it is perhaps appropriate to point out that the last, high levels of engagement, is frequently the result of the six descriptors that precede it. Oliver's contribution certainly corroborates the positive effect of engagement. Moreover, each of the seven descriptors provides opportunities for further research. It is the goal of this study to explore student engagement and students' perceptions of student engagement. As with Robinson and Hullinger's findings, Oliver's work is reflected in the survey on engagement among students enrolled in online developmental classes.

Student Engagement in Online Developmental Learning

There must be more examination of developmental coursework offered in online formats. There must be, as well, additional investigation of student engagement in online environments. There must be, finally, further research into the combination of developmental learning, online learning, and student engagement. There are some works, which, while not designed specifically to explore the union of developmental learning, online education, and student engagement, yield valuable information on that phenomenon.

One such study is that of Al-Jarf (2002), who shares his findings in "Effect of Online Learning on Struggling ESL Writers." While the focus of Al-Jarf's work is on ESL (English as a Second Language) students, his findings are germane to most developmental students. Al-Jarf writes that the use of web-based instruction brought out increased motivation along with greater academic proficiency. In a similar study, Huang (1999), examining the use of the Internet to support writing efforts of students for whom English is a foreign language, reports that increased enthusiasm accompanies online instruction and assignments. The work of both Al-Jarf and Huang address motivation and enthusiasm, both associated with enhanced engagement. Al-Jarf and Huang examine engagement among students whose academic needs parallel those of developmental learners. As such, their research is significant for examinations of online developmental learning.

Burgess (2009), another among those who are attempting to examine online developmental learning, confirms the findings of Al-Jarf (2002) and Huang (1999):

> It comes as no surprise that online communication methods such as chat and discussion board are so much more than electronic communications. They have the potential to be a key means to increase motivation, thereby increasing the desire to learn and think critically. (para. 65)

With these observations, Burgess acknowledges the role of chat and discussion boards in online education. In so doing, Burgess may also be recognizing the significance of technology in the academic and personal lives of today's learners. The majority of students are typically well versed in the latest modes of electronic communication. As evidenced by Facebook, Twitter, LinkedIn, and other sites and applications, students are

comfortable with these technologies and consider them an integral part of their daily lives. Tapping in to those realities, incorporating them into instruction and capitalizing on their potential for engagement, may be an effective strategy for increasing student achievement. Summary dismissal of the importance these learners assign to instant, continuous interaction with others indicates a lack of understanding of today's students and their technologies.

Synthesis of the Literature Review

Education is requisite for personal and professional success in the 21st century. Without education, individuals and nations cannot compete in a global society. All Americans must be supported in their quest for education. There are many Americans who must take and pass developmental courses before they can achieve their educational goals. These individuals, who acknowledge that their academic and instructional needs may surpass those of their contemporaries, are to be commended for their candor and their commitment. Even more, educators must commend the students' conviction with efforts to support them with instructional strategies and policies that can effectively meet their educational needs. Moreover, the opportunities afforded by online learning must be available to developmental students, as they are to other students. An omission of this nature might well be, as Arendale (2011a) suggests, a civil rights issue.

Student engagement, or student disengagement, affects developmental students profoundly. Student engagement cannot be left to chance. Online teachers, particularly those who teach developmental students, must be aware of the impact of student engagement. Their instruction must purposefully include engaging teaching, activities, assignments, and projects.

The triadic relationship between developmental learning, online education, and student engagement is crucial. There have been, though, few studies and little research into this relationship. Increasing numbers of developmental students continue to enroll in online classes. If these students have a positive attitude toward learning, if they become lifelong learners, if they recognize how education can change their lives - all qualities of student engagement - then their successes are increased. As a nation we become smarter, stronger, and more capable. Toward that end, we must increase our efforts to determine what it is that students find engaging. In particular, we must determine how best to engage online developmental students. If we are to be a nation that truly champions education, rather than just discussing it, all Americans must have optimal opportunities for attaining their academic goals.

Chapter III

Methodology

Research Methodology and Design

The methodology that was used in this study on students' perceptions of engagement in online developmental classes was ex post facto, in Latin, "after the fact." The ex post facto, or causal comparison, methodology is appropriate for studies in which the researcher cannot or ethnically must not manipulate the independent variables (Lord, 1973). Defined by Kerlinger (as cited in Lord, 1973), ex post facto research is:

> …that research in which the independent variable or variables have already occurred and in which the researcher starts with the observation of a dependent variable or variables. He then studies the independent variables in retrospect for their possible relations to, and effects on, the dependent variable or variables. (p. 360)

The independent variables in this study included the instructional strategies and student behaviors described in the survey that was administered both face-to-face and electronically to two-year college students who were enrolled in online developmental classes at the research site. Student demographics such as age, gender, and race/ethnicity were also independent variables, as was the discipline, math or English, in which the student was enrolled. The dependent variable was the effect on student engagement that each of those instructional strategies, student behaviors, demographics, or disciplines engendered. This research design was also inductive in nature. Inductive reasoning begins with observations and then generates a theory based on those observations (De Vaus, 2001).

Instrument development. The data that drove the research for this examination of student engagement was survey-based. Surveys are descriptive, non-experimental research methods that can be useful in correlational studies (Mahmoud, 2012). Using surveys, researchers sample a population. According to Busha and Harter (1980), a population is defined as a group of people or objects that share at least one common trait. The target population for this study was students enrolled in online developmental classes. Because surveying all of those students would not be possible, a smaller proportion of the students, a sample, were surveyed. The sample in this study was comprised of students who were enrolled in online developmental classes at the research site, a two-year college in the Southwest.

One of the aims of this study was to determine, based on students' perceptions, the number of times (*how often*) student behaviors and instructional practices that are frequently regarded as engaging actually occurred during the semester. Students were asked, further, the extent to which (*how much*) the behaviors or strategies affected the student's engagement. Eliciting student responses was pivotal to the study. One way to collect responses is through the use of surveys, a data collection method frequently utilized in educational research.

The survey designed for this study on student perceptions of engagement asked students to respond to 10 survey items on two dimensions. The first survey dimension addressed number of times during the semester students in online developmental math and English classes observed the instructional strategies and student behaviors (*how often*). The second survey dimension asked the students how much, if at all, the instructional strategies and student behaviors affected the students' engagement (*how*

much). There were, of course, challenges with this kind of questioning. One such challenge was the difficulty of defining student engagement. To address definition-related concerns, the survey described student engagement in words, terms, and phrases that were appropriate for students in the sample who may, like many undergraduates, read at a pre-college level:

> We use the term "student engagement" to describe what happens when students are excited about their own learning. When students are "engaged," they put a lot of effort into their classes because they know they will be able to use that learning to make their lives better. All of us learn best when we are engaged students. We want to know what things you, your classmates, and your instructor have done that you think have added to your student engagement. (Study Survey)

Another challenge associated with a survey such as this one is that it can be difficult to establish significant findings based solely on self-reports of feelings or attitudes. As one researcher who has worked with student surveys remarked, "It's difficult to get students to tell us what they think because many times students don't know themselves what they think." (K.A. Fisher, personal communication, February 21, 2011). To minimize subjectivity, the items in the survey, while eliciting perceptions, are associated with activities in which the students have engaged, or activities in which the instructors have engaged.

The length of a survey is always a consideration. For this group of students, survey brevity was of particular importance. These students, perhaps more than others, might become anxious or frustrated with an overly-long survey. Accordingly, the survey was limited to 10 items: seven student behaviors and three instructional strategies.

Another consideration was the accuracy with which students could reasonably be expected to recall behaviors and strategies that had occurred during the semester. To minimize inaccuracies associated with recall, the survey items refer to student behaviors or instructional strategies that students could easily identify as having occurred, or not occurred, during the current semester.

Many of the survey items written for this study were adapted from items on the National Survey of Student Engagement (NSSE) and Community College Survey of Student Engagement (CCSSE). The NSSE and the CCSSE are two of the most widely recognized instruments currently in use in higher education. The validity and reliability of the surveys are well documented (Ross & Roman, 2009). The CCSSE, unlike the NSSE, cannot be administered electronically. However, the ability to administer an online survey to students who are enrolled in online classes may be not only appropriate but requisite: in many of these classes, all of the instruction, communication, and evaluation are conducted exclusively online in electronic classrooms. There is, with regard to many online classes, little or no need for students to report to a brick and mortar campus. The online restrictions associated with the CCSSE were among the concerns that prompted the creation of a new instrument to assess perceptions of engagement among online developmental learners. Additionally concerning is the CCSSE verbiage that could be problematic for some students enrolled in online developmental classes. Finally, with 37 items, the length of the CCSSE might be challenging for some developmental learners. The CCSSE is, nevertheless, among the most accurate instruments for the study of student engagement and, as such, many of the survey items

for this study evolved from CCSSE items. The findings of educators, researchers, and writers previously cited are also reflected in the survey designed for this study.

The first survey item, Survey Item 1 (Student Behavior), "You posted questions in class," is an indication of student effort. Student effort is one of the five benchmarks of engagement identified by the Community College Survey of Student Engagement (2011). Referring to electronic communication, such as posting questions in a virtual classroom, Burgess (2009) finds that it has "the potential to be a key means to increase motivation, thereby increasing the desire to learn and think critically" (para. 65).

Students in developmental classes, some of them "conditioned" for classroom failure, may be reticent to ask questions in a face-to-face academic environment. Opportunities for asking questions in an electronic format may be considered less personal than in face-to-face venues and, for these students, perhaps less threatening. A similar item, "You asked questions in class or contributed to class discussions," is included in the Community College Survey of Student Engagement. The ability of students in online developmental classes to post questions *online* is especially germane in its potential to reduce the anxiety associated with asking questions and thereby impact student engagement.

