1-1-2012

Postsecondary developmental education and its impact on student learning and academic success

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POSTSECONDARY DEVELOPMENTAL EDUCATION AND ITS IMPACT ON STUDENT LEARNING AND ACADEMIC SUCCESS

by

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DISSERTATION

Submitted to the Graduate School

of Wayne State University,

Detroit, Michigan

in partial fulfillment of the requirements

for the degree of

DOCTOR OF EDUCATION

2012

MAJOR: CURRICULUM AND INSTRUCTION

Approved by:

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Advisor Date

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ACKNOWLEDGMENTS

Not that we are competent to claim anything for ourselves, but our competence comes from God (II Corinthians 3:5). This dissertation would not have been possible without the support of many dedicated educators, family, and friends. I appreciate all they have done to encourage me throughout this process. To the participants who so willingly provided the breadth and depth to this investigation by their personal description, academic experience, time, and reflection. To the faculty who graciously allowed me to observe their classrooms for this study. I feel a special indebtedness for their willingness to share their time, experiences, and journeys with me. Others will gain from their experiences and stories.

To my original advisor, Dr. Leonard Kaplan, who believed in me throughout my program, I owe a great deal of gratitude. He continued to encourage me when I questioned myself and the value of this study. He gave me a true appreciation for the affective domain. I regard Dr. Kaplan as a colleague and friend, who had a positive impact my life and family history.

To Dr. Gerald Oglan, who served as my advisor for the past two years, I owe a great deal of gratitude as he continued with me throughout this journey of completion. His passion for qualitative research has made me appreciate the thoroughness and need for attention to detail that helps clarify meaning for others. Dr. Oglan's professionalism serves as an inspiration to me as I look forward to the future and search for my own professional goals in higher education.

I also owe a debt of gratitude to Dr. Gregory Zvric, Dr. Sharon Elliott, and Dr. Jo-Ann Snyder, who generously agreed to serve on my committee throughout my dissertation presentation, defense, and publication. I appreciate the guidance and support given throughout the completion of this study.

To my friends who have offered support and cheered each accomplishment, especially to Deb, Anne, Alison, Barb, Jill, Kelly, Marcia, Bob, Janelle, Breana, Kara, and Bart who checked on me regularly to remind me that I could do this, I owe a celebration in their honor. To my friend, Sandra, who provided me with personal and professional support when I needed it the most. I also owe a debt of gratitude to librarians Alberta and Chandrika who assisted me with their skills to locate just the right research. These friends made sure my goals were accomplished even through the difficult times. We continue to share a love and passion for student learning and academic success.

To my wonderful parents, Tom and Sally, who have believed that education is the most valuable possession one could possess because it is the key to one's success. I am grateful for the life lessons on the importance of persistence and a strong work ethic. To my brother Tom and sister Kelly, who helped me develop resiliency in the face of any challenge or adversity. To my in-laws, Dick and Jean, who offered continuous assistance with things at home during this educational journey. To Aunt Dotty and Uncle Dick, who always knew the right time to send an email or a letter of encouragement.

Most of all, to my husband – Kent, words cannot express how grateful I am for your unfailing love and understanding over the last several years. I am eternally grateful for the sacrifice made so I could accomplish this goal for our family. To my children Holly, Michelle, and K.T., who supported me with love, kind words, and prayers through the tough times. I am thankful that the bond between us remains strong as each of us continues to grow in our own way.

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THE PROBLEM AND CLARIFYING COMPONENTS

Introduction

The purpose of this study will be to look at the affective issues of students taking developmental courses. The affective domain deals with students' attitudes along with feelings and emotions. This study will observe and interview students who are academically unprepared to enter college. Much has been done to help engage the developmental student through teaching strategies and learning activities embedded within the curriculum. There has also been great attention paid to the different learning styles of students and how these can be used within the classroom setting to aid in student learning success. The affective issues still remain at the forefront of impeding the success of developmental education students. Bandura (1993) stated students' beliefs in their efficacy to regulate their own learning and to master academic activities determine their aspirations, level of motivation, and academic accomplishments. Academic success is one of the ways in which students can improve the chances of having a better life for both themselves and for their families. The stronger the perceived self-efficacy, the higher the goal challenges people set for themselves and the firmer their commitment to them (Bandura, 1991). Examples of affective issues students deal with are lack of attendance, incomplete work, lifestyle issues, technology skills, time management, lack of reading and writing skills, self-defeating behaviors, not taking advantage of resources, and unrealistic expectations of college-level work. The timeframe of the study will be over a one quarter period during which some of these issues will only be mentioned and not studied in the fullest extent. This is one step in examining the types of interventions which may aid in the academic success of the student.

Open Enrollment College in Michigan

The study will take place at an open enrollment college in the state of Michigan. The college had over 31,000 students enrolled as of fall 2008. In order to enroll in courses, a student must have either completed high school, obtained a GED, or successfully complete the Ability To Benefit test (ATB). Over 80% of new students are enrolled in at least one developmental course. Figure 1.1 indicates demographic information for the college over the past ten years:

Figure 1.1: College Demographics

	Male	Female	Black	Indian	Asian	Hispanic	Tot. Min	White	Unknown	**TOTAL**
	------	------	------	------	------	------	------	------	------	
08	9,283	22,372	4,856	178	456	864	6,354	24,936	365	31,655
07	8,934	21,649	4,524	173	432	879	6,008	24,267	348	30,623
06	8,692	21,357	4,525	164	407	808	5,904	23,788	357	30,049
05	8,315	19,958	4,368	156	415	707	5,647	22,351	275	28,273
04	7,632	18,080	4,060	149	384	624	5,217	20,366	220	25,803
03	7,100	15,239	3,339	151	345	529	4,365	17,777	227	22,369
02	6,109	12,710	2,489	157	262	422	3,330	15,057	490	18,877
01	5,251	10,711	1,848	113	252	343	2,556	13,395	53	16,004
00	4,836	9,874	1,524	103	298	271	2,195	12,528	31	14,754
99	4,467	9,222	1,272	87	408	252	2,019	11,626	44	13,689

History of Improving Learning for the Underprepared Student

The focus at the college on improving student learning for the underprepared student had its beginnings in a proposal from System Academics in Oct. 2003. This original proposal was approved by the Presidents Executive Council creating a department of developmental education and ten campus dean administrator positions in January 2004. Prior to this, the developmental education courses were a part of general education. The focal point developed from the last five years' work of the Developmental Education Quality Improvement Program (DEQIP) group, made up of the ten deans, two faculty, system directors of both assessment and curriculum, the system vice-president of academics, and the director of general education and developmental education. The DEQIP group meets four times a year, the second week of each quarter. In

addition, various subcommittees meet multiple times per year to complete the work and implement the changes required by the project. In October 2006, a meeting was held with all campus presidents, campus chief academic officers, and system leaders to share the DEQIP initiatives. The following data supported the need to focus on improving student learning for the underprepared student:

Results from Collecting Compass Data

- 11% of our students who are new to college and new to this college, through COMPASS testing, place into 3-4 developmental education courses.
- 48% test into the lowest developmental education math course, 12% test into the second level developmental education math course, and 60% test into one or the other.
- 20% of these students test into the developmental reading course and 19% test into the developmental writing course.
- 50% of these students are successful in their first attempt at the lowest level math course.

Students Enrollment into Developmental Education Courses

Beginning fall 2007, all students who placed into developmental education courses were required to take those courses first, either in conjunction with other college level courses or alone, depending on the number of developmental education credits required. Since fall 2006, a portfolio review process has been implemented as the exit for English Review, the developmental education writing course. The results so far indicate that for those students who submit a portfolio, about 79% are successful in moving on to the college level course. The Essential Math Concepts course, the lowest level math course, uses a series of six module tests as the exit, and in fall 2005, various policies for consistency across campuses were implemented in this course. In addition, in fall 2006, My Math Lab (MML) was implemented as a delivery method. In fall 2007, the majority of sections for Essential Math Concepts were delivered through MML, an interactive, individualized software program. Since fall 2007, an exit exam is

required for College Reading with a score of 60 on a COMPASS posttest, and for Pre-Algebra, a score of 37/54 is required on a validated exit exam. Beginning winter 2008, extended courses for both English Review and Essential Math Concepts were offered. These courses provided students who meet the criteria (passing the coursework but failing the portfolio review in English and passing three of the six modules in math) an additional ten weeks in which to successfully complete the course work. The extended courses were eliminated from the curriculum in fall 2009 due to the lack of evidence regarding student retention and success. In order to better support students and faculty, the entire developmental education curriculum continues to be reviewed and revised.

Developmental Education Faculty Meetings

In addition to the above accomplishments, in spring 2007 system meetings of developmental education faculty began and will continue to be held two to three times a year for the purpose of providing a forum for faculty concerns as well as communicating changes and providing professional development geared specifically to this group of faculty. On a campus level, developmental education faculty participate in four additional hours of professional development each quarter. This is in addition to the eight hours provided for new and returning faculty. Faculty evaluation forms and processes have also been reviewed and revised. A new evaluation was piloted with developmental education faculty and is expected to be adopted by all faculty in the next academic year after a period of time is allowed for feedback. This new evaluation tool better addresses student learning and faculty contributions to the learning. DEQIP has also been gathering data on retention of developmental education faculty and on faculty performance in the developmental education courses. Campuses are accountable for successful completion rates in developmental education courses which began fall 2008.

Improving Student Success in College Level Courses

Baseline data, prior to the formation of DEQIP, showed that students who place into developmental education courses are not as successful in the college level courses in math and English as those students who place directly into the college level courses. The ultimate goal with improving curriculum, teaching strategies, and competency demonstrated through standardized exit tools is to improve the success of these students in the college level courses. Preliminary results with English Review indicate that the higher the portfolio rubric score, the better the grade in Composition I. Data will continue to be collected on all of the students and their success in the college level classes throughout the implementation of these exit procedures for the next several years.

Identifying the Developmental Education Student

The college has an open-door policy so that students may enroll if they have graduated from high school, obtained a General Education Degree (GED), or have passing scores on the Ability to Benefit Test (ATB). Along with studying the potential academic conflicts a student may encounter, both personal and institutional conflicts will be examined. The affective issues still remain at the forefront of impeding the success of some students. Some of the affective type issues developmental students deal with are lack of attendance, incomplete work, lifestyle issues, technology skill level, time management, lack of reading and writing skills, self-defeating behaviors, not taking advantage of resources, and unrealistic expectations of college-level work, just to name a few. Some of these same issues may also impede the academic success of non-developmental students, but the focus of this study will be on how a college can best support developmental students, both in and outside of the classroom. The idea, which first emerged in 1933 from John Dewey, is that educational institutions should strive to give the student an opportunity worth wanting (Howe, 1997).