Survey Item 2 (Student Behavior), "You contributed to an online class discussion," is, like the first survey item, adapted from the Community College Survey of Student Engagement. Knowing how students feel about online discussions can help drive online course design: if student engagement is positively affected by online discussions, instructors may want to encourage those opportunities in their electronic classrooms. Although the CCSSE asks students about questions and discussions in the same survey

item, "You asked questions in class or contributed to class discussion," collecting student responses to two separate survey items (one survey item about questions and another survey item about discussions) was determined to be the best way to make a distinction between the two. Like posting questions, contributing to an online discussion is a method of communicating electronically and has the same potential to motivate students. Another similarity contributing to online discussions shares with asking questions is that it is indicative of student effort.

The next survey item, Survey Item 3 (Student Behavior), asked students to indicate their responses to "You worked hard to meet your instructor's expectations." A similar item, "Worked harder than you thought you could to meet an instructor's standards or expectations" is included in the Community College Survey of Student Engagement 2011 Cohort Key Findings. Robinson and Hullinger's 2008 research incorporates and replicates components of the Community College Survey of Student Engagement. Similar to the 2011 CCSSE report, Robinson and Hullinger cite "challenging academic rigor" as a method for enhancing student engagement (p. 107).

Survey Item 4 (Student Behavior), "You applied something you learned in class to a situation in real life," was included because of the relationship between relevance and student engagement. A similar item, "Applying theories or concepts to practical problems or in new situations," is included in the CCSSE. Moreover, numerous studies have postulated a relationship between relevance and engagement, among them Herrington, Oliver, and Reeves' study. Herrington, Oliver, and Reeves' 2003 study of student engagement and authenticity includes, "Authentic activities have real-world relevance" (para. 3).

"You discussed ideas from your readings or classes one-on-one with your instructor" is Survey Item 5 (Student Behavior). This is adapted from the Community College Survey of Student Engagement (CCSSE) (2011), "Discussed ideas from your readings or classes with instructors outside of class." A CCSSE 2010 report advises educators to "build and encourage relationships" (p. 13). Robinson and Hullinger (2008) call for "consistent and timely student-faculty interaction" (p. 107). Glover, an online developmental math instructor whose findings are in the National Association for Developmental Education's 2002 Policy Report, cites a lack of interaction between instructors and students as one of the most profound concerns associated with online developmental courses.

The next item is Survey Item 6 (Student Behavior), "You used a social networking site, such as Facebook, to communicate with another student in your class." The impact of social networking on higher education is manifest. Colleges and universities create accounts on such sites; Facebook is the site most institutions seem to prefer at this time. Recognizing the significant role social networking plays in the lives of students, the Community College Survey of Student Engagement designed an instrument to collect data on electronic communication, the "Special Focus Module – Engagement Through Technology." That instrument asks students:

> How often do you use SOCIAL NETWORKING tools such as Instant Messaging, Text Messaging, MySpace and/or Facebook, Twitter, etc. to communicate with other students, instructors, or college staff about coursework *at this college*? (Do not include email such as Hotmail, Gmail, etc.). (2010)

It has been suggested, by Herrington, Oliver, and Reeves (2003) and others, that collaboration between students can promote student engagement. Facebook is a form of electronic community with which most students are familiar; an examination of how, or if, students use Facebook to communicate with their classmates is appropriate. Even more, if students perceive that communicating with classmates via Facebook increases their engagement, postsecondary instructors would do well to consider the opportunities and challenges associated with creating Facebook groups for their students. Of course, the concerns associated with social networking, including inappropriate teacher-student relationships, are undeniable.

The seventh survey item, Survey Item 7 (Instructional Strategy), "You received clear instructions from your instructor on how to do well in this class" is, like many of the items on this survey, similar to an item on the Community College Survey of Student Engagement. In a 2011 report, the CCSSE identified "support for learners" as one of five benchmarks of engagement. All students can benefit from having specific, thorough, and detailed information and guidelines that explain how they can be successful in school. However, these kinds of support may be of even greater significance for first generation college students, English Language Learners, and those whose previous academic endeavors have been less than successful. These students frequently populate developmental classrooms and classes. Educators who provide very clear guidance on what students must do to succeed in their classes may be impacting not only their students' academic progress but their students' engagement, as well.

Academic rigor is addressed in the Survey Item 8 (Instructional Strategy), "Your instructor assigned activities that challenged you to work as hard as you could." This

parallels the survey's third item, which asks students to respond to "work[ed] hard to meet [their] instructors' expectations." Also like the third item, the eighth item is adapted from the Community College Survey of Student Engagement. As with each of the 10 items on the survey, this item was included to determine if students themselves report that they have observed this instructional strategy and, if so, such academic challenge affects their engagement.

The ninth survey item is, like the fourth survey item, included to address the theories that link real-world relevance to student engagement. Survey Item 9 (Student Behavior), asks students to respond to "You understood how what you learned would help you in real life." While such relevance has been regarded "engaging" by those who teach, those who analyze data, and those who write about engagement, it is nevertheless important to hear from the students themselves about the relationship between relevance and engagement. As with all of the survey items, students were asked, as well, to indicate if that real life relevance affects their engagement *Not at all*, *Somewhat*, or *A great deal*.

The final survey item, along with the seventh and eighth items, describes an instructional strategy. The three instructional strategies in the survey are, unlike the student behaviors, within the purview of instructors. The tenth survey item asks students to respond, with regard to both frequency (*how often*) and effect on engagement (*how much*), to "Your instructor did a good job of making everyone in the class feel welcome." The Community College Survey of Student Engagement (2008) reports that student-faculty interaction is one of the instructional strategies most frequently associated with engaging students. Many educators would concur that communicating with students can

be one of the most effective strategies for promoting student commitment. Feeling welcome is, perhaps, analogous to the "pat on the back" from the instructor that makes students feel that the class is "more rewarding" (Adkins & Fisher, 2009).

Instrument validity. The 10 items on the survey resulted from a study of the literature on developmental learning, student engagement, and online education. Prior to the actual administration of the survey to students at the research site, the survey was presented to students at the sponsoring university. These students were enrolled in a face-to-face developmental math class during the Fall 2011 semester at a large four-year university. Cognitive interviews with these students were conducted to address problems that could negatively affect the survey's validity. Such interviews can be instrumental in correcting ambiguity or vagueness in survey instructions or survey items.

Each of the six students was given a hardcopy of the survey. Because a collective definition of student engagement was fundamental to the survey and the study, cognitive interviewees were first asked to read the definition of student engagement given in the survey, then to define student engagement in their own words. The definitions the students indicated their understanding of the term. Similar protocols were followed for terms such as "feel welcome," "real life," and other words or phrases that might be confusing or difficult to understand. Throughout the interview, as the students answered the survey questions, they were asked to identify any words, terms, or phrases that were unclear or obscure. For items involving recall, the students were asked about the processes they used to answer those items.

The students who were interviewed noted several problems with the draft survey. One very significant problem that was noted was in the phrasing of two statements

regarding age. The statements, as they were originally worded, read: "This survey is designed for college students who are OVER the age of 18. I am over the age of 18." As written, students who were 18 years of age (but not OVER 18 years of age) would be disqualified. The statements were revised to read: "This survey is designed for college students who are 18 years of age or older. I am 18 years old or older." In addition, the students pointed out other errors such as switched verb tenses and ambiguous phrases. Based on the results of the students' comments and remarks, survey instructions and survey items were revised accordingly.

It is worthy of mention that several of the cognitive interviewees were eager to discuss Item 6: "You used a social networking site, such as Facebook, to communicate with another student in your class." Item 6 prompted three students to ask if they could "demonstrate," with their cell phones, the communication networking they shared with other students attending the same school. The students displayed literally hundreds of Facebook postings that ranged from queries about the "easiest" professors to requests for information about housing and invitations to parties. While the cognitive interviewees' enthusiasm for Facebook did not result in any changes to the survey, it did confirm that social networking has an impressive presence in higher education.

Description of research site. There are some four-year colleges and universities that offer developmental classes. Because the need for developmental classes is increasing, four-year postsecondary institutions may need to reexamine their developmental programs. At this time, the greatest availability of developmental classes is at two-year, or community colleges. As reported by Wei et al. (2009), only about 29% of students report having taken developmental classes in a four-year college or university.

Among students enrolled in two-year colleges, 42% have taken at least one developmental class. In Texas, about 90% of the developmental classes are taken at two-year colleges (Kever, 2010).

The survey for this examination of engagement was administered to students enrolled in online developmental classes at one research site, a two-year college in the Southwest. The school is a multi-college system with an enrollment, in 2012, of 74,000 students per semester; that number represents a 30% increase since 2009. The ethnicity of the school's population is diverse. In 2009, the school's Office of Institutional Research reported the following student ethnicities: 31.7% African-American, 1.6% American Indian, 9.6% Asian, 16.6% Caucasian, 30.0%, Hispanic, 9.3% nonresident alien, and 1.1% unknown. There are many at the school whose age would be considered non-traditional for students: in 2009, 8.2% were under 18, 77.2% were 22 to 35, 11.7% were 36 to 50, and 2.9% were over 51. The average age at the research site was 26.1 years old in 2009. The population of male students, again in 2009, was 41.3% and the population of female students was 58.7%.

Most colleges and universities determine the need for developmental coursework based on the administration of placement tests to all entering students. The research site, like most, assesses students upon enrollment; students are assigned to developmental classes according to assessment results. The school's developmental disciplines include Intensive English, Academic English as a Second Language, Developmental English (Writing), Guided Studies (Reading) and Developmental Mathematics. For this study of engagement in online developmental classes, it was necessary to work with a school that

offered not only developmental classes, but a school that offered developmental classes in an online format.

The research site provides a robust academic program for developmental learners. The research site also offers many of their developmental classes in an online format. Two-year colleges, such as the research site, "have the highest growth rates and account for over one-half of all online enrollments for the last five years" (Allen & Seaman, 2007, p. 1). The research site associated with this study of student engagement reported an increase in online enrollment that reflects that trend: the school's online enrollment from 2008 to 2010 increased by 22%.

Procedures and Data Collection

Obtaining informed consent. To ensure compliance with established research protocols, the cover letter included the following statements:

> As stated, your answers will be completely anonymous, since you don't put your name on the survey. No one, including your teachers, will see your answers. The results of this study may be published in professional and/or scientific journals. It may also be used for educational purposes or for professional presentations. However, no individual subject will be identified.

Students were not asked to include their names, their student identification numbers, or any other identifier when completing the survey. They were asked to indicate the class (math or English) in which they were enrolled.

Research protocol. Spring 2012 enrollment at the research site included students in approximately 26 sections of online developmental math classes along with students in six sections of online developmental English. The distance education director and the

math and English department chairs were supportive of this research; even more, they are committed to their students' success. The director and the chairs provided assistance and encouragement throughout the process of researching student engagement. To introduce the study and the survey to the research site instructors, the researcher sent an email, explaining the research and noting that it was sanctioned by both the two-year college and the sponsoring university, to each of the instructors of the online developmental classes. That email (sent at week 3 of the 16-week semester) asked the instructors to post the link to the cover letter and survey when they received the final email from the investigator (at week 10). At week seven, the instructors received an additional email, thanking them again for their participation in the study and advising them that the link to the cover letter and survey would be emailed to them in about three weeks. Ten weeks into the semester, the link to the cover letter and survey was emailed to the instructors. The instructors were asked to make the link available to their students by posting the link as an announcement or by sending emails to their students. The instructors were asked, also, to contact the researcher regarding their plans to participate (by posting an announcement or sending emails to their students), or not to participate, in this research. Because the number of students in each instructor's class could be determined, the investigator was able to determine the number of students who had been invited to participate in the study. The cover letter and survey were published online and hosted on a secure server at the sponsoring university. Responses were stored on a secure electronic database at the sponsoring university. The cover letter and survey were to have been available, online, to the students for two weeks. However, two weeks after the online administration of the survey, only 14 student responses had been received. To

increase student participation, the distance education director and English and math department chairs at the research site asked the instructors to remind their students of the survey's significance. The survey's online availability was extended for an additional two weeks. At week four of the online survey administration, the number of responses was still low: only 34 online developmental students had completed the online survey. While the survey for this study had been designed to be administered online, the very low response rates necessitated a reconsideration of the mode of administration. Students enrolled in online developmental classes at the research site were not required to attend any classes on any of the school's campuses. However, 10 of the online developmental math instructors gave final exams that would be administered at one of the research site's testing centers. The researcher was given permission to be present at the research site's testing centers on the days final exams were administered. At the testing centers, the researcher included a hardcopy of the student engagement survey with each student's final exam test booklet. The researcher was also allowed to collect the completed surveys when the students submitted their final exams. A total of 176 hardcopies of the student engagement survey were distributed over the three days of testing. Five students opted not to complete the voluntary survey. All of the responses from students who were enrolled in classes that did not provide opportunities for online questions and discussions were eliminated from the data set, as were responses from students in a class in which the availability of electronic questions and discussions could not be confirmed. While 171 surveys were collected, only 85 were included in the final data set. Eliminating 86 surveys was necessary to ensure that the data set did not include survey responses from students whose classes did not provide options for posting online questions and

contributing to online discussions. Students enrolled in online developmental English classes were not required to report to a testing center. The researcher and research site distance education director and faculty contacted the English instructors, again soliciting their continued assistance with the administration of the online survey. While some students enrolled in online developmental math classes had completed the online survey, those responses were not used, since there was no way to confirm that those students did not complete both an online survey and a hardcopy survey. All of the responses completed by students in online developmental English classes were included in the data analysis, since none of those students completed hardcopies of the surveys. A total of 28 surveys were completed online by students in online developmental English classes. The final data set that was used included 113 student surveys.

Data Analysis

SPSS analytic software was used to analyze the survey data. Descriptive statistics were used to describe differences between and among groups of students along with providing analyses of the sample. Several statistical procedures were used to compare student responses to survey items and measure levels of engagement.

The dependent variable in this study was the effect (if any) on the level of student engagement as reported by the students completing the survey. The independent variables in this study included the three instructional strategies and seven student behaviors in the 10-item survey. Additional independent variables were student demographics (gender, race/ethnicity, and age) and the academic disciplines (math or English) in which the students were enrolled. Data was analyzed through the use of frequencies, multiple linear regressions, independent samples t-tests, and ANOVAs.

Chapter IV

Findings

The purpose of this quantitative study was to investigate students' self-reported perceptions of engagement in online developmental classes. A 10-item survey, which included seven student behaviors and three instructional strategies, was designed for the study. All 10 items have been associated with student engagement.

Students were asked to respond to each of the 10 items along two dimensions: the frequency with which the item occurred during the semester (*how often*) and the impact on the students' engagement (*how much*). The survey was administered to students enrolled in online developmental math and English classes at a two-year college in the Southwest.

The survey respondents were students enrolled in online developmental math or English classes at the research site, a two-year college in the Southwest. Students in the math classes were invited to participate in the study by completing a hardcopy of the survey. Students in the English classes completed the survey in an online format.

Table 1

Enrollment by Discipline

Discipline	*N*	%
math	85	75.2
English	28	24.8

Table 1 presents the enrollment numbers and percentages, by discipline, of the study's sample population. The number of students enrolled in online developmental

math classes is significantly larger than the number of students enrolled in online developmental English classes.

Table 2

Sample Demographics

	N	%
Gender		
Female	81	71.7
Male	32	28.3
Age		
18 – 24	40	35.4
25 – 32	44	38.9
33 – 39	17	15.0
40 – 47	6	5. 3
48 – 55	3	2.7
56 – 63	3	2.7
Race/Ethnicity		
American Indian or other Native American	1	.9
Asian, Asian American or Pacific Islander	10	8.8
Black or African American	54	47.8
White, Non-Hispanic	19	16.8
Hispanic, Latino, Spanish	25	22.1
Other	4	3.5

Descriptive statistics were run for the demographic variables, including gender. A larger percentage (71.7%) of the students who completed the survey was female. This is consistent with the findings of Aud, et al. (2011) who report greater numbers of females enrolling in developmental classes.

The average age at the research site was 26.1 years old in 2009. Seventy four percent of the students in the sample were between the ages of 18 and 32. This suggests that the ages of the students in the sample are commensurate with the average age at the research site.

The data gathered at the research site was organized into six different ethnic groups. In the total student population at the research site, the percentage of African American students is 31.7%; 47.8% of the sample reported that ethnicity. Hispanic ethnicity among the students in the sample was reported at 22.1%, while at the research site it was 30.0%. The percentage of survey respondents who gave their ethnicity as White, Non-Hispanic was 16.8%. The research site percentage for White, Non-Hispanic is similar: 16.6%. Asian students who completed the survey accounted for 8.8%; the enrollment percentage at the research site is 9.6%. While only one of the students who completed the survey was American Indian (.9 %), the corresponding percentage of American Indians at the research site is also relatively low: 1.6%. Four students, or 3.5% of the students who completed the survey, selected the "Other" ethnicity option. The research site reports 1.1% of the student body opt to give their ethnicity as unknown. "Nonresidential alien" category was not included in the category for legal and privacy reasons, although the research site reports that percentage as 9.3% of the total school enrollment.

Research Question 1: What were the student-reported frequencies of the instructional strategies and student behaviors denoted in the survey items?

Table 3

Survey Item Frequencies and Effects

	Frequency *(how often)*								Effect *(how much)*					
	Never		*Sometimes*		*Often*		*Always*		*Not at all*		*Somewhat*		*A great deal*	
Survey Items	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%
1. (SB) posted questions	48	42.5	42	37.2	14	12.4	9	8.0	44	38.9	39	34.5	22	19. 5
2. (SB) online discussion	50	44.2	27	23.9	17	15.0	19	16.8	55	48.7	28	24.8	22	19.5
3. (SB) worked hard	1	.9	7	6.2	29	25.7	76	67.3	17	15.0	24	21.2	64	56.6
4. (SB) applied something	18	15.9	33	29.2	24	21.2	35	31.0	37	32.7	28	24.8	36	31.9
5. (SB) discussed ideas	63	55.8	26	23.0	9	8.0	14	12.4	48	42.5	33	29.2	24	21.2
6. (SB) social networking	90	79.6	9	8.0	8	7.1	6	5.3	75	66.4	14	12.4	14	12.4
7. (IS) clear instructions	9	8.0	21	18.6	9	8.0	74	65.5	16	14.2	29	25.7	58	51.3
8. (IS) activities challenged	5	4.4	16	14.2	22	19.5	70	61.9	18	15.9	29	25.7	58	51.3
9. (SB) real life	14	12.4	24	21.2	17	15.0	58	51.3	24	21.2	27	23.9	52	46.0
10. (IS) everyone welcome	14	12.4	14	12.4	19	13.3	70	81.9	20	17.7	23	20.4	62	54.9

Students were asked to report the number of times the seven student behaviors and three instructional strategies described in the survey items occurred (*how often*).: *Never*, *Sometimes*, *Often* or *Always* In addition, students were asked to indicate whether the items affected their engagement (*how much*) by responding *Not at all*, *Somewhat*, or *A great deal*.