Defining Academic Success

Academic success can be defined as a student's completion of his or her educational goals. Developmental student academic success can be defined as receiving a passing grade in developmental and college level coursework made possible by a passing score on the exit exam. The difference between an academically successful and academically non-successful student is that the latter will either not complete or not pass the developmental courses or the exit exams. Academically non-successful students will also include those who do not complete or do not pass college-level courses. Evidence of student academic success will be researched throughout the students' academic life at the college to determine if they have received the preparation necessary to succeed in subsequent quarters or to expose shortcomings of the developmental education curriculum or program. Tracking student progress over time will shed light on issues that may have remained invisible. This study will provide an in-depth evaluation of the developmental program, which has been in existence since 2004, with a specific focus on developmental math at one of the college's campuses.

Course completion requirements and student acknowledgement policies were put in place October of 2007. In order to successfully complete Pre-Algebra – MTH099E, a student must receive a score of 37 out of 54 or higher on the system-wide exit exam. Students whose exit exam score does not meet the minimum requirement (37/54) will receive a grade of "F" in Pre-Algebra, regardless of the grade earned for work in the rest of the course. If a student passes the system-wide exit exam with a score of 37 or higher out of 54, the student will receive the grade earned in the course.

Research Questions

The following questions will be used to guide the study:

1. What are developmental education students' attitudes toward taking courses below college-level?

2. How do developmental education students perceive their academic futures?

3. To what extent do students attribute their academic success to support from the Developmental Education Program?

4. Do students who successfully complete the developmental coursework continue on to accomplish their goals?

Overview of Methodology

Population

Since fall 2007, all students who place into developmental education courses are required to take those courses first, either in conjunction with other college level courses or alone, depending on the number of developmental education credits required. The college has an open-door policy so that students may enroll if they have graduated from high school, obtained a General Education Degree (GED), or have passing scores on the Ability To Benefit test (ATB).

The selection process will be limited to students who have successfully completed one quarter of developmental education coursework in math, English or reading and are enrolled in a second quarter at the institution. Selection criteria will identify those students between the ages of 18 and 25. Four students who fit the criteria will be randomly selected using a lottery system.

Data Collection

A qualitative method will be used to conduct the research. An ethnographic design with a case study format will be employed. There will be several strategies used for data collection including tests and repeated measures, population or sample survey, content analysis of secondary text or visual data, focus group interviews, elicitation methods, audiovisual methods, spatial mapping, and network research. Observation and ethnographic interviews will be the data

collection strategies used. Observation uses methods to record situations as they happen, along with recording the meaning, as described by Spradley (1980). The target for the observation can be activities, events, settings, behaviors, conversations, or interactions between groups or people. Field notes, tape recordings, video recordings, photographs, maps, or checklists can be used as the procedure for data collection. The data content needs to contain descriptions of the physical settings, acts, activities, interaction patterns, meanings, beliefs, and emotions of the groups or individuals. The ethnographic interview's purpose is to collect in-depth information regarding personal history, cultural knowledge and beliefs, and description of practices. The focus of the interview is on individuals and key informants. The interviews can be either unstructured or semi-structured and include vignettes. The questions for the interview technique are open-ended which enable the interviewee to answer in his or her own voice (LeCompte & Schensul, 1997). The interview questions, as described by Schensul, Schensul & LeCompte (1997), start broad and narrow in focus while continuing to access further details regarding undefined and new domains. The use of good prompts should also be included within the interview. The interviewer needs to stay away from questions that are leading, yes and no questions, pre-judgments, and the assumption of meaning in response to the interviewee's questions. Once the data are collected from the specific data collection strategies, the next step in the process is to begin to analyze, organize, and develop the data into domains and structure a taxonomic analysis. (Appendix B)

Data Analysis

The analysis strategies used for the research include looking for patterns of sameness and meanings as defined by the semantic domain; the organization and order of all the semantic domains, which is called the taxonomic analysis; and the differences between all data sets, which are described by the componential analysis. The basic elements of a domain are the semantic relationships, cover terms, and included terms (Spradley, 1980). Once all of the semantic

domains are developed from the data collection strategy, the domains will be grouped together and organized as patterns of sameness and likeness. This is done for each incident of data collection. Once all of the data are collected and compared for sameness, a taxonomic analysis is developed which organizes all the semantic domains and subcategories indicating hierarchical relationships among the included terms in each domain (Spradley, 1980, p. 113). A componential analysis observes the differences between the semantic domains. Componential analysis attempts to bring meaning to what people have defined within their culture. For example, the assumption of what is observed by the interviewer and the perspective of the interviewee would be the same observation emphasizes the need to make sure no pre-judgments are made.

Case Studies

Case studies draw from naturalistic, holistic, ethnographic, phenomenological, and biographical research methods. In this qualitative study of developmental education, there is an "emphasis in placing the researcher as an interpreter in the field to observe the workings of the case, to record objectively what is happening but simultaneously examine meaning and redirecting observation to refine or substantiate those meanings" (Stake, 1995, p. 170).

Organization of the Study

Chapter 1, The Problem and Clarifying Components, defines the intentions of the study along with the components and research questions. Chapter 2, Review of Literature, presents a review of related literature in developmental education, brain research, how students process information, learning styles and cognitive and social development theories. It also focuses on best practices and efforts for changing developmental education at the postsecondary level. Research pertinent to best practices used in developmental programs and concentrating on its contribution to student success is also included. Chapter 3, Design and Methodology, describes

the methods and procedures used in the collection and analysis of the data for this study of developmental education. Chapter 4, Presentation and Analysis of the Data, includes an analysis of the data and presents the results of this study. Chapter 5, Discussion of the Findings, includes a summary and discussion of the findings of the study, the conclusions drawn from the study, suggestions for practice, and the direction for future research.

Definition of Terms

These terms have the following operational definitions for this study:

Academic Goal: A student's academic intentions.

Academic Success: A **s**tudent's completion of his or her academic goal.

Academically Underprepared: Students who need to develop their cognitive or affective abilities in order to succeed in a postsecondary educational experience (Boylan, 2002).

Affective Domain: The manner in which we deal with things emotionally, such as feelings, values, appreciation, enthusiasms, motivations, and attitudes (Krathwohl, Bloom, & Masia, 1973).

Change: Change is a complex process that finds new knowledge and the change is deeply embedded in human interaction and relationships (Fullan, 2001).

College: A right-to-try college with an open door policy for students who have graduated from high school or possess a GED, or successfully pass the Ability To Benefit test (ATB). Testing of basic skills in reading, writing, and math are required for appropriate placement into courses.

College Reading: Improves critical reading skills and comprehension necessary for college-level reading. Successful completion of this course requires passing a reading posttest.

Computer: Student workstations consisting of HPDC7700, Windows XP, Windows Vista, Windows 2000, Internet Explorer 6.0, Internet Explorer 7.0, or Firefox 1.5 or 2.0.

Developmental Education: Courses or services provided for the purpose of helping underprepared college students attain their academic goals (Boylan, 2002).

Developmental Education Student: A person who, through placement testing, tests into one, two, or all three developmental areas of reading, writing, and math.

DEQIP: Developmental Education Quality Improvement Program at the college.

English Review: Helps students develop fluency and confidence in their writing in preparation for the demands of college-level writing. Targeted instruction addresses concepts of thesis, development, support, citations, logical order, transitions, word level, sentence level, mechanics, and document design. Successful completion of this course requires passing a portfolio review.

Essential Math Concepts: Examines math concepts relating to whole numbers, fractions, decimals, ratios, proportions, percents, signed numbers, exponents, and order of operations. Successful completion of this course requires passing a comprehensive exit exam.

Knowledge: Information becomes knowledge only through social processes. Attending too closely to information, people may overlook the social context that would help people understand what that information might mean and why it matters (Spradley, 1980).

Learning: The extent to which participants change attitudes, improve knowledge, and/or increase skills as a result of attending class. One of these must occur if a change of behavior is to occur (Kirkpatrick, 1998).

Learning Activities: Planned educational conditions which help to engage students with the intent of knowledge gained.

Learning Styles: The way each learner begins to concentrate on, process, and remember new and difficult information (Dunn, 2000).

My Math Lab: Online resource that accompanies the math textbook which is personalized, self-paced, interactive, and accessible through the Web.

Pre-Algebra: Examines the basic elements of algebra. Included in the course are integers, rational numbers, variables, radical expressions, measures of central tendency, metric conversion, solving a linear equation and its applications, slope-intercept form of a line, proportions, percents, and the rectangular coordinate system. Successful completion of this course requires passing a comprehensive exit exam.

Self-efficacy: People’s beliefs about their capabilities to produce effects (Bandura, 1991).

Software: My Math Lab website, test generator additional software after student clicks on the website.

Teaching Strategies: Educational methods, activities, and materials used to aid instruction and engage student learning.

CHAPTER 2

REVIEW OF THE LITERATURE

Introduction

The following reflects a review of the literature which will guide this study regarding developmental education. The topics contained in this review include the history of the beginnings of education, historical perspectives regarding the need for remediation, contemporary research dealing with self-efficacy, and the affective issues surrounding developmental education. Under these headings, additional topics are discussed to provide support and direction for the need to develop a path by which underprepared students can become academically prepared. Education has its foundation in both historical and current research. This chapter will begin with a historical perspective leading to the contemporary research on learning and its impact on college students along with the research questions guiding this study.

Historical Perspective on Education

Paulo Freire

What makes an academically underprepared student successful in college? For more than a century, researchers have sought to determine what both students and the academic environment of college can do to aid in the success of students who need remediation. The changing skill level of incoming freshman has made developmental education a major focus. Looking at the past must only be a means of understanding more clearly what and who they are so that they can more wisely build the future (Freire,1970). The beginnings of education were founded on the premise of opening doors for people for a better life. Freire believed that all

people are important and deserve respect. He worked to help people in third-world countries to overcome illiteracy. Basic components of Freire's literacy methods are:

- Participant observation of educators "tuning in" to the vocabulary universe of people;
- Their arduous search for generative words at two levels: syllable richness and a high charge of experiential involvement;
- A first codification of these words into visual images which stimulate people "submerged" in the culture of silence to "emerge" as conscious makers of their own "culture";
- The decodification by a "culture circle" under the self-effacing stimulus of a coordinator who is not "teacher" in the conventional sense, but who has become an educator-educatee—in dialogue with educate-educators too often treated by formal educators as passive recipients of knowledge;
- A creative new codification, this one explicitly critical and aimed at action, wherein those who were formerly illiterate now begin to reject their role as mere "objects" in nature and social history and undertake to become "subjects" of their own destiny. (Freire, 1970, p. viii)

Freire believed that people need to become aware of world conditions around them while teaching them to read. People need to move beyond the past without denying their past experiences in order to gain new levels of current critical consciousness and to make known the links between the oppressor and the liberation of the oppressed (Freire, 1974). That has happened in order to develop a sense of what it means to be human. Reforming the individual's world by using his own situations from daily life which provides useful learning experiences. Not to adapt but to work to reform the world. This enables people to gain the ability to use language and create words which allows the individual to develop an awareness of reality in order to fight for and gain equality in the world.

Literacy was a requirement to vote in the presidential elections in Brazil, and Freire believed that the oppressed must play a role in their liberation. Freire had personally experienced, and witnessed in others, the severe effects of poverty and hunger on the ability to

learn. In 1962, Freire had the opportunity to apply his theories and taught 300 sugarcane workers to read and write in 45 days. The Brazilian government approved the creation of thousands of cultural circles across the country. The educator and the educatee gain moral insight and value into a higher purpose, freeing both of them from a world predefined. They both begin to learn, one to develop self-worth without the stigma of illiteracy and the other as capable of dialogue in spite of the restraint imposed by the world serving as an educator. In his effort to create adult literacy throughout Brazil, a military coup on April 1, 1964, resulted in his exile. He was considered a traitor, imprisoned for 70 days, and then exiled to Bolivia and Chili (Freire, 1970).

John Dewey

John Dewey (1916) believed that education was a necessity of life and realized its importance to our social existence. Education is not only the acquisition of a pre-determined set of skills, but rather the realization of one's full potential and the ability to use those skills for the greater good. Communication is the direct process of sharing an experience. It modifies the disposition of both parties who partake in it (Dewey, 1916). We educate with the school environment which influences students indirectly. The importance of the school is to provide a simple environment while focusing on the fundamentals (Dewey, 1916). Elimination of the undesirable features of our environment and offering the opportunity to escape harsh realities in life engages students into a world of education which has the potential to transform their lives. Education can assist students to sort out influences, good or bad, in their lives such as work, home, school, community, or church. These may have negatively impacted past academic experiences or may hinder future academic success especially for the developmental education student. Education provides direction for students and a feeling that they have internal control, have identified an interest, and understand a social sense of their own powers. The learning from these experiences aids in the development of habits and when this type of growth continues

thoughts, invention, and initiatives will positively impact new endeavors while adapting to the educational process. As students grow and mature in the process of education, they draw from previous experiences to help build connections to new information. Continuously making these connections of experiences in order to add to and build new connections is how students begin to make educational progress (Dewey, 1916). Students must continuously expand their ranges and increase the accuracy of their perceptions and meanings to help prepare for college level course work. The gaining of knowledge and the methods used to obtain information are as unique as the individual. Educational experience has the greatest impact on learning and it is especially important for the underprepared students to make these connections.

Ralph Tyler

Ralph Tyler (1949) believed that a philosophy of education is needed before one can proceed in the learning process. Education is a means for people to learn how to deal with difficult situations and conflicts in life. Students need to constantly challenge their behavior and shape it according to the educational challenge. Students need to know the way in which they learn specific types of information, which is sometimes referred to as learning styles. Education is an active process for both the learner and the institution. Tyler's research can also be aligned to the needs of the developmental education student. Knowing the student population, researching their needs, evaluating the resources offered to support the students, and constantly making adjustments is the responsibility of the institution in order to add value to the student's educational experience. Students need to be able to use the knowledge gained and apply it to their everyday living. This connection and the transfer of knowledge is where true education begins. Drawing similarities and making inferences to real-life in courses is vital to developmental student's success. It takes time for a student to develop ways of learning and ways of knowing in order to gain the confidence needed to be academically successful. It takes

time to change behaviors. When much is attempted, little is accomplished. Consistency is needed in the development of the objectives in a developmental education program according to Tyler (1949). The more consistency in a program, the less confusion on the part of students trying to develop academically sound patterns in hopes of academic success or changing negative behaviors associated with past academic failures. Putting the necessary building blocks in place to support this type of educational program is crucial to meeting student needs. Tyler's rationale poses four basic questions pointing to the procedures needed to address problems in the area of curriculum and instruction:

- What educational purposes should the school seek to attain?
- What educational experiences can be provided that are likely to attain these purposes?
- How can these educational experiences be effectively organized?
- How can we determine whether these purposes are being attained? (Tyler, 1949)

Tyler's rationale focuses on the educational objectives chosen for the curriculum. Planning for the curriculum is a continuous cycle with constant re-planning, redevelopment, and reappraisal. Educational purpose helps to determine the appropriate learning objectives for the curriculum. Educational experiences need to be provided and need to align to the learning objectives in order to be useful. Organization of the learning experiences needs to be done in order to maximize learning. Evaluation of the process and revision of an area when needed will help to ensure the effectiveness of the curriculum (Tyler, 1949).

The Eight-Year Study, conducted by Tyler from 1933 to 1941, was a research study which designed methods of evaluation. He set out to reexamine course requirements in American high school. Thirty secondary schools agreed to experiment with various alternative curricular approaches. The purpose of the study was to help colleges and high schools better understand the

effects of the high school experience on college performance. Tyler designed methods of evaluation particular to the experimental variables of the Eight-Year Study. The findings from this study questioned the tradition of supporting only one set of high school experiences for success in college. A more alternative way of thinking about secondary school curriculum was needed. This forced Tyler to think about a rationale for curriculum and curriculum planning for schools. The rationale also highlighted the important factors to weigh against the questions. School curriculum also had to be responsive to three central factors representing the main elements of educational experience.

- The nature of the learner (developmental factors, learner interests and needs, life experiences, etc.)
- The values and aims of society (democracy, values, and attitudes)
- Knowledge of subject matter (what is believed to be worthy and usable knowledge) (Tyler, 1949)

In answering his four basic questions and designing school experiences for students, curriculum developers had a screen to run their judgments through with these three central factors (Tyler, 1949).

Kenneth and Rita Dunn

While educational institutions continue to refine student experiences in learning, they also need to engage in educating staff and students on how students learn. Students need to continue building their knowledge base and be able to assess their need to learn in different contexts. Instructors may also assist in increasing students' knowledge of learning styles by providing learning-style-responsive teaching in the classroom. (Brand, Dunn, & Greb, 2002). Even though students may be classified as underprepared, an overall one-size-fits-all approach will not improve the academic success of all underprepared students.

In order to capitalize on their learning style, students need to be made aware of their

- Reactions to the immediate instructional environment—sound versus silence; bright versus soft lighting; warm versus cool temperatures, and formal versus informal seating

- Own emotionality—motivation, persistence, responsibility (conformity versus nonconformity), and preference for structure versus choices

- Sociological preferences for learning—alone, with peers, with either a collegial or authoritative adult, and/or in a variety of ways as opposed to patterns or routines

- Physiological characteristics—perceptual strengths (auditory, visual, tactual, and/or kinesthetic strengths), time-of-day energy levels, intake (snacking while concentrating), and/or mobility needs; and global versus analytic versus integrated processing styles (Dunn, Thies, & Honigsfeld, 2001)

These four factors in learning preference are determined by a 100-item inventory administered to the student. Learning styles is the way individuals begin to concentrate on process, internalize, and remember different academic information (Dunn, Thies, & Honigsfeld, 2001). The less academically prepared college students are, the more important it is to accommodate their learning-style preference.

A preferred learning style or styles for the individual student may also change over time (Brand, Dunn, & Greb, 2002). Repetition, consistency, and reinforcement of learning methods and styles along with their application to real-life situations are how students remain engaged in the learning process in order to academically improve. The more application to real-life situations a student encounters, the longer the information will be retained. It takes time to develop this type of behavior, but the academic progress an underprepared student can gain may provide academic performance at a higher level than the academically prepared student counterpart (2002). Consistency of instructional design to include real-life application within the curriculum and purposefully developed courses which relate to and reinforce one another are evidence-based practice in education. These practices will supply the college student with a meaningful and coherent learning experience, which is the ethical responsibility of the

institution. Knowing where there are major gaps for the learner is an important area of focus for the institution.

Historically, Common Schools were established in Massachusetts in 1826, with Massachusetts legislature creating the first board of education and organizing the public common schools under a single authority eleven years later (Ornstein & Hunkins, 1998). The schools provided education for children from all socioeconomic and religious backgrounds from the age of six to fifteen. The schools were jointly owned and cared for by the local community. Due to the variety of subjects taught to children of all ages, teachers had to plan as many as forty different lessons daily (Ornstein & Hunkins, 1998). The common schools were influential in forming the present system of universal education.

Curricula at this time in history were informal and generally unstructured. The three Rs provided the basics and then were built on by adding courses focusing predominantly on religious doctrine (Ornstein & Hunkins, 1998). “Religious doctrine changed to ‘manners’ and ‘moral’ instruction by 1825” (Ornstein & Hunkins, 1998, p. 73). Ornstein and Hunkins suggested that morality training evolved to conduct training by 1875 and remained into the 20th century. In 1850, geography and history were added as separate courses; with science, art and physical education added in 1875; and nature study, music, and home and manual training by 1900 (Ornstein & Hunkins, 1998). The majority of children from six to thirteen years of age were enrolled in elementary schools by the beginning of the 19th century, but high school enrollment, students from fourteen to seventeen, did not reach the 80% mark until the 1980s.

The Academy, established in 1751, was the second American institution to provide education beyond primary level and was intended to offer a practical curriculum for those not attending college. It began to replace Latin grammar schools for secondary education. By 1828, more than 50 different courses were offered in academics (Ornstein & Hunkins, 1998). A college

preparatory curriculum was offered, as well as a program for non-college-bound students. The Academy was replaced in the 1870s by public high schools (Ornstein & Hunkins, 1998). Curriculum during this period lacked a specific philosophy or direction; its primary focus was preparation for college.