Four survey items, Survey Items 1, 2, 5, and 6, share similar percentages of students who report that they *Never* engaged in the behaviors described in the survey items. When responding to the Survey Item 1 (Student Behavior), "You posted questions in class," 42.5% of the students in the sample reported that they *Never* availed themselves of this option. Again, it should be noted that the sample includes only students enrolled in online classes in which students were given opportunities to post questions and contribute to online discussions. The responses for Survey Item 2 (Student Behavior), "You contributed to an online discussion," are similar: almost half (44.2%) of the students responded that they *Never* contributed to online class discussions. Responding to Survey Item 5 (Student Behavior), "You discussed ideas from your readings or classes one-on-one with your instructor," over half (55.8%) of the students reported that they had *Never* had discussions such as these with their instructors. In addition, 79.6 % of the students reported *Never* for Survey Item 6 (Student Behavior), "You used a social networking site, such as Facebook, to communicate with another student in your class." Although the student behaviors described in Survey Item 1, 2, 5, and 6 have been linked to student engagement, the students' survey responses do not indicate that the students engage in these behaviors frequently. The four student behaviors described Survey Items 1, 2, 5, and 6 are characterized not only by the numbers of students who reported that the

behaviors *Never* occurred, but also by the numbers of students who reported that there was no effect on engagement. The absence of effect (*Not at all*) on engagement that follows a student behavior that does not take place may seem obvious. However, the behaviors, along with the instructional strategies, were also analyzed for their ability to predict student engagement. All of the student behaviors and instructional strategies were examined for effects on engagement by gender, age, ethnicity and discipline.

Contrasting the significant numbers of students who reported that Survey Items 1, 2, 5, and 6 *Never* occurred, there were items that significant numbers of students reported *Always* occurred. One such item was Survey Item 3 (Student Behavior), "You worked hard to meet your instructor's expectations." Of the students in the sample, 67.3% indicated that this *Always* occurred. The corresponding effect on engagement for this item was 56.6% for *A great deal*; in other words, over half of the students reported engaging in this behavior reported, as well, that this behavior had a significant effect on their engagement.

Unlike some student behaviors, characterized by relatively low rates of occurrence (*how often*), the student reports of instructional strategies suggest that instructors are consistently employing strategies associated with engagement. The percentage of students who reported *Always* for Survey Item 7 (Instructional Strategy), "You received clear instructions from your instructor on how to do well in this class" was 65.5%. Confirming what much of the research on engagement suggests, over half (51.3%) of the students reported that the instructional strategy described in Survey Item 7 affected their engagement *A great deal*. The other two survey items linked to instructional strategies also demonstrate notable frequencies. Survey Item 8

(Instructional Strategy), "Your instructor assigned activities that challenged you to work as hard as you could" and Survey Item 10 (Instructional Strategy), "Your instructor did a good job of making everyone in the class feel welcome" were both reported as occurring *Always* at rates of 61.9%. The resulting effects on engagement for those strategies are also notable: students reported that their engagement was affected at rates of 51.3% and 54.9%.

Survey Item 4 (Student Behavior), "You applied something you learned in class to a situation in real life," was reported by 81.4% of the students; 63.3% of the students reported that their engagement was affected by Survey Item 4. Survey Item 9 (Student Behavior) "You understood how what you learned in class would help you in real life," was reported by 87.5% of the students to have occurred; 69.9% of the students reported that the behavior had an effect on their perceptions of engagement.

Each of the survey items was further assessed for their ability to predict engagement. These items were also reviewed for their effect on engagement based on gender, ethnicity, age, and discipline. The frequencies associated with Research 1 are in Table 3.

Research Question 2: What percentage of the variance in student-perceived effects on engagement was predicted by different instructional strategies?

Table 4

Predictive Ability of Instructional Strategies

Survey Items	*R*	R^2	*F*	*P*
7. You received clear instructions on how to do well in this class. 8. Your instruction assigned activities that challenged you to work as hard as you could. 10. You instructor did a good job of making everyone in the class feel welcome.	.242	.059	2.014	.117

	β	*t*	*p*
7. You received clear instructions on how to do well in this class.	.279	2.057	.042
8. Your instructor assigned activities that challenged you to work as hard as you could.	.098	.846	.400
10. Your instructor did a good job of making everyone in the class feel welcome.	-.203	-1.474	.144

Multiple regression analysis was used to test if the instructional strategies denoted in Survey Items 7, 8, and 10 predicted effects on engagement. The results of the regression indicated that the three predictors explained 5.9% of the variance (Adjusted R^2 = .030, $F(3, 97) = 2.014$, $p = .117$). The overall regression model did not predict perceived effects on engagement. While the beta weight for Survey Item 7 (Instructional Strategy), "You received clear instructions from your instructor on how to do well in this class," is suggestive ($\beta = .279$, $p = .042$), it cannot be considered statistically significant.

Survey Item 8 did not predict effect on student engagement ($\beta = .098$, $p = .400$), nor did Survey Item 10, ($\beta = -.203$, $p = .144$).

Research Question 3: What percent of the variance in student-perceived effects on engagement was predicted by different student behaviors?

Table 5

Predictive Ability of Student Behaviors

Survey Items	*R*	R^2	*F*	*p*
1. You posted questions in class.	.523	.273	4.723	.000
2. You contributed to an online class discussion.				
3. You worked hard to meet your instructor's expectations.				
4. You applied something you learned in class to a situation in real life.				
5. You discussed ideas from your readings or classes one-on-one with your instructor.				
6. You used a social networking site, such as Facebook, to communicate with another student in your class.				
9. You understood how what you learned would help you in real life.				

	β	*t*	*p*
1. You posted questions in class.	.331	2.863	.005
2. You contributed to an online class discussion.	-.126	-1.121	.265
3. You worked hard to meet your instructor's expectations.	-.147	-1.523	.131
4. You applied something you learned in class to a situation in real life.	.281	2.060	.042
5. You discussed ideas from your readings or classes one-on-one with your instructor.	.192	1.692	.094
6. You used a social networking site, such as Facebook, to communicate with another student in your class.	.067	.625	.534
9. You understood how what you learned would help you in real life.	-.137	1.024	.309

Multiple regression analysis was used to test if the student behaviors represented by Survey Items 1, 2, 3, 4, 5, 6, and 9 predicted effects on engagement. The results of the regression indicated that the seven predictors explained 27.3% of the variance (Adjusted $R^2 = .273$, F (7, 88) = 4.723, p =.000). Survey Item 1 (Student Behavior) "You posted questions in class" predicted effect on student engagement ($\beta = .331$, $p = .005$). Survey Item 4 "You applied something you learned in class to a situation in real life" also predicted effect on student engagement ($\beta = .281$, $p = .042$).

Research Question 4: Were there different relationships when the effect of instructor-based strategies was compared to student-based behaviors?

Table 6

Predictive Ability: Instructional Strategies Compared to Student Behaviors

Survey Items	*R*	R^2	*F*	*p*
(Instructional Strategies) 7., 8., 10.	.234	.055	2.646	.076
(Student Behaviors) 1., 2., 3., 4., 5., 6, 9.				

	β	*t*	*p*
(Instructional Strategies) 7., 8., 10.	.027	.229	.819
(Student Behaviors) 1., 2., 3., 4., 5., 6, 9.	.219	1.849	.068

Table 7

Relationships Between Effects: Student Behaviors and Instructional Strategies

	Effects of Instructional Strategies		
Effects of Student Behaviors	7. clear instructions	8. activities challenged	10. everyone welcome
1. posted questions	.315**	.317**	.429**
2. online discussion	.311**	.300**	.358**
3. worked hard	.607**	.604**	.499**
4. applied something	.397**	.490**	.499**
5. discussed ideas	.435**	.362**	.474**
6. social networking	.116	.128	.297**
9. real life	.482**	.458**	.538**

**Correlation is significant at the .01 level.

The results of multiple regression analysis indicated that there were no different relationships when the effects of the instructional strategies were compared to student-based behaviors (Adjusted R^2 = .055, $F(2, 91) = 2.646$, $p = .076$). Neither the instructional strategies ($\beta = .027$, $p = .819$) nor the student behaviors ($\beta = .219$, $p = .068$) predicted different relationships. The results of the regression are shown in Table 6.

There are two significant correlations between instructional strategies and Survey Item 3 (Student Behavior) "You worked hard to meet your instructor's expectations." The first significant correlation is with Survey Item 7 (Instructional Strategy) "You received clear instructions from your instructor on how to do well in this class" $r(102) = .607$, $p < .000$. The second significant correlation is with Survey Item 8 (Instructional Strategy) "You understood how what you learned would help you in real life" $r(101) = .604$, $p < .000$. There are 17 additional correlations between the instructional strategies and the student behaviors. The results of the correlation are shown in Table 7.

Research Question 5: Were the results different for the following demographic groups?

a. gender (male/female)
b. ethnicity (American Indian or other Native American; Asian, Asian American or Pacific Islander; Black or African American, Non-Hispanic; White, Non-Hispanic; Hispanic, Latino, Spanish; Other)
c. age (18 – 24; 25 – 32; 33 – 39; 40 – 47; 48 – 55; 56 – 63)

Table 8

Effects of Gender on Perceptions of Engagement

Survey Items	Gender	*N*	*M*	*SD*	*t*	*p*
1. (SB) posted questions	Female	75	1.81	.783	.492	.624
	Male	30	1.73	.740		
2. (SB) online discussion	Female	76	1.67	.806	-.304	.752
	Male	29	1.72	.797		
3. (SB) worked hard	Female	75	2.55	.722	2.051	.046
	Male	30	2.20	.805		
4. (SB) applied something	Female	72	1.97	.872.	-.338	.737
	Male	29	2.03	.823		
5. (SB) discussed ideas	Female	76	1.71	.813	-1.312	.195
	Male	29	1.93	.753		
6. (SB) social networking site	Female	73	1.27	.629	-3.060	.003
	Male	30	1.73	.828		
7. (IS) clear instructions	Female	74	2.53	.707	2.564	.014
	Male	29	2.10	.772		
8. (IS) activities challenged	Female	74	2.45	.761	1.351	.182
	Male	31	2.23	.762		
9. (SB) real life	Female	73	2.26	.834	-.227	.821
	Male	30	2.30	.794		
10. (IS) everyone welcome	Female	76	2.53	.757	2.661	.011
	Male	29	2.07	.799		

As indicated in Table 8, women reported significantly greater perceived effects on engagement for one student behavior and two instructional strategies. Men reported significantly greater perceived effects on engagement for one student behavior.