At the beginning of the 19th century, most Americans 7 to 13 years of age attended school but only 1 in 10 remained in school beyond the age of 14. Fewer than 7% of 17 year olds graduated from high school. During the rise of universal education from 1820 to 1920, it was thought that mass education was necessary for intelligent participation in political democracy and that education should extend beyond the common school to high schools and colleges (Ornstein & Hunkins, 1998). This concept was associated with the idea that all citizens should be participating members of society and were capable of contributing productively. This emphasis helped convince the American people of the need to support free education, which gave rise to various school "types." The Monitorial school, a European concept, was based on Joseph Lancaster's model of education. In this school, bright students were used as instructors for slower students (Ornstein & Hunkins). Ornstein and Hunkins indicate that this approach was used in the 1820s, but lost favor in the 1840s due to the mechanical approach adopted by education and the lack of emphasis on reading, writing, and arithmetic.

Contemporary Research

Education concentrating on college preparation for students did not necessarily provide them with the tools needed for academic success. A potential need began to emerge to deepen basic knowledge and skills in order to prepare students for college. Postsecondary education began offering developmental courses in the beginning of the 1900s. A National Center for Education Statistics study in 1996 indicated that 94-96% of colleges surveyed offer developmental courses (NCES, 2002). In the beginning, educators revealed their distrust in the

notion that students taking developmental courses could be academically prepared to take college coursework. Researchers and educators still maintain their disapproval of developmental programs today. Developmental programs today consist of tutoring, and learning centers, along with remedial courses. The main portion of developmental programs currently under attack are the courses. The research persists to find if developmental education can make a difference to the underprepared student. The mindset a college must have to continue to support developmental education is to establish best practices which are to be used along with the latest research of curriculum and instruction in developmental education.

Hunter Boylan

Boylan's research indicates that developmental programs need to value students' opinions. He also states that student performance, which is 50% cognitive, affective factors such as motivation account for the remaining 50%, along with attitude toward learning and the willingness of the student to seek help in an advisor is the formula for student academic success (Boylan, 1999). Students need to have an opportunity worth wanting (Dewey, 1916). Self-efficacy and the resolve to success produce positive results and allow developmental students to move on to be successful in college-level coursework (Bandura, 1982). When instructors spend time with students, help them develop and set goals, and show the path to obtaining these goals, it positively affects the relationship between the instructor and student and helps to increase a student's self-esteem. This type of connection between student and instructor also provides hope, which can strengthen self-esteem in the student. The underprepared student also sees the goals of others as important (Snyder, 2005). Boylan defines developmental education as "courses or services provided for the purpose of helping underprepared college students attain their academic goals" (Boylan, 2002, p. 3). The term underprepared student is defined as "any students who need to develop their cognitive or affective abilities in order to succeed in a postsecondary

educational experience" (Boylan, 2002, p. 3). Critical thinking is also important. Typically, developmental students don't understand the rewards of being a successful college student. Developmental students do not understand what is expected of them or the thinking that is needed to become academically successful in college (Boylan, 2002). Casazza's (1996) "messy problems" describes learning that is highly effective and the learner's learning is engaging and realistic. The best classroom atmosphere is where hope is so alive one can touch it and where hope and instruction go hand-in-hand (Snyder, 2005). High-hope students had adults including teachers spend large amounts of time with them. Low-hope students had little attention from adults, particularly teachers. Instructors plant the seeds of hope. Hope theory involves goals, pathways, and motivation. Instructors must have enthusiasm in order to motivate students. There is a need for instructors to constantly rework new information so that it appeals to students and is exciting to them as individuals. Genuine feedback from the instructor to the student also helps to provide motivation to the student. Students respect genuine, authentic feedback about their learning. Students can sense if feedback is authentic or fake. This is where grade inflation begins. Teaching hope and giving genuine feedback helps build self-esteem in students. High-hope students are not only concerned about their own goals but are concerned about the goals of others and see them as equally significant (Snyder, 2005).

Developmental education has a favorable advantage because along with connecting theory, teaching, and the learning process it came from numerous disciplines such as psychology, student development, reading, and adult education (Casazza, 1996). Multidisciplinarity is a blended approach to education, and this blending could be strengthened by developing a framework which would establish a point of reference for developmental education and aid the process of making decisions. The knowledge of recent research is important along with the implementation of evidence-based practice in developmental education, which may positively

impact conversations and enhance cooperation surrounding the future of such programs. Knowledge and awareness of aptitude and metacognition are the foundations for students' academic success. Students need to realize the purpose of knowledge and why it is necessary in their lives.

Bandura defines self-efficacy as people's sense of personal efficacy to produce and regulate events in their lives or so-called direct control (Bandura, 1982). The groundwork this definition provides is an insight into how students know and understand information and how the work involved in education impacts the student's self-efficacy. Self-efficacy can also provide insight into the mindset, reactions, and responses which are unique to the individual. The knowledge of what to expect in academic performance helps reduce stress for students and helps build confidence needed for future unknown academic performance. A sense of personal power over behavior is a difficult goal for students to obtain. Believing in oneself requires the means of knowing what skills or habits have helped in the past to become confident and successful. Disbelief in the ability to control certain situations begins to diminish a student's thoughts, actions, and emotions when dealing with either difficult or unfamiliar circumstances. When students fail in a situation, it provides them with the opportunity to learn from their mistakes and gives them a basis to gain knowledge from which they can draw upon in the future when they perform poorly. Students who have the ability and confidence to manage difficult learning activities increase their effectiveness in increasingly more difficult situations. Students gain self-confidence when they master difficult situations and begin to feel confident in their abilities. The opposite effect occurs when strategies to cope are not fully developed or poorly used due to not believing in oneself; a regression to old habits could possibly take place. Continuous belief in self-control is difficult to sustain for students, especially for those students who are academically underprepared. Those who believe they are capable and have power and control over situations

in their lives contribute mistakes to their own lack of belief in themselves. The need to cope is abandoned, efforts become futile, and diminished self-efficacy begins a downward spiral to a sense of failure.

Brain Research

Early research in learning indicates the differences between left-brain and right-brain learners. The original work of Nobel Laureate Roger Sperry discovered the functioning differences between the left and right hemisphere about 40 years ago (Jensen, 2008). Prevailing research in neuroscience avoids left- and right-brain labels but relative lateralization which means one will use most of the brain most of the time (Jensen, 2008). The left-side of the brain processes parts of language, and it does so sequentially. The right-side of the brain processes wholes of special information, and it does so randomly. The following is a list of attributes which are characteristic of each hemisphere (Jensen, 2008):

Left-brain-dominant learners, more often than not, may

- Prefer things in sequence
- Learn best from parts to wholes
- Prefer a phonetic reading system
- Like words, symbols, and letters
- Rather read about a subject first
- Want to gather related factual information
- Prefer detailed orderly instructions
- Experience more internal focus
- Want structure and predictability

Right-brain-dominant learners, more often than not, may

- Be more comfortable with randomness
- Learn best from wholes to parts
- Prefer a whole-language reading system
- Like pictures, graphs, and charts
- Rather see or experience a subject first
- Want to gather information about relationships among things
- Prefer spontaneous, go-with-the-flow, learning environments
- Experience more external focus

- Want open-ended approaches, novelty, and surprises

This way of thinking about the brain, due to past research, established a definitive left-brain and right-brain. The brain works well because of multiple and dynamic pathways supported by redundant systems. It is adaptive and flexible and surely not fixed from either birth or even our teen or midlife years. Current brain research tells us that we generally use both sides of the brain most of the time. Each area of the brain senses what is needed and interacts with other areas. Whole-brain learning research indicates that the left and right hemispheres of the brain have different functions. The left hemisphere is used for analytical operations, written and spoken language, and logical processes. The right hemisphere is involved with visualization, synthesis, and creativity. Educators need to alternate between big picture and details while presenting new information in order to validate that we are whole-brain learners, with attributes of each hemisphere. At one time, it was thought that if learners were taught by their brain preference, greater successes in learning would occur (*How People Learn*, 2000).

The brain is under major construction during adolescence (Jensen, 2005). The frontal lobes are the area of the brain responsible for thoughtful, reflective reasoning and are the last areas of the brain to mature. The growth process of additional connections being made in the brain occurs between the ages of 11 – 20 (Jensen, 2005). In some cases, this connection process may take until the age of 30 which indicates the immaturity of the brain during this time of life (Jensen, 2005). This research begins to explain why some students have the mental capability to be academically successful when they enter college while others need remedial assistance prior to successful completion of college level coursework.

Brain research, along with learning styles research, both study why students are still unable to read (Carbo, Dunn, & Dunn, 1986). Different approaches have been dissected in order to see which strategy or strategies will help prepare all students for learning. One finding from

the research determined that each student learns differently (Carbo, Dunn, & Dunn, 1986). An individual's path to learning is unique like a fingerprint. Learning can occur or be inhibited by external factors dealing with the environment or internal factors such as the emotion, social, physical, or psychological well-being of the individual. Students learn best when using their own characteristics for learning and find it difficult to retain information taught in (matching teaching strategies to students' learning styles) someone else's preferred learning style (Carbo, Dunn, & Dunn, 1986). Information is retained longer when it is taught through approaches which align to students' interests (Carbo, Dunn, & Dunn, 1986).

The brain is altered by exposure to opportunities for learning and by learning in a social context. This research supports the connection between academic study and socialization. Students learn and retain information longer when engaged socially while learning. This also reinforces the knowledge that practice increases learning along with learning in a complex environment (Carbo, 1991).

Global/Analytical

Depending on the individual's preferred approach to learning, information is processed either analytically or globally. Characteristics of students who process analytically may include remembering names, responding to verbal instructions, learning systematically, depending on words for meaning, solving problems seriously, disliking improvisation, coping with one problem at a time, and using language when thinking. Global learners remember faces, respond to visual and kinesthetic instructions, learn playfully, interpret body language easily, solve problems playfully, like improvising, cope with several problems simultaneously, and use images when thinking (Dunn & Griggs, 2000).

Analytic and global learning refer to the how an individual processes information. Analytic learners are logical in their thinking along with being highly verbal, objective, and

sequentially oriented in problem solvers. The global learner is emotional, highly visual, subjective, and can cope with several problems simultaneously. Most training is designed to teach analytic learners (Dunn & Griggs, 2000). Fifty years ago, good teaching was defined by all-lecture, content-laden classes, and quiet students sitting still at their desks (Jensen, 2005). According to more current research, effective teaching alternates between introducing the big picture, with an overview first and then the details needed to learn the concept, versus all-lecture. Teachers need to provide learners with a global overview as well as step-by-step instructions in order to meet the needs of both styles for learning. Research indicates that 85% of underachievers are global learners (Dunn & Griggs, 2000). The goal of instruction is to help learners toward the most important educational goal in education which is to teach students to teach themselves independently as adults (Dunn & Griggs, 2000).

Learning Styles

Past research indicates some strategies work well for all students if they pay attention, work harder, and do their homework. Students who are not successful must not be intelligent enough or not ‘be ready’ (Carbo, Dunn, & Dunn, 1986). Recent research tells us that if a student does or does not learn depends more upon the preferred path to learning than intelligence. Knowing the student’s preferred learning style is essential to academic achievement. Each individual’s learning style is different like a fingerprint (Carbo, Dunn, & Dunn, 1986). How a person learns and remembers depends upon the environment and emotional, social, physical, and psychological factors. Students learn, and enjoy learning, when the preferred learning characteristics are used. Pinpointing learning characteristics can be done through learning styles assessments. Even though students are not always able to be taught in their preferred learning style, teachers are able to adapt and use various strategies to address the learning needs of most students in the class. The main idea is to recognize the differences in learning for each student

and to help move the student to a level where he or she is comfortable in knowing how to adapt to individual learning needs. Teachers need to help learners toward one of the most important educational goals: to teach students to teach themselves independently as adults (Dunn and Griggs, 2000).

Cognitive and Social Development Theories

Learning theory examines the need for students to know how to learn, the social role of learning, previous knowledge, and memory. The theory of learning examines how skill and knowledge are acquired. Cognitive theory examines how people learn which includes thinking, memory, knowing and problem-solving. Cognition focuses on the different stages and levels of cognitive development in the learner. Social theory states that learning begins once social interaction occurs. Socialization and social behavior play a major role in cognitive development (Vygotsky, 1978). The growth of cognitive and social development theory and research in education helped change how educators currently interact and teach students.

Cognitive Theory

Jean Piaget

Jean Piaget's research indicates that the cognitive and affective domains have a direct influence on each other. Piaget believed a pure cognitive state could not occur without an affect behavior and an affective state could not occur without cognitive involvement (Piaget, 1962). With an internal motivation to learn, teachers can place an emphasis on making connections between known information (schema) and new information. Intellectual development in adults is a continuous process of self-construction, and each individual creates knowledge in his or her head. New information is incorporated into existing structures within adults (Piaget, 1973). Piaget believed that intellectual development was a lifelong process, and when formal operational thought was attained, no new structures were needed. Intellectual development in

adults involves developing more complex schema through the addition of knowledge. Making connections between known information and new information builds a learning strategy in adults and helps to motivate them into efficient processors of information (Piaget, 1963).

Piaget believed that through accommodation and assimilation individuals can internalize new knowledge (Piaget, 1973). Assimilation is defined as how the learner incorporates new experiences into an already developed mental framework without changing the framework. Accommodation occurs when the learner's mental framework is changed due to a new experience. The new experience fails to fit which leads to new learning. Piaget believed that all children try to balance between assimilation and accommodation which is achieved through equilibration. As children develop cognitively, equilibration aids the child in balancing between assimilation and accommodation. Schemas are also used by the child to develop categories of knowledge and understanding or interpretation of the world. As knowledge or experiences develop, this information is modified, added to, or changes current schemas (Piaget, 1950).

Piaget's theory describes the learner's journey through the different stages in cognitive development. How learners pass through these stages and what changes occur in their thinking is unique to the individual. The sensorimotor stage happens between birth and the age of 2. An infant develops an understanding of himself or herself and reality through experiences within the environment. In the preoperational stage, children between the ages of 2 and 4 can perform simple classification of objects by a feature. Concrete operational is the next stage which occurs in 7 to 11 year old children. Children begin to think both abstractly and logically about objects and events which explains his or her experiences. Formal operational is the stage beginning at the ages of 11 to 15. Cognition is fully developed at this stage. Children can classify various items of complexity and are able to use rationale to make judgments. Children at this age have developed mature, abstract thinking and can hypothesize about and contemplate the future

(Piaget, 1929). Figure 2.1 listed below, indicates Piaget's Stages of Cognitive Development and the characteristics of each stage.

(Figure 2.1)

Piaget's Stages of Cognitive Development

Stage	***Age***	***Characteristics of Stage***
Sensorimotor	0–2	The child learns by doing: looking, touching, sucking. The child also has a primitive understanding of cause-and-effect relationships. Object permanence appears around 9 months.
Preoperational	2–7	The child uses language and symbols, including letters and numbers. Egocentrism is also evident. Conservation marks the end of the preoperational stage and the beginning of concrete operations.
Concrete Operations	7–11	The child demonstrates conservation, reversibility, serial ordering, and a mature understanding of cause-and-effect relationships. Thinking at this stage is still concrete.
Formal Operations	12+	The individual demonstrates abstract thinking, including logic, deductive reasoning, comparison, and classification.

(Piaget, 1929)

This cognitive approach to learning focuses on the learner's thought processes along with how and why the thought processes occur. The nature of learning is determined by how the learner develops structures of knowledge and how these structures are created in order for the learner to know, reason, and problem solve. Piaget believed that learners process information within their environment by developing schemas which lead to cognitive structures throughout the stages of intellectual development (Piaget, 1973). Learning is not passive but plays an active role within the learner along with experiences in their physical and social environments. This perspective then becomes the learner's unique view of how the world operates.

Abraham Maslow

Abraham Maslow's Hierarchy of Needs, a theory in psychology, is based on five levels of needs in the lives of humans (Maslow, 1943). He viewed all needs as survival needs which are genetically built into humans. Physiology, safety, love and belonging, esteem, and self-actualization describe the stages of growth in humans. Basic needs must be met before an individual can move into a higher level of needs. Motivation of needs depends on the circumstances of the individual. Only when the basic needs are met can the individual then begin to move to a higher order level of need such as esteem and self-actualization (Maslow, 1950). When the developmental education student's basic needs are met, he or she can then become motivated to learn, progress, and gain the academic ability needed to be successful in college level coursework. Academic success can aid in building self-esteem and possibly lead into self-actualization. If one of the basic needs become an issue in crisis, then the individual reverts to that basic level of need and will stay there until the need is satisfied. The college needs to revisit these basic needs to see if there are areas in which the college can better support the student into perseverance. Developmental students are especially fragile with basic needs due to issues in transportation, childcare, and financial and familial support, along with low level academic skills.

Maslow's Theory of Human Motivation focuses on the stages of growth within human beings. Maslow was a humanistic psychologist whose research determined the psychological needs of human beings. He developed a foundation which includes five levels of basic needs: psychological needs, safety, social, esteem and self-actualization. Maslow believed that learning could only occur when certain basic human needs were met. The five levels of Maslow's Hierarchy of Needs begin with the physiological need to breath. The physiological, safety, love and belonging, and esteem basic needs must be satisfied in order for learning to become the

priority. Maslow called these four levels the deficit needs or D-needs. If the learner feels lacking in any of the four levels, there is a feeling of need. Once the learner internally reaches a comfortable and confident balance in life, this presents the best opportunity, motivation, and environment for learning to occur (Maslow, 1943). The following Figure 2.2 indicates Maslow's Hierarchy (Maslow, 1943):

(Figure 2.2)

(Maslow, 1943)

Abraham Maslow's Hierarchy of Needs, a theory in psychology, is based on five levels of needs in the lives of humans (Maslow, 1943). He viewed all needs as survival needs which are built into humans genetically. Physiological needs, safety, love and belonging, esteem, and self-actualization describe the stages of growth in humans. Basic needs must be met before an individual can move into a higher level of needs and learning becomes the priority. Motivation of needs depends on the circumstances of the individual. Only when the basic needs are met can the individual then begin to move to a higher order level of need such as esteem and self-actualization (Maslow, 1950). If one of the basic needs become an issue in crisis, then the individual reverts to that basic level of need and will stay there until the need is satisfied.

Cognitivism and Implications for Learning

Learning becomes the priority only when basic needs of the learner are met which is reflected in Maslow's theory and implications for learning. Continual cognitive learning is only effective when the learner is satisfied. Learning can occur only when confidence and motivation are present within the learner. Post-secondary educators must commit to addressing the issues of basic needs and offer support to learners within the institution. Attitudes of frustration and low self-esteem on the part of the learner can be addressed within the curriculum. This will help engage and motivate the learner to begin to feel a sense of self-worth, power, and fulfillment while viewing education as a desirable and obtainable goal. As an institution, placing value and importance on providing support of basic needs for the learner will engage students to want to learn. When the developmental education students' basic needs are met, they can then become motivated to learn, progress, and gain the academic ability needed to be successful in college level coursework.

Lev Vygotsky

Vygotsky agreed with Piaget on how individuals develop intellectually. Differences between Lev Vygotsky and Jean Piaget's begin with Vygotsky's belief in the social aspects of cognitive development. Social Development Theory supports the idea that human beings engage in social interaction first and that cognition is the end result. Socialization in Vygotsky's theory of "Zone of Proximal Development" (ZPD) indicates that meaning and understanding occur due to social encounters (Vygotsky, 1978). This type of socio-cultural development, Vygotsky theorized, indicates how children can enter into cognitive actions before they have reached a certain stage in their cognitive development. Cognitive development does not solely depend upon the developmental stage of the child which is the philosophy of Piaget's constructivism theory. Piaget's theory focused on the learning of a child as stages of development and

biological whereas Vygotsky's theory studied the child as being an active participant in the process of education. Vygotsky's theory supports that the learning process came before the developmental process (Vygotsky, 1962).