Table 9

Effects of Ethnicity on Perceptions of Engagement

	df	*F*	*p*
	4, 90	.646	.631

The one-way between subjects analysis of variance failed to reveal a significant effect of ethnicity on student engagement perceptions, $F(4, 90) = .646$, $p = .631$.

c. age (18 – 24; 25 – 32; 33 – 39; 40 – 47; 48 – 55; 56 – 63).

Table 10

Effects of Age on Perceptions of Engagement

	df	*F*	*p*
	5, 89	.437	.822

The one-way between subjects analysis of variance failed to reveal a significant effect of age on student engagement perceptions, $F(5, 89) = .437$, $p = .822$.

Research Question 6: Were the results different for the following academic disciplines?

a. math

b. English

Table 11

Effects of Discipline on Perceptions of Engagement

Survey Items	Discipline	*N*	*M*	*SD*	*t*	*p*
1. (SB) posted questions	math	82	1.79	.782	.057	.955
	English	23	1.78	.736		
2. (SB) online discussion	math	83	1.65	.788	-.832	.412
	English	22	1.82	.853		
3. (SB) worked hard	math	85	2.56	.668	-1.483	.003
	English	28	2.04	.928		
4. (SB) applied something	math	79	1.97	.847	-.331	.743
	English	22	2.05	.899		
5. (SB) discussed ideas	math	83	1.73	.782	-.854	.400
	English	22	1.91	.868		
6. (SB) social networking	math	81	1.33	.652	-2.044	.044
	English	22	1.68	.894		
7. (IS) clear instructions	math	81	2.47	.691	1.163	.110
	English	22	2.18	.907		
8. (IS) activities challenged	math	81	2.44	.707	-.070	.945
	English	24	2.17	.917		
9. (SB) real life	math	82	2.28	.790	.211	.834
	English	21	2.24	.944		
10. (IS) everyone welcome	math	84	2.43	.765	.668	.510
	English	21	2.29	.902		

An independent samples t-test was used to analyze the data for discipline-related effects. Students reported greater effects on engagement for math (M = 2.56, SD = .668)

rather than English (*M* = 2.04, *SD* = .928) for Survey Item 3 (Student Behavior) "You worked hard to meet your instructor's expectations," (*t* = 2.997, *df* = 103, *p* = .003). Students reported greater effects on engagement for English (*M* = 1.68, *SD* = .894) rather than math (*M* = 1.33, *SD* = .894) for Survey Item 6 (Student Behavior), "You used a social networking site, such as Facebook, to communicate with another student in your class" (*t* = -2.044, *df* = 101, *p* = .044).

Chapter V

Discussion

Chapter V presents interpretations and implications for action, along with recommendations for future research. The study's conclusion is also included in this chapter.

There have been articles, papers, books, conferences, presentations and discussions on the topic of student engagement. Academicians have developed schema for engagement and then researched, analyzed, and quantified engagement based on those schema. While valuable insights have resulted from those efforts, they were based largely on the interpretations of others, rather than the students' own insights. Querying the students - those most affected - for their perceptions on engagement can add to the body of knowledge on this topic. In this study, students in online developmental classes were given an opportunity to share their perceptions of the semester-long frequency of student behaviors and instructional strategies that are frequently associated with engagement. Students enrolled in online developmental math and English classes at the research site, a two-year college, were also invited to share their perceptions of how much, if at all, those behaviors and strategies affected the students' engagement throughout the semester. The responses of the students in the sample may differ from those of students in other academic programs, and the study's findings should not be summarily generalized to all student populations. However, this research may prompt educators to consider ways in which they can explore, examine, and enhance their students' engagement.

Research Questions

1. What were the student-reported frequencies of the instructional strategies and student behaviors denoted in the survey items?
2. What percent of the variance in student-perceived effects on engagement was predicted by different instructional strategies?
3. What percent of the variance in student-perceived effects on engagement was predicted by different student behaviors?
4. Were there different relationships when the effect of instructor-based strategies was compared to student-based behaviors?
5. Were the results different for the following demographic groups?
    a. gender (male/female)
    b. race/ethnicity (American Indian or other Native American; Asian, Asian American or Pacific Islander; Black or African American, Non- Hispanic; White, Non-Hispanic; Hispanic, Latino, Spanish; Other)
    c. age (18 – 24; 25 – 32; 33 – 39; 40 – 47; 48 – 55; 56 – 63)
6. Were the results different for the following academic disciplines?
    a. math
    b. English

Enrollment by Discipline

Enrollment information at the research site is indicative of the number of students who must enroll in developmental math classes. While 26 sections of online developmental math were offered, there were only six sections of online developmental English. The larger number of math classes at the research site reiterates the national percentages of first-year undergraduates who took developmental math classes in 2000:

22% enrolled in developmental math classes, 14% in writing classes, and 11% in English classes (National Center for Education Statistics, 2004). Regardless of the causes associated with the growing need for developmental classes, and in particular developmental math classes, postsecondary education must offer courses that equip students for success in the 21st century. Moreover, these courses must be delivered in formats that students can easily access.

Sample Demographics

The percentage of female students (71.7%) in the sample was significantly larger than the corresponding percentage for male (28.3%). A 2010 National Center for Education Statistic report indicates greater percentages of females (39%) than males (33%), enrolling in developmental classes. Aud et al. (2011) also note the current trend toward greater numbers of females in developmental education.

Studies such as this demonstrate that the efficacy of some instructional strategies can be gender-related. Instructors would not want to "limit" engagement strategies to their students based solely on gender. However, knowing that engagement can be affected by gender may be something for educators to consider as they engage their students.

African American and Hispanic students were overrepresented in the study sample. This mirrors the obvious imbalances seen in developmental programs across the nation. This may speak to the inequities associated with inferior schools to which many African-American and Hispanic students are routinely relegated. However, with regard to enhancing student engagement, it would appear that effective strategies are appropriate for students of every ethnicity. While some approaches can be more effectual with

specific student populations, other, perhaps more universal methods for promoting engagement, can be valuable for all students.

It is always important for educators to design instruction, both content and delivery, and engagement strategies so that they are appropriate for the educational levels, the demographics, and the dynamics of each class. It would be unwise for any instructor to unquestioningly adopt standards associated with either instruction or engagement. Hearing student voices, learning what they themselves consider engaging, provides a perspective that has not been fully examined. This study, along with the survey designed to draw out those perspectives, focuses on the perceptions that matter most: those of the students.

Over 25% of the sample was 33 years old or older. This figure may represent the burgeoning number of individuals returning to school for a second career. Alternatively, those numbers may represent individuals who finally have the time to enroll in postsecondary education or to complete an educational goal that had been abandoned. Some may find that, as adults, they have the financial means to pursue higher education. Others may want to go to school to hone a skill or develop a talent. What is certain is that student populations in higher education are less and less defined by what was once considered "traditional" ages for college students. As educators design and deliver online courses for all levels and in all disciplines, they should bear in mind the demographic diversity of today's students.

Research Question 1. What were the student-reported frequencies of the instructional strategies and student behaviors denoted in the survey items?

Survey Item 1 (Student Behavior) was "You posted questions in class." Survey Item 1 was not, according to student self-reports, an activity in which all students participated. Over fifty seven percent, however, did report posting questions electronically. The reported effect on engagement at the level of *Somewhat* or *A great deal* was also over 50%.

Giving students opportunities to post questions online is frequently cited as a recommendation for promoting student-instructor communication. Such communication is often correlated with student engagement; "asking questions" is cited as one of the Community College Survey of Student Engagement's (CCSSE) (2011) five benchmarks of engagement. While all of the students in the study sample were enrolled in online classes that supported the students' ability to post online questions, some indicated that they *Never* posted questions. This is, perhaps, understandable, since students may be reluctant to reveal the need for additional assistance. Instructors might, however, want to consider encouraging students to post questions. There may, in fact, multiple advantages associated with posting questions. One advantage is the potential for increased engagement for the student who posts questions. There are, as well, instructional advantages for the student who has posted the question as well as other students in the class. All of the students in the class may well benefit from the instructional scaffolding provided by instructors' replies to online questions. Instructors can provide multiple opportunities for communication, including posting question without, perhaps, mandating the use of online questioning. The opportunity to increase engagement through allowing

students to post online questions is a relatively low-cost and easily implemented option, an option educators may want to consider.

Survey Item 2 (Student Behavior) was "You contributed to an online discussion." Another opportunity to increase student-instructor interaction is through the use of online discussions. Almost 55% of the students reported that they had contributed to discussions either *Often* or *Always*; students also reported at a rate of almost 45% that there was a perceived effect on their engagement. Although online discussions were designated as student behaviors in this study, Oliver (2003) suggests that online discussions are a form of learning support. Perspectives such as Oliver's may imply that online discussions are more appropriately considered instructional strategies than student behaviors. In light of the effect that contributing to discussions has on engagement, instructors may want not only to offer discussion boards in their electronic classrooms, but to make those discussions a dynamic feature of the course.

Survey Item 3 (Student Behavior) was "You worked hard to meet your instructor's expectations." Perhaps not surprisingly, since most students would be reluctant to admit anything other than "working hard," 99.2% of the students who completed the student engagement survey reported working hard to meet their instructor's expectations. Social desirability may have had an effect on the frequency with which students reported this behavior. It is unlikely, however, that the perceived effect on engagement were influenced by social desirability; significantly, almost 80% of the students reported that working affected their engagement. The results of the survey suggest that there is, as has been frequently reported by the CCSSE and others, a significant relationship between academic challenge and student engagement.

Survey Item 4 (Student Behavior) was "You applied something you learned in class to a situation in real life." This survey item is, foundationally, relevance-related. Building relevance into instruction is often cited as a means of increasing engagement. Over 80% of the students reported this experience. When asked how this affected their engagement, 64% replied that the effect on engagement was *Somewhat or A great deal*. The effect on engagement suggests that most students find, as much of the research indicates, that "real life" relevance has a profound effect on engagement.