Academic Preparation and Student Support

Bridging the gap of academic preparation involves defining a variety of diverse issues surrounding academic access for students. An expansion of services due to social change in the demographics of college students needs to focus on both areas of the cognitive and affective domains. The services provided by an institution in order to address both the cognitive and affective needs of the student has been determined by best practices over the years by many institutions and continues to be studied, researched, and assessed today. The challenge to educational institutions is to increase the success of all students and to support students who have traditionally been excluded from postsecondary education. The national purpose for higher education is to provide access to all qualified persons. This also includes the mindset and support of lifelong learning. Students who are lifelong learners tend to access academic support and assistance in high rates. This also creates the alarming situation of students who are unable to persist due to their limited academic preparation and lack of services provided by the institution. Educational institutions need to make good on their implied promise of the open door versus the revolving door. Open door for the students that were more diverse and often less academically prepared turned the situation into a revolving door. While institutions may report the heterogeneous nature of their entering college class, most did not want to admit that most college graduates did not reflect the same diversity. This led to a major change in mass higher education and universal access to all qualified people. Changes also occurred in the emphasis of the educational model as reflected in several areas. The future trend in developmental education indicates a shift to being learning-centered. Mutually supportive alliances have turned into full

service learning and teaching centers, which even includes faculty development services (Arendale, 2004).

It is a serious mistake to limit learning outcomes to only cognitive values (Saxon, Levine-Brown, and Boylan, 2008). Benjamin Bloom estimated that 25 percent of student performance is determined by affective characteristics (Moore, 2005). The factors that influence success in a student are not identical with the factors that influence a student's withdrawal (Escobedo, 2007). Dealing with the affective domain involves leadership, self-understanding, and citizenship on the part of the student (Astin, 1993). Strategies used by a student to learn are measured by self-efficacy (Saxon, Levine-Brown, and Boylan, 2008). Along with the cognitive domain, a student's motivation, attitude, and anxiety toward learning need to be assessed. The lack of assessment in these areas represents a serious weakness in the assessment of students' learning. The planning and implementation of advising and placement processes needs to be reflective of best practices in post-secondary institutions. Attendance, time of day classes are offered, gender, rewards, and penalties are areas an institution needs to investigate in order to determine what best practices suit the needs of the student population (Hill, 2004). Taking responsibility for achievement, success, and effort are the affective characteristics that would most likely contribute to successful student performance and increased persistence. Weiner's theory found that successful developmental students attribute their previous academic problems to lack of effort and motivation (Dembo & Seli, 2004). Rather than an absence of skill or ability (Maddox, 2005), students attribute attitudes, values, self-regulation learning, self-expectation (White & Harrison, 2007) motivation, beliefs, and grade expectations to academic success. McCabe's research in 2000 indicate that only 42 percent of high school students leave high school with the necessary skills to begin college-level studies. (Perkhounkova, Noble, & Sawyer, 2006) Bettinger and Long's research in 2005 indicate that students who took developmental courses are

more likely to graduate than student with similar test scores who did not take developmental courses (Perkhounkova, Noble, and Sawyer, 2006). An instructor's relationship with the student also plays an important role in the academic success of students (Saxon, Levine-Brown, and Boylan, 2008). Nolting writes that performance in math has almost as much to do with attitudes and beliefs as math knowledge as determined by Weinstein in his research study which involved a qualitative analysis of four students over 14 weeks (Brothen & Wambach, 2004). Learning and motivation variables need to be examined along with the processes needed in order to instill these as automatic behaviors within the student. The levels of self-efficacy (high and low), nature of attributions, type of goal orientation, problems in self-observation and evaluation, negative talk and problems in the transfer of learning (the skills and the will) are all necessary information needed and used in order to control behavior. Students need to be intrinsically committed and engaged in their own education (Wadsworth, Husman, Duggan, & Pennington, 2007). Along with student commitment, institutions need to be committed to providing services in intrusive advising, proactive referrals to tutoring services, personal counseling services, networks of campus resources, and peer mentoring through the second and subsequent quarters.

Recent research has shown that there has been a transition in the use of technology and knowledge gained with the research surrounding learning and the brain. The City University of New York (CUNY) has statistics similar to the other institutions across the nation with fewer than half of developmental education students completing these courses. The most difficult problem area is math developmental education. CUNY has expanded remediation to an immersion program which services developmental students in remedial classes. The focus on the immersion program is to service those students who indicate a deficiency in the three areas of reading, writing, and math. Many of these students are less likely to become college graduates. The concern is how to best use resources. Instead of drawing resources from financial aid to pay

for these courses which are not for college credit, CUNY charges a flat fee for being in the immersion program instead of charging the normal tuition rate. Students in the immersion program take only remedial courses for one semester. They spend 25 hours in the classroom per week for a fee of $75. Seventy percent of students pass the immersion program. This is compared to fifty percent in the traditional developmental courses. The New York City Department of Education is beginning to track high school student performance in college to measure student preparedness. The city and CUNY are preparing to work together to align their academic standards and curriculums (Foderaro, 2011).

California community colleges approached the issue of underprepared students from a holistic development perspective. The most effective programs in aiding developmental students deal with all aspects of student development, personal, as well as academic, including the whole person with both affective and cognitive characteristics. These characteristics shape student attitudes and behaviors. Self-concept development also needs to be taken into consideration when preparing underprepared students for college level course work. Developmental students owe much of their success to the associated affective and motivational attributes. It is importance to address student motivation in successful student services program. Successful student services programs use reward and reinforcement in order to promote and enhance students' motivation. California community colleges highly encourage students to engage in academic careers, a project-designed freshman experience for most or all participants (Center for Student Success, February, 2007).

Kentucky has developed a wide variety of developmental education services in postsecondary education. Collaboration between P-12 and postsecondary education has been put in place to reduce the number of underprepared college students. Strengthening teacher education programs has been implemented to increase college readiness. Funding and

accountability at the state level has been incorporated to support student success in postsecondary education. There has also been an initiative on preparing GED graduates for college with a focus on racial, ethnic, and nontraditional demographic issues of college readiness. Assessment and placement policies have been implemented to reflect best practices (Kentucky Council on Higher Education, 2007).

The Texas Success Initiative enabled institutions to implement flexible plans along with the ability to allow the organization of developmental education within the institution to be centralized or decentralized. The individual institution can determine what type of assessment along with which tests are to be administered, when students are tested, which students are tested, and which students are retested. Advising is an area in which institutions can determine which students are to be advised, when the students are advised, and to develop a written plan which is unique in order to suit the needs of the students within the institution. The issue of placement and how decisions are made needs to be developed and aligned to the student population within the institution. The criteria for placement and who determines the placement needs to be in place in order to maintain and improve upon student success. The timing of when developmental education is offered to the student needs to be established by the institution along with what will be required and by which students. Continual enrollment in developmental courses is essential as well as an attendance policy and definition of what it means to complete the developmental education requirements. The institution must have a plan in place for courses and activities to support developmental education. Student support programs must be established and in place to ensure student success. How students are monitored needs to be established along with determining which courses are sequential and which courses articulate to college-level courses. Evaluation and assessment determines if the program has been successful and if it has met the initial goals and expectations. The institution needs to determine how the program will

be evaluated, what criteria will be used, and how the results will be used to improve the program (Texas Higher Education Coordinating Board, 2004).

CHAPTER 3

DESIGN AND METHODOLODY

Introduction

A discussion of this study follows, which uses a qualitative design, with an ethnographic approach, supported by a case study format. This chapter presents the research method, ethical care and the treatment of people, ethnographic study, research paradigms, and the population and sample selection. Assurances of trustworthiness are stated.

Research Design

The study engaged in asking questions addressing the affective issues both in and outside of the classroom for developmental students (Appendix A). The data collected for the study included two classroom observations and two student interviews. Data collection strategies and the methods used for the study were supported by the writings of Lincoln & Guba (1985), LeCompte & Schensul (1999), Spradley (1980), and Schensul, Schensul & LeCompte (1997). In Lincoln & Guba (1985), the researchers go into great detail as to how to conduct a naturalistic study. The starting point of a true naturalistic paradigm is the issue of trustworthiness. If a study cannot demonstrate trustworthiness, the study will be of no value to the community it meant to serve or to society as a whole. If a study can provide evidence and demonstrate trustworthiness, the study will be able to defend against any allegations of untrustworthiness. Questions used to determine truth value, applicability, consistency, and neutrality are used by the inquirer to help establish a conventional paradigm. Answers to these questions have established criteria used to determine internal validity, external validity, reliability, and objectivity within a research study. Since the study uses a small sample, it would be impossible to engage fully in all areas needed to address trustworthiness. For example, internal validity determines the casual relationship between the dependent variable, the developmental student, and the independent variable, the

issues affecting the student outside of the classroom. Another example would be the need to address external validity. A randomized sample population ensures that the participants have an equal opportunity to be included in the study. This helps to eliminate research bias. The external validity of the population for this study concerning developmental students would need to be further expanded upon. Reliability is yet another example of criteria within trustworthiness (Guba, 1981). Reliability means that if the study were replicated, the outcome(s) would be the same. It is very difficult to determine, at this time, if the study were replicated it would garner the same results. One could only speculate that this would not be true. Objectivity is the last piece of criterion used to determine trustworthiness. Objectivity establishes the methodology used to verify the results no matter who conducted the research experiment(s). The methodology used in this study is in a very simplified form. It is difficult to use only two classroom observations and two student interviews to verify a perfect methodology. Even within the two observations to be performed for this study, there will be a variation in make-up of the classroom, the set-up, and the curriculum used within the classroom. Trustworthiness seems like a very simple concept, yet in reality it is a multi-faceted set of criteria necessary within any viable research study.

Ethical Care and the Treatment of People

LeCompte & Schensul (1999) cover the topic of ethics and ethical issues as it relates to the proper treatment of people. If there is risk within the research study, the human subjects must be given the full details of the effects due to the participation in the study. The broad areas of concern regarding the ethical treatment and care of people include consent of involvement; knowledge of the risks of involvement; and the rights of privacy, confidentiality, and anonymity (LeCompte & Schensul, 1999). This will help ensure the equal treatment of all classes of people no matter what the race, gender, color, religion, or any other method used to differentiate people.

Institutional Review Boards (IRBs) have been set up by the U.S. federal government to continue the vigilance necessary to alleviate unethical behaviors within the research community. IRBs are required in any type of institution that receives federal funding and is involved in research. The IRB reviews specific components included in any research study involving people and can approve, reject, or withdraw approval at any time during the research process. Initial approval by the IRB must be obtained before the research begins. Participants must be assured of complete anonymity. Ethnographers often have issues with the specific criteria required as far as the procedure for full anonymity in that they usually know and see the participant(s) on a regular basis. Even within the ethnographer's field notes, references to the human subjects are so descriptive that an outside observer may be able to indicate the study site, time, and specific people involved. Thus, it is important to alter names, places, and times, and make every attempt to maintain confidentiality of the participants and communities. The ethnographer must be careful to remember that this relationship is due in large part to the fact that a specific research study is taking place. The focus needs to remain on the research and on the original purpose of the ethnographic study.

Proposed Population and Sample Selection

Beginning fall 2007, all students who place into developmental education courses were required to take those courses first, in conjunction with other college level courses or alone, depending on the number of developmental education credits required. The college has an open-door policy in which students may enroll if they have graduated from high school, obtained a General Education Degree (GED), or have passing scores on the Ability To Benefit test (ATB). The population is operationally defined (LeCompte & Schensul, 1999) first by using the criterion of successful completion of developmental coursework. All participants have successfully completed at least one quarter of required developmental education course(s) and are currently

enrolled in another developmental course the following quarter. The study is naturally bounded (LeCompte and Schensul, 1999) by voluntary participation in this investigative study. An ethnographic research methodology was chosen with the help of the criteria set by LeCompte & Schensul, which includes information regarding population, social problems, behaviors, process, ongoing feedback, implementation, and information to assist in the research findings (1999).

A proposed population was determined by collecting retention data from the spring quarter in order to determine how many students had successfully completed developmental coursework previously and are registered for additional coursework in the fall quarter. Selection criteria will be those students who are between the ages of 18 and 25. The sample will be determined by randomly selecting four students from the proposed population. The participants selected volunteered their time for this qualitative research study.

Ethnography

Ethnography is the method used to study human behavior and the reasons why humans behave in certain ways. Collecting this type of data must be done first before we begin to draw any conclusions or make any assumptions based on our own experiences, background, or knowledge. Ethnographic studies are designed for exploration and discovery by documenting what the researcher sees and hears in an uncontrolled setting. The product of the ethnography is a thick, rich description of problems seen within a certain group of people. Again, the focus needs to remain on the original purpose of the research due to limits in time, resources, and available funds. Ethnography is different from other types of qualitative research in that it focuses on understanding and solving problems within a specific group of people or within a community. Ethnography takes on more of an applied approach to the research. Other types of qualitative research are called basic, which focus on questions not solutions. Basic research does not set out to answer questions, but it is usually used in solving problems. Ethnography focuses on problems

witnessed by both the researcher and key people within the community or at the site. The problem has to be of value to both parties so that the researcher will be able to gain access to the site and conduct the research. If the problem is viewed as a threat, it will be difficult, if not impossible, for the researcher to have access or conduct the research at the site. The applied ethnographic research must also provide results which are useful to the community or site. The ethnographer develops an explanation of how people think, believe, and behave, defined as the theory of culture within the community (LeCompte & Schensul, 1999). The characteristics of an ethnographic study begin with the research being conducted in a natural setting; face-to-face interaction with participants; an accurate reflection of the participants; data collected to build cultural theories; both quantitative and qualitative data used in the research findings, description of group behaviors, patterns, and beliefs within the community; and the use of concepts of the culture as a lens to view and interpret results (LeCompte & Schensul, 1999). Concepts of culture must be included within a research study for it to be considered ethnographic. Culture looks at behaviors, patterns, and beliefs as related to specific social settings. This helps one to understand that behaviors and beliefs may vary within the same social group. To further focus the lens, a distinction needs to be identified between culture and ethnicity. In quantitative studies, the difference between culture and ethnicity may not be necessary. In qualitative studies, the difference between culture and ethnicity need to be well described and defined in the beginning of the study. It is important for participants to be able to identify themselves within a specific ethnic category to limit confusion and problems. Ethnicity defines people within the same national origin, typically holding the same type of political views or to ensure protection, advancement, or access to resources (LeCompte & Schensul, 1999). Once the culture and ethnicity of the study have been determined, the next step is to study what type of research paradigm should be used to continue the research process.

Research Paradigms

The five research paradigms used within an ethnographic study are positivistic, critical, interpretive, ecological, and emerging (Lincoln & Guba, 1985). The positivistic approach focuses on the behaviors viewed during an observation. Due to experiences gained by the researcher during the observations, the researcher can make predictions as to what may or may not occur in future situations. The researcher needs to be neutral and unbiased by personal experiences during the observation. The critical paradigm examines inequities within different types of political and non-political systems at all levels. The investigation focuses on financial, social, and cultural aspects of inequity and seeks ways in which to make changes within such systems. The role of the researcher is to root out hidden meanings, patterns of oppression, and to expose any type of bias. The researcher must also be careful to engage in activities or suggest improvements that do the least harm and are in the best interest of the whole group. The interpretive paradigm looks at individuals and society as a whole and seeks to define behaviors that contribute to the reality of the culture. "….interpretivists believe that what people know and believe to be true about the world is constructed – or made up – as people interact with one another over time in specific social settings." (LeCompte & Schensul, 1999).

This study used the interpretive approach for the research method. After all the data is collected, the componential analysis will be developed into the cultural categories of cognitive and affective. An ecological paradigm looks at continuing compromise between individuals, institutions, and the environment. The goal is to focus on compromise instead of conflict. The emerging social network paradigm focuses on anthropology, kinships and genealogies while offering an opposing view to what is currently seen by the existing community or social setting. Once a research paradigm is chosen, the data collection strategies can be determined.

Characteristics of Qualitative Design

A qualitative method was used to conduct the research. Ethnography is different from other types of qualitative research in that it focuses on understanding and solving problems within a specific group of people or within a community. Other types of qualitative research are called basic which focus on questions not solutions. The characteristics of an ethnographic study begin with the research being conducted in a natural setting, face-to-face interaction with participants, an accurate reflection of the participants, data collected to build cultural theories, both quantitative and qualitative data used in the research findings, describes group behaviors, patterns, and beliefs within the community, and uses the concepts of the culture as a lens to view and interpret results (LeCompte & Schensul, 1999). In qualitative studies, the difference between culture and ethnicity may not be necessary. In qualitative studies, the difference between culture and ethnicity need to be well described and defined in the beginning of the study. In this qualitative study of developmental education, there is an ‘emphasis in placing the researcher as an interpreter in the field to observe the workings of the case, to record objectively what is happening but simultaneously examine meaning and redirecting observation to refine or substantiate those meanings.” (Stake, 1995, p. 8).

Elements of Case Study

Case study methodology will be the framework used to conduct the qualitative research for this project. Case studies are used under conditions to examine a population, process, problem, context, or phenomenon whose parameters and outcomes are unclear, unknown, or unexplored within an identified community, target population, or other unit of study (LeCompte & Schensul, 1999). Strategies of the research will include four participants randomly selected using a lottery method. Case studies draw from naturalistic, holistic, ethnographic, phenomenological, and biographical research methods.

Researchers' Role

The study will be conducted by using two transcribed audio taped interviews and two classroom observations with transcribed field notes. Five reflective journal entries throughout the quarter will also be collected from each student participating in the research study.

Data Collection Timetable

At the beginning of the quarter, four participants, who have completed one quarter of developmental education coursework and are enrolled in coursework for the current quarter, will be selected. The following is a chart indicating when the interviews, reflection journal writing, and classroom observations will occur during the quarter:

Week 1	Contact participants for an informal interview by phone, email, or face-to-face
Week 2	Formal face-to-face interview with the student (audio taping)
Week 3	Reflection journal by student (either hand written or electronic)
Week 4	Classroom Observation (field notes)
Week 5	Reflection journal by student (either hand written or electronic)
Week 6	Reflection journal by student (either hand written or electronic)
Week 7	Classroom Observation (field notes)
Week 8	Reflection journal by student (either hand written or electronic)
Week 9	Formal face-to-face interview with the student (audio taping)
Week 10	Reflection journal by student (either hand written or electronic)

Data Collection

A qualitative method will be used to conduct the research. There are several strategies used for data collection including tests and repeated measures, population or sample survey, content analysis of secondary text or visual data, focus group interviews, elicitation methods,

audiovisual methods, spatial mapping, and network research. Observation and ethnographic interview will be the data collection strategies used. Observation uses methods to record situations as they happen, along with recording the meaning as described by Spradley (1980). The target for the observation can be activities, events, settings, behaviors, conversations, or interactions between groups or individuals. Field notes, tape recordings, video recordings, photographs, maps, or checklists can be used as the procedure for data collection. The data needs to contain descriptions of the physical settings, acts, activities, interaction patterns, meanings, beliefs, and emotions of the groups or individuals. The ethnographic interview's purpose is to collected in-depth information regarding personal history, cultural knowledge and beliefs, and description of practices. The focus of the interview is on the individuals and key informants. The interviews can be either unstructured or semi-structured and include vignettes. The questions for the interview technique are open-ended, which enable the interviewee to answer in his or her own voice (LeCompte & Schensul, 1997). The interview questions, as described by Schensul, Schensul & LeCompte (1997), start broad and narrow in focus while continuing to access further details regarding undefined and new domains. The use of good prompts should also be included within the interview. The interviewer needs to stay away from questions that are leading, yes and no questions, pre-judgments, and the assumption of meaning in response to the interviewee's questions. Once the data are collected from the specific data collection strategies, the next step in the process is to begin to analyze, organize, and develop the data into domains and structure a taxonomic analysis.

Data Analysis

The analysis strategies used for the research include looking for patterns of sameness and meanings, as defined by the semantic domain; the organization and order of all the semantic domains, which is called the taxonomic analysis; and the differences between all data sets, which

are described by the componential analysis. The basic elements of a domain are the semantic relationship, cover terms, and included terms (Spradley, 1980). Once all of the semantic domains are developed from the data collection strategy, the domains are grouped together and organized as patterns of sameness and likeness. This is done for each incident of data collection. Once all of the data are collected and compared for sameness, a taxonomic analysis is developed which organizes all the semantic domains and subcategories indicating hierarchical relationships among the included terms in each domain (Spradley, 1980). A componential analysis observes the differences among the semantic domains. Componential analysis attempts to bring meaning to what people have defined within their cultures. For example, the assumption of what is observed by the interviewer and the perspective of the interviewee would be the same observation emphasizes the need to make sure no pre-judgments are made.