Survey Item 5 (Student Behavior) was "You discussed ideas from your readings or classes one-on-one with your instructor." Over half of the students reported that such discussions *Never* took place. While students in traditional, or general education, classes may be better prepared, both cognitively and affectively, to succeed in academic venues, students in developmental classes may not share that level of preparedness. Developmental students, in their previous interactions with instructors, may have had limited opportunities to engage conversationally with their teachers. Developmental students may not be aware that their instructors are willing to dialog with their students, in person or electronically. Only slightly more than 20% of the developmental students surveyed for this research indicated that they experienced these one-on-one discussions with their instructors. While this survey item seems to be constructed in a fashion that makes students accountable for this type of exchange and is, in fact, included in the survey as one of seven "student behaviors," it is, perhaps, incumbent upon developmental instructors to initiate such discussions. To be sure, this would add yet another responsibility to those with which teachers are charged. The potential for engaging

students, though, through this type of teacher-student discussion may be worth the investment in time and effort.

Survey Item 6 (Student Behavior) was "You used a social networking site, such as Facebook, to communicate with another student in your class." To avoid the issues associated with double-barreled survey items, students were asked only if they communicated with other students; they were not asked if they used a social networking site to communicate with other students or their instructors. Only 14% of the students surveyed reported using a social networking site to communicate a classmate. Given the current universality of social networking, most notably Facebook, this seems almost paradoxical or, at best, inconsistent. The low number of students in the sample who reported using a social network to communicate with other students may be, at least in part, age-related. As Jenkins and Boswell (2002) have noted, many developmental students are returning to school years after they graduated from high school. Older students may be less inclined that their younger peers to embrace social networking. These students may have more family and financial responsibilities than younger postsecondary students, limiting the time they have to spend online. Also, there may be an element of social desirability in the responses: students may not want to report that using social networking sites, considered by some as diversion with little or no merit.

There are, as well, systemic concerns associated with the use of social media: the appearance – or in some cases, the reality – of inappropriate relationships may result from the use, or misuse, of such electronic forms of communication. The reality that developmental students may be less inclined to use social networking sites, along with the potential for unacceptable student-teacher interaction, must be weighed against the

medium's ability to engage: "Using social networking tools to communicate with others (students, instructors, or college staff) *about coursework* is related to higher CCSSE benchmark scores on engagement. The more students use social networking tools for academically purposeful activities, the higher their levels of engagement" (Center for Community College Student Engagement, 2009). While academic institutions continue to use social media for recruiting students and disseminating information, instructors may want to determine what institutional parameters, if any, have been established to address the issue of social networking.

In spite of the relatively small number of students who reported using a social networking site, educators and administrators may want to continue analyzing its potential for increased engagement. There are relationships between perceived effects on engagement and social networking among male students that merit serious consideration. The relationship between social networking and gender is discussed in subsequent chapters.

Survey Item 7 (Instructional Strategy), was "You received clear instructions from your instructor on how to do well in this class." This survey item is, like many of the items in the survey, similar to an item on the CCSSE. A 2011 CCSSE report identified "support for learners" as one of five benchmarks for engagement; it is not difficult to posit "clear instructions" as one of the most effective forms of support. All students can benefit from having specific, thorough, and detailed information and guidelines that explain how they can be successful in school. However, these kinds of support may be of even greater significance for first generation college students, English language learners, those whose previous academic endeavors have been less than successful, and others who

require assistance to reach their academic goals. These students frequently populate developmental classrooms and classes. Educators who provide very clear guidance on what students must do to succeed in their classes may be impacting not only the students' academic progress but their engagement, as well.

Survey Item 8 (Instructional Strategy) was "Your instructor assigned activities that challenged you to work as hard as you could." This item is similar to Survey Item 3 (Student Behavior), "You worked as hard as you could to meet your instructor's expectations." Both survey items refer to academic challenge. Academic challenge has been identified by the Community College Survey of Student Engagement (2011) as another benchmark of student engagement. Of the students in the sample, over 60% reported that their instructors did assign activities that challenged them to work as hard as they could. Over half reported that these challenging activities affected their engagement *A great deal*; an additional 27.6% reported that their engagement was affected *Somewhat*. Teachers whose instruction is infused with academic rigor may be activating and enhancing their students' learning and, simultaneously, their students' engagement.

Survey Item 9 (Student Behavior) was "You understood how what you learned would help you in real life." This item, like Survey Item 4 (Student Behavior) "You applied something you learned in class to a situation in real life," is relevance-based. Over 80% of the students who were surveyed responded that they had engaged in the student behavior described in Survey Item 4; an even greater number of students, almost 90%, indicated that they did, in fact, "see" the real-world relevance referenced in Survey Item 9. Almost 90% of the students reported, as well, that Survey Item 9 affected their engagement. Relevance has been associated with engagement by educators; the students

in the study confirm that relationship. Educators hoping to offer their students real world relevance can best accomplish this by knowing and understanding their students: their abilities, their challenges, and their educational goals.

Survey Item 10 (Instructional Strategy), was "Your instructor did a good job of making everyone in the class feel welcome." This survey item, like the other two survey items that denoted instructional strategies, was reported to have occurred at significant rates; the frequency for Survey Item 10 was almost 90%. Also like the other instructional strategies, the effect on engagement was impressive: over 75% of the students reported that the "good job" their instructors did affected their engagement. Educators have opportunities to extend themselves in welcoming their students at the beginning of the academic term. Educators can continue to welcome their students throughout the term. Definitions for "making everyone in the class feel welcome" will, of course, vary according to the instructor, the students, the course, and the course delivery system. In spite of the variations in teachers, learners, and discipline, there are some accepted methods for welcoming students that include elements of motivation and encouragement. It is, in fact, possible that students consider Survey Item 7 (Instructional Strategy) "You received clear instructions from your instructor on how to do well in this class" as a form of "welcoming." Determining what feeling welcome means to students is, perhaps, something that should be further investigated. In the interim, instructors – particularly those who work with developmental learners – may want to consider incorporating elements such as positive introductions with which they can welcome students into their classes. Student responses to both the frequency (*how often*) and the effect (*how much*) associated with Item 10 confirm that their instructors at the research site are doing a

"good job of welcoming students," and that the "good job" does, in fact, affect the students' engagement significantly.

Research Question 2: What percent of the variance in student-perceived effects on engagement was predicted by instructional strategies?

Three of the 10 items in the student engagement survey denoted instructional strategies. The overall multiple linear regression model was not statistically significant, p =.117. However, with a beta weight of .042, Survey Item 7 (Instructional Strategy), "You received clear instructions from your instructor on how to do well in this class," may suggest prediction. Regardless of its predictive tendencies, this strategy supports students in two significant ways: student engagement is bolstered, and students have a clear idea of what they need to do to succeed academically. Because they may be first generation college students, or they may previously have attended schools that did not prepare them for postsecondary coursework, having clear expectations about their coursework may be critical to developmental students' success. Moreover, this is a strategy that would seem to be cost-effective, and one that would be relatively easy for instructors to implement. "Clear instructions" can, perhaps, be best defined by the combined efforts of instructors, department chairs, administrators, institutions, and other policy makers. Asking students who have completed the course to share their thoughts on what the term clear instructions means and what the course instructions should have included may also provide additional insights. Students who have taken the class, even more than other educational stakeholders, are in a position to understand what students should know to do well in the class. Finally, in the current era of educational accountability, educators would be well-advised to ensure that they have not summarily

assumed that students who have enrolled for their classes know what they should do to succeed in those classes. Rather than being something that instructors do occasionally, or something that instructors do if they feel their students might benefit from clear instructions, instructors should be required by academic programs to give these instructions. The student survey responses indicate 77% of the students surveyed recognized the effect on engagement associated with receiving clear instructions. Again, while the overall model fit multiple linear regression analysis for all three instructional strategies is unremarkable, the beta weight of Survey Item 7 makes it an instructional strategy that should be taken into consideration as educators design and deliver their classes. Given the many advantages (and few apparent disadvantages) associated with giving students clear instructions on how to do well, instructors – especially those who teach developmental classes - may want to assess (or reassess) the instructions they give to their students as the semester or term begins. Even more, purposely reviewing those instructions throughout the semester is something developmental educators, in particular, should at least consider.

Research Question 3: What percent of the variance in student-perceived effects on engagement was predicted by student behaviors?

Survey Item 1 (Student Behavior): "You posted questions in class," analyzed with multiple regression, was shown statistically to predict student engagement. Posting questions in classes is sometimes considered a metric of student engagement. The Community College Survey of Engagement (2011) considers asking questions an indication of "active and collaborative learning," one of CCSSE's benchmarks for promoting engagement. However, it must be recalled that only 57.6% of the students

included in this study reported that they posted questions "sometimes," "often," or "always." As mentioned previously in this study on engagement, developmental students may be uncomfortable with making their requests for assistance as "public" as those requests would be in an online electronic classroom. Instructors whose student populations include developmental learners might want to offer students the option to ask questions and might want, further, to encourage students to share their questions with their classmates. In light of developmental students' reticence, however, asking questions should be nothing more than one opportunity for communication in an array of such opportunities.

"You applied something you learned in class," the student behavior denoted in Survey Item 4, draws parallels between relevance and engagement. Over half (56.7%) of the students surveyed reported that this student behavior affected their engagement. This behavior also predicts engagement. Of the students who participated in the survey on student engagement, almost 65% were 25 or older. It is possible, perhaps even likely, that these students are attending school part-time, and working full-time. Students who are enrolled in online developmental classes, many attending school for very pragmatic purposes, may be even more engaged by relevance than students whose experiences and environments are limited strictly to academic venues. Developmental learners must many times enroll in, pay for, and complete classes that do not afford the students any college credit. It is possible that their willingness to take a step back in order to take a step forward is an indication of their commitment. Because they may have more invested in their education (in some cases, more invested in both time and money), these learners may be more focused than general education students on applying their new knowledge

and skills to the world around them, more interested in capitalizing and utilizing what they have learned. Even more significantly, perhaps, developmental learners, at times relegated to low-paying, menial jobs, may be more focused than others on how education can affect their economic futures.

Research Question 4: Were there different relationships when the effect of instructor-based strategies was compared to student-based behaviors?

To compare these effects, Pearson correlations were run to determine the relationships, if any, associated with the effects of the three instructional strategies and the effects of the seven student behaviors. Some of the correlations were modest, at correlations of .297 up to .499; others were more significant with correlations of .538, .604, and .607. All of the correlations were significant at the .01 level (two-tailed).

Among the modest correlations are the effect on engagement for Survey Item 1, (Student Behavior) "You posted a question in class" with Survey Item 7 (Instructional Strategy), "You received clear instruction from your instructor on how to do well in this class," and Survey Item 8, "Your instructor assigned activities that challenged you to work as hard as you could." The basis for the correlation seems fairly straightforward: asking questions is considered a function of "active learning" (Community College Survey of Student Engagement, 2011). This level of learning, a benchmark of engagement, may be engendered, and sustained, by the efforts of instructors who demonstrate their commitment to their students. There was a somewhat stronger correlation with Survey Item 1 and Survey Item 10 (Instructional Strategy), "Your instructor did a good job of making everyone in the class feel welcome." It is imperative that instructors and administrators understand the impact of engagement and the related

impact on student success. Understanding how instructors can activate that engagement with "welcoming" attitudes toward their students is equally important.

The engagement effects prompted by Survey Item 2 (Student Behavior), "You contributed to an online discussion," also correlated to the effects of the instructional strategies in Survey Item 7 and Survey Item 8. There was a slightly higher correlation between Survey Item 2 and Survey Item 10. Survey Item 10 is based on instructors making the "everyone in the class feel welcome." Determining exactly what instructors can – and must – do to make "everyone in the class feel welcome," is beyond the purview of this study. Given its potential to promote academic achievement among students – particularly developmental students – the efforts associated with such a determination seem advisable.

In this study there were significant correlations between effects on engagement between the student behavior-based Survey Item 3, "You worked hard to meet your instructor's expectations," and the effects of instructional strategy-based Survey Items 7 (Instructional Strategy) "You received clear instructions from your instructor on how to do well in this class" and Survey Item 8 (Instructional Strategy) "Your instruction assigned activities that challenged you to work as hard as you could." This may be among the study's most salient findings: students work hardest when they know what is expected of them, and when they feel welcomed by their instructors. The study's single greatest correlation is between Survey Item 3 (Student Behavior) "You worked as hard as you could to meet your instructor's expectation" and Survey Item 7 (Instructional Strategy) "You received clear instructions on how to do well in this class." Instructors, particularly those who teach developmental students, must not assume that their students

already understand even foundational approaches for accomplishing educational goals. Because they cannot see and thereby gauge their students' responses and reactions, as they would in a face-to-face classroom, those who teach online developmental classes must be vigilant in offering their students constant, ongoing guidance on study habits, taking notes, preparing for tests, and an array of other behaviors linked to student success. Instructors must also remind their students that they can ask for additional assistance.

There were correlations between the effects on engagement associated Survey Item 4 (Student Behavior) "You applied something you learned in class to a situation in real life" with all three instructional strategies, Survey Item 7 (Instructional Strategy, Survey Item 8 (Instructional Strategy) and Survey Item 10 (Instructional Strategy. This is, perhaps, yet another indication that students may have a tendency to apply their newly acquired knowledge outside the electronic classroom more often and more effectively when they feel that their instructors are truly invested in their students' success.

There are modest correlations between all three effects of the instructional strategies, Survey Item 7, Survey Item 8 and Survey Item 10 and Survey Item 5 (Student Behavior), "You discussed ideas from your class or your readings one-on-one with your instructor." The conclusion to be drawn here is, perhaps, that students who perceive that their instructors are actively supporting them are more likely to want to engage in one-on-one conversations with their teachers.

There is a modest correlation between Survey Item 6 (Student Behavior) "You used a social networking site, such as Facebook, to communicate with another student in the class" and Survey Item 10 (Instructional Strategy) "Your instructor did a good job of

making everyone in the class feel welcome." Although modest, the correlation may be another indication that the use of social technologies and mobile devices is a contemporary reality that must be investigated on numerous levels.

Survey Item 9 (Student Behavior), "You understood how what you learned in class would help you in real life" correlated with Survey Item 7 (Instructional Strategy) "You received clear instructions from your instructor on how to do well in this class" and Survey Item 8 (Instructional Strategy) "You instructor assigned activities that challenged you to work as hard as you could." There is, as well, a correlation with Survey Item 9 (Student Behavior), which speaks to engagement associated with "real life" relevance, and Survey Item 10 (Instructional Strategy) "Your instructor did a good job of making everyone in the class feel welcome." This may suggest that students who are engaged with what they are learning – because their instructors have supported them cognitively and affectively – are more likely to take what they have learned beyond the classroom. Rather than instruction remaining in the classroom (or in the electronic classroom), engaged students can apply what they have learned in "real life."

Research Question 5: Were the results different for the following demographic groups?

a. gender (male/female)

b. race/ethnicity (American Indian or other Native American; Asian, Asian American or Pacific Islander; Black or African American, Non-Hispanic; White, Non-Hispanic; Hispanic, Latino, Spanish; Other)

c. age (18 – 24; 25 – 32; 33 – 39; 40 – 47; 48 – 55; 56 – 63)

a. gender (male/female)

An independent samples t-test was used to examine gender related differences on perceived effects on engagement. The results of the test showed gender-related differences for two survey items based on student behaviors and for two survey items based on instructional strategies. For three of the four survey items, effects on engagement were greater for females.

The perceived effects on engagement for Survey Item 3, "You worked hard to meet your instructor's expectations," are greater for females than males. There are, of course, various ways that "working hard" and "instructor's expectations" can be defined. The subjectivity of both terms can, perhaps, be discussed and less abstract terms assigned in subsequent studies. In the interim, educators may want to determine, for their students and themselves, what these terms might mean and how to incorporate "working hard" and "instructor's expectations" into their instruction. This finding does confirm the relevance of academic challenge to engagement. While effects on engagement may be greater for females, its importance for all students is expressed in the Community College Survey of Student Engagement's (2011) Benchmarks of Effective Instruction: "Challenging intellectual and creative work is central to student learning and collegiate quality" (para 1). That the students themselves consider "working hard" engaging is confirmed by the percentage of students, almost 80%, both female and male, in the study who indicated that working hard to meet their instructors' expectations did, in fact, affect their engagement.

Both Survey Item 7, "You received clear instructions from your instructor on how to do well in this class" and Survey Item 10, "Your instructor did a good job of making

everyone in the class feel welcome" are instructional strategies. The results of both suggest greater perceived effects on engagement for females. It is easy to understand the benefits to students associated with all three of the survey items based on instructional strategies. In those three survey items, and in Survey Item 4 (Student Behavior), the instructor's expectations, instructions, clarification, and welcome are pivotal. While those can be effective strategies and behaviors for all students, greater effects on engagement were reported by female students. It may be of particular interest, then, that male students reported greater perceived effects on engagement for Survey Item 6, "You used a social networking site, such as Facebook, to communicate with another student in your class." This is the only item for which males reported greater effects on engagement. It is important that Survey Item 6 specifies communication with other *students* in the class, rather than communication with the instructor.

There may be endemic concerns associated with male students and engagement: Kinzie et al. (2007) report that while the magnitudes were slight, "both first-year and senior men perceive their campus environments to be less supportive than women" (p. 17). Determining strategies for engaging male students, then, should be a matter of great concern for educators. Kinzie et al, referring to Mortenson's earlier findings, report that "the growing disparity between degrees awarded to men and women signals an unfortunate downturn in the engagement and educational attainment of male students" (p. 3). Insights such as these, gained from analyzing student engagement effects by gender, may help construct our understanding of engagement among online developmental learners. Such insights, along with the results of the Community College Survey of Student Engagement, can impact course design and delivery. Online developmental

classes are a relatively new addition to the range of online courses. This, then, is the optimal time to consider how best to create and present courses that will both instruct and engage the growing numbers of students enrolling in online developmental classes.

b. race/ethnicity (American Indian or other Native American; Asian, Asian American or Pacific Islander; Black or African American, Non-Hispanic; White, Non-Hispanic; Hispanic, Latino, Spanish; Other).

c. age (18 – 24; 25 – 32; 33 – 39; 40 – 47; 48 – 55; 56 – 63).

While there were no statistically significant differences in perceived effects on engagement based on ethnicity or age, a larger sample might have revealed significant differences.

Research Question 6: Were the results different for the following disciplines?

a. math

b. English

An independent samples t-test that was used to evaluate the effect of discipline on perceived effects on student engagement. The results of that test indicate that there are significant differences in perceived effects on engagement associated with two student behaviors. Students enrolled in online developmental math classes reported greater effects on engagement than students in online developmental English classes for Survey Item 3 (Student Behavior) "You worked hard to meet your instructor's expectations." The reason for this may that many students, having experienced previous difficulties with math, are committed to success in the developmental math class in which they have enrolled. This commitment to success may be associated, at least in part, with the math-related anxiety some students experience. This apprehension based on discipline (math)

among developmental learners has been documented by Woodard (2004) and others. Students may not feel as at-risk for failure in English classes, or for that matter, in any classes other than math.

There are, of course, certainly other reasons that students work "as hard as they can to meet [their] instructor's expectations." At the research site, for example, the importance of engagement is included in the description of faculty expectations for distance education professors:

> Although the role of distance education faculty is often perceived as passive because students do not interact with the professor face to face, it is actually the proactive, energetic, engaging, and empathetic person who often makes or breaks the course for the student. The single most important qualification a professor brings to a distance education course is the knowledge of the course content and the ability to communicate this knowledge to the students in an interactive and engaging manner.

Information at the research site also includes the qualities a distance educator must have. The list of qualities includes an array of capabilities and characteristics that include

- a positive attitude towards distance education courses
- an understanding of the special needs of adult learners
- excellent interpersonal skills
- adaptability and versatility
- an ability to use interactive technologies
- a commitment to timeliness in responding to students and
- an interest in trying new forms of communication with students.

Of course, these are not the only qualifications for teaching distance education courses at the research site. These are some of the qualifications, however, that speak to the school's awareness of the critical role engagement plays in student success. These qualifications, which are required of all research site distance educators, may well be responsible for the frequencies with which students reported the instructional strategies described in Survey Items 7, 8, and 10: that their instructors gave them "clear instructions on how to do well in this class," that their instructors "assigned activities that challenged [them] to work as hard as [they] could," and that their instructors "did a good job of making everyone in the class feel welcome."

The other item affected by discipline was Survey Item 6 (Student Behavior) "You used a social networking site, such as Facebook, to communicate with another student in your class." The merit associated with student-to-student communication is evident in this student's remarks:

> You know, the more I talk to other people about our class stuff, the homework, the tests, the more I'm actually learning ... and the more I learn not only about other people, but also about the subject because my brain is getting more, because I'm getting more involved with the other students in the class. I'm getting more involved with the class even after class. (Tinto, 2012, slide 11)

Rather than being limited to face-to-face communication, talking, in the context of online classes, may well include a variety of electronic communication media such as email, Twitter, blogs, GooglePlus, Skype, texting, and, of course, Facebook. Students in online development English classes reported greater perceived effects on engagement than students enrolled in online developmental math classes. Perhaps students associate

the writing (or perhaps more appropriately, keyboarding) that electronic communication demands more closely with English, rather than math. Math problems and questions may be less amenable to the creative spelling, the conversational tone, the acronyms, and the jargon so frequently used in electronic communications. Determining all of the reasons why social networking sites might be more engaging for students in online developmental English classes is beyond the scope of this paper. It is important, however, for educators to remain open to the opportunities that new technologies provide for instruction.

While it is possible that students learn about newly-developed technologies, including Facebook apps, before their teachers, educators can and should be aware of Facebook options, such as CiteMe, where students can connect to the WorldCat library database for help with formatting their references. Those opportunities continue to evolve.

One of the most compelling portrayals of how Facebook can be used for education is on Carroll Community College's English for Speakers of Other Languages (ESOL) (2012) Facebook pages. While not all of Carroll Community College's ESOL classes are offered online, there is an ESOL writing class that is available via distance education. On the ESOL Facebook pages, students have access to information such as class registration dates, maps, and other Carroll Community College courses in which the students might be interested. There are several links to nonprofit organizations. The school's Facebook pages include links to instructional videos, such as videos on how to pronounce words correctly. The ESOL Facebook pages also include several links to articles, some with photos, particularly appropriate for ESOL students. Students are

invited to post their thoughts on the articles. This is an example of a student's comments and the instructor's response, all on Facebook:

> (Student) I love the Esol classes. Because. There is. Someone else that is helping me. To write. To speak and to understand it! When I been there I felt so happy. Thanks to the Esol. Classes. Now I can to write in English!
>
> (Carroll Community College English ESOL Instructor) And we are happy you are here!

It is not difficult for an educator to appreciate how this student's ability to communicate electronically would enhance her engagement. Feedback such as this student received, although brief, would likely generate even greater engagement.

Limitations

One of the most serious limitations associated with this study was the very low response rates to the online survey. This was addressed by a printed survey administrated to students who were required to take final exams on campus.

Another concern, and one of the of the more noticeable characteristics of the survey responses, was the frequency with which students declined to respond to the survey dimension that asks students to rate the effect (*how much*) each of the student behaviors and instructional strategies denoted in the survey items affected their engagement. This may speak to the reluctance of students to respond regarding a concept with which they are relatively unfamiliar. Another possible reason for the number of non-responses to the effect (*how much*) on engagement for each survey item, may be the result of the survey design. For each survey item, the four options for frequency (*how*

often) were followed by the three options for effect. Some students may have believed that the survey item had been effectively addressed with the frequency response.

Finally, it should be noted that the loss of distinctions or determinations that might have resulted from the use of nonparametric, rather than parametric, analyses was among the limitations associated with this study. As the survey, the instrument that would be used to collect the data, was designed, the advantages of scale and ordinal level data were evaluated. After the survey responses were collected, data was analyzed with both parametric and nonparametric tests. After the preliminary results of those tests were reviewed, the use of parametric tests was considered the most accurate and most efficacious method to run the data that was collected.

Future Studies

Developmental learning in America is far from novel or new; there are chronicles of developmental classes throughout the nation's history. Developmental learning dates back to roughly the same era in which education was established. Online learning, while pervasive in almost every educational arena, is far more contemporary than developmental learning. Even so, the popularity of online learning has driven a preponderance of research on the topic. The appearance of online developmental learning is one of the most recent developments on the educational horizon. It is driven by two forces: student demand for online classes and burgeoning enrollment in developmental classes.

Now, as online developmental learning is in its infancy, is the optimal time to observe, investigate, and enact programs, policies, and strategies that will maximize the success of our students. There are multiple possibilities for additional study of online

developmental classes. The potential for enhancing the successes of developmental learners makes such study vital.

The survey on student engagement designed for this study was administered to students toward the end of the semester. It would be helpful to administer surveys at the beginning of the semester, similar to a pretest, and then compare those responses to the responses given by students at the close of the semester, administered as a posttest would be.

It might also be beneficial to ask students to note, throughout the semester, those occasions in which their engagement was affected, and what strategy or behavior prompted the perception of engagement. Students might be asked to indicate, at the same time, the level at which their engagement was affected. They might be asked, as well, to denote occurrences and occasions that diminished their engagement. Self-reports are always subject to partiality or predispositions; they can, nevertheless, yield valuable data when analyzed and coded appropriately.

A further suggestion for additional research involves the administration of this survey on student engagement to classes of students enrolled in online general education. Comparing the responses of the two student populations might lead to findings that could benefit either group – or both groups – of students.

It would be constructive to administer this same survey to online developmental students and, simultaneously, a similar survey to instructors who teach online developmental classes. The survey for instructors would be similar to the survey designed for students in that both would ask respondents to report the number of times instructional strategies occurred throughout the semester. The surveys designed for

instructors would query instructors for their perceptions on how often student behaviors and instructional strategies occurred and of those, which most affected their students' engagement. The surveys submitted by instructors could be compared and contrasted against those submitted by students. It would be informative to learn, for example, how many times instructors reported implementing instructional strategies such as giving clear instructions on how to do well in the class versus how many times students reported the same strategy.

With minimal editing, the survey on student engagement could be administered to students in face-to-face developmental classes. Those responses could be analyzed for similarities and differences with surveys in this study. Another possibility for future research of online developmental learning is its investigation with a qualitative methodology, or with a mixed-methods methodology.

Replications of this study among elementary and secondary students in online programs might prove advantageous, particularly in light of the rapid development of online programs for students in primary grades through high school.

Replications of this study might also reveal significance among students enrolled in more technical or vocational programs. Online programs currently offer courses in a realm of activities, including small engine repair, floral design, and electrician. It is possible that online students in a class such as auto mechanics would have perceptions on engagement that were different from the perceptions of online students in a more academic class such as math.

Currently, student retention is a priority for many schools. Examining students' perceptions of engagement with regard to student re-enrollment might prove to be

advantageous to educators, administrators, policy makers, and, ultimately, students. A similar possibility for future studies, one which might prove valuable for all educational stakeholders, as well, involves comparing perceptions of student engagement in light of student grades.

Conclusion

There exist multiple opportunities for further investigation of student engagement among online developmental learners; while developmental learning in America is far from novel, the availability of online developmental classes is a relatively recent trend. Further investigation is imperative: many of the students in developmental classes are there because the American public school system prepared them for neither higher education nor a viable vocation. Recidivism rates, while not exclusively the domain of undereducated individuals, are nevertheless a factor to consider. It is all too easy to see the results of inferior or insufficient instruction in America's unemployment rates. It is impossible to deny the parallels between poverty and poor educational policies and programs. Finally, one of the most compelling reasons to study online developmental learning is this: students who enroll in developmental classes do so volitionally. These students, many anxious or apprehensive at the thought of returning to an environment in which they have experienced little success, are demonstrating the drive, the desire and the determination to improve their lives personally and professionally. For many, success in school will have a marked effect on their families and their communities. We have, at this point in American education, an opportunity to address an injustice that was visited upon far too many students who were victims of

living, as Arendale (2011a) suggests, in the wrong zip code. We must not fail these students – again.

Online developmental learning provides educational opportunities for the very students who may be least able to attend traditional face-to-face classes. Many developmental learners are part-time students, who may be full-time employees. The ability to learn asynchronously in a virtual classroom is ideal for those students, students who cannot find or afford childcare, and students for whom transportation is an issue. It is likely, as well, that these developmental learners will most benefit from efforts to engage them.

American higher education must, by necessity, adapt to the reality that one of technology's most obvious effects on learning is manifested in online instruction. At the same time that distance education is coming online at unprecedented rates, record numbers of students are relegated to developmental classes. Educators must commit to identifying and correcting what is driving the need for developmental coursework. In the meantime, the instructional needs of developmental learners must be met. Online education may well be the optimal medium for meeting those needs. There is much that we can teach these students. There is much that we can learn from them. Together, we become a nation that is more educated, more equipped, and more egalitarian. Collectively and individually, we are better.

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