Trustworthiness

The importance of trustworthiness is crucial and without it the research is virtually useless. Even a hint of questionable research will come under attacked which will lead to further investigation of the truth value, applicability, consistency, and neutrality within a naturalistic paradigm. The naturalistic research dives into the world the way it is. Truth value is putting the term reality under a microscope. If we already know the reality (truth) of the issue, what would be the purpose (value) of conducting a research study? The focus needs to be on the variables and their relationship to each other so one can determine if the hypothesis is true or false. Credibility looks at the truth of the findings from the data collected with the participants. Transferability looks at how the research can be transferred or applied to similar situations with the instruments used in the research (LeCompte , 1999). Dependability looks at the consistency of the research and if the research findings can be replicated.

Credibility

Credibility is obtained when the research findings truthfully describe the reality of the original data collected. The data is analyzed and the results are credible or believable from the participants' view. The participants are the only individuals who can truthfully evaluate the authenticity of the findings.

Transferability

Transferability can only be obtained through thick, in-depth descriptions by the researcher. This can only be determined by the users or the readers of the research when applied outside of the project. The ability to replicate or draw conclusions from the research project is accomplished through intentional collection of accurate and confirmable data.

Dependability

Dependability is similar to repetition in that it will also help to establish trustworthiness. If an experiment can be replicated twice and the same findings occur, dependability has been determined. For the naturalist, replication cannot occur. Naturally, things are ever changing which is the true reality (Guba, 1990). The naturalist sees things in a broader scope as far as dependability and labels them as observed changes (Lincoln & Guba, 1985).

Neutrality is the last criteria regarding trustworthiness for the naturalist (Guba, 1981). Compared to the objectivity of the conventionalists, neutrality is focused on the accuracy of the data and if the data can be confirmed. Comparing the criteria for the conventionalist and the naturalist in this study leads to many holes and gaps within the research findings. The need for a more thorough research study to truly delve into the deeper questions regarding aspects of internal or external validity versus truth value or applicability, reliability versus consistency, and objectivity versus neutrality would be of great benefit to the research surrounding affective issues with developmental students. The continuation of such a research study would develop

prolonged engagement, persistent observation, and triangulation which are a vital part of a formalized study. The use of peer debriefing, negative case analysis, referential adequacy, and member checks would also engage in the proper techniques used to help validate the research (Lincoln & Guba, 1985). A more thorough research study would also need to address this issue of ethics and the treatment of human participants. Ethical issues need to be at the forefront in the development and conduction of every research question, research design, and research study. A code of ethics must be checked and followed throughout the entire research process.

CHAPTER 4

PRESENTATION AND ANALYSIS OF DATA

Introduction

This qualitative study was designed to document, narrate, and interpret the meaning three students created while attending developmental education courses. This study approached student learning from an ethnographic perspective. Ethnographic research is interpretive in nature and is "designed to understand the meaning participants create as they interact within their local context" (LeCompte & Schensul, 1999).

This chapter presents learning experiences of each of the participants individually, followed by a section using domain, taxonomical, and componential analysis, to show the relationship within and between the participants over time. Originally, there were four students who volunteered to be a part of the research. One of the participants dropped out of college early on in the study. Three of the participants finished the study. Findings for each of the three participants are organized as follows:

Section One: Discussion of the Findings: Student #1

Each of the three student participants were interviewed twice during the quarter. Student #1 was a second quarter student in the Early Childhood Education program. Along with being a college student, she is a young mother with a one-year-old daughter, works part-time at a shopping mall, and lives with her parents. The student was enrolled in two daytime courses at this time, Pre-Algebra and Early Childhood Development. She took classes in the spring, took the summer off, and is now enrolled again in the fall. "I got way too stressed out the first quarter here. I had to take a break before I hated school. I had a new baby and work and it was too much. I couldn't do it." Student #1 chose Early Childhood Development for now just because she likes

kids. She is still confused about what she would like to do as a profession but needed to select something as a major in order to enroll at the college. Student #1 described her favorite course:

> I guess I don't know. I actually like math which is weird 'cause, I don't know, I'm not the greatest at math but I've always liked it. I am actually doing really good in it right now which is why I probably like it, because it makes me feel smart. Early Childhood Development really we are reading right now. I don't like reading right now unless I choose to read it so that's not fun for me. I like math. I feel smart in it.

As indicated from the interview, Student #1 believed that Early Childhood Education would be a good place to begin her education yet did not like to read the required readings for the course due to her lack of interest in the topics. She did not choose on her own to come to college but was told by her parents that she had to go to college in order to get a job that paid well enough to support her and her daughter. She continues on with more details as to why the math course was her favorite at this point:

> They are both pretty easy. ..they are good right now. I have a project in Early Childhood which I have to read the whole chapter and take notes. I am really bad at taking notes, horrible at taking notes actually…and then my partner is relying on me to do that so that is even more stressful. ..

She stated that she second guesses herself with the note taking and that is what really gets to her. Also the note taking and the pressure of taking notes for someone else did not work for her in her least favorite course. When asked if she would be willing to receive some assistance with taking notes or possibly ask if her teammate could take notes, she responded that the project was not due until the next month.

When asked about her goals in attending college, she just wanted to finish in order to get a job so she would have money for her daughter was the response. Even though she was

planning to go to college, she really didn't want to attend at this time. Her daughter had an influence on her college attendance:

> She can't have a bum mom. She led me to it. Truthfully, she is making me want to do everything so I need a job that has good money. I still don't really know what I'm going to do so I am going for something that sounds good but I don't know…if I want it since I am going to take all of these classes. I can change my mind. I am going to have to take more classes.

Money was a big concern for Student #1. In her first quarter at college, she was actually unable to sleep due to the stress of the cost for a college education. The cost of college was one of her biggest issues along with leaving her daughter to attend classes. She struggled with wanting to take a short amount of time off school in order to work so she could save up money instead of taking out additional loans for college and going deeper in debt. At this point, her decision was to continue attending college and taking out additional money for school. The feeling was that if she goes to college then her daughter will go to college and that was what she wanted. During winter quarter, she had to go to college full-time which was a little overwhelming for her. Student #1 also knew that this would have an effect on the number of hours she could work so it will impact her income. Her father kept telling her to focus on school and that she should not be working. She liked making money to spend on her daughter. She also likes learning. The math class was helping her to relearn what she studied in high school. The teachers in high school didn't really help her learn, so her math skills were weak. She liked college since the instructors helped her. The instructor checked on the students to see if they understood. The instructors at the college cared about the students and their learning. It helped her feel smart to actually know what she was doing in math.

When asked about her strengths and weaknesses with learning, she responded with wanting to pass her classes and to learn. She did not feel this way when she first started attending college. Now she wants to figure things out, find what she is good at, and learn new things. She does not think she can learn without pictures. At this time, she felt confident in her ability to do math and didn't second guess herself like she used to. Her weaknesses consisted of doing homework and being a procrastinator and that hadn't changed since she started college. She had difficulty with setting priorities and would rather do what she wants to do instead of what she should do. Yet she mentioned that her greatest strength was in her family which is her support system. They told her to go to school and they would help her in any way they could instead of putting her down when she didn't do things quite right. She realized how lucky she was and that not everyone has this type of support from family.

The most important reasons for this student to attend college were her parents and daughter. Her support system was her parents:

> My mom and dad. My mom helps me with my daughter, so when I go to work and school she watches her for everything. My dad tells me I have to go to school. He keeps telling me that if I'm in school I don't have to have a job. I choose to have a job because I don't want him paying for everything…so it's my parents.

Student #1 compared being a high school student to being a college student. The main differences concerned more freedoms:

> I like college because you don't have rules. You get to do pretty much what you want. It's your choice if you want to come or not. In high school, I had to come and so it made me not want to learn. In college, I get to choose what to learn. I get to choose if I want to come or not and to pay for it, that makes me want to come. I like college because I actually want to learn. I want to do what I am doing. I want to be here. You would get in

trouble for stupid little things. In here, the teachers are like okay, you can do whatever you want. If you want to leave early, that's fine, go ahead but it's you that it's hurting, not me.

The next question asked was about providing a list of the differences between high school and college and what the list would consist of:

College, you have more freedom…treated like an adult. High school, you are treated like a kid. You don't have the freedom even though you are supposed to be an adult. High school my teachers did treat me like an adult but not as much as college. If I needed my teachers after school here, I think they would help me and then we have tutors here too. If something were to happen like an emergency, I could leave and wouldn't get into too much trouble. In high school, I would have an emergency and get into trouble for it. I like college. I like the freedom. I like them putting the responsibility on me instead of someone telling me what to do, catering to me, and babying me.

The student was asked to describe what had the most impact on her college experiences so far:

Probably the freedom. If I don't want to come back, I don't have to. I know that would hurt me. Some mornings I don't want to go to school today, like today…I had a headache when I woke up, and then my daughter was really happy…and I really wanted to stay, but I can't. I will be behind. I hate being behind. I hate missing what the teacher says. I can't stand it because then I won't know what to do next week, so I can't.

In the next section, the student was asked about her learning, how she thought she learned when it was something new, and where she went to learn:

By watching someone do it first, I learn better that way. By seeing someone do it and then trying it. I am better that way instead of people telling me how to do it. It's not that I

> can't follow directions well, but if someone were to tell me how to get somewhere, I would get lost. If it is written out really, really good word-for-word exactly how to do it, but if it is just bits and pieces, it would take me a while. I have to do it over and over and read it over and over and keep trying. I eventually get it, but it takes me a while. I like to study in my room. I just go to my room after everyone is asleep. For some reason, I can never sleep at night. I like it when everyone is asleep or if nobody is home. I just sit at home and do whatever. I can clean. I can study. I can do whatever. I like sitting in my room when my daughter is asleep and study. I tried studying in the library, and it just doesn't work. I don't know, maybe because people are around…I just can't do it. I just put stuff on my bed. I have to have music. I need to have music when I read. It works better if I have headphones on instead of just music. If it is not what I want to read, it doesn't sink in. My math stuff, I have to write it out. If I don't write it out, I don't know what I am doing. I have to actually do the problem step-by-step even if I already know what I'm doing so I guess it's the visual stuff. With my notes and stuff, I am highlighting it, and it kind of helps me. I still don't really understand what I read, or once I go through and I write it down it will help me more because I still don't know what I've read. I have to really be interested to want to go back to the notes. I don't if this relates to school but like my Bible, I can highlight and remember. I can understand better what I've read, but I can't say the school stuff works like that.

Student #1 voiced with her concerns about taking out a loan and changing her major. The student was asked questions about specific course experiences after the first classroom observation occurred. Activities in the classroom were also observed and reflected upon by the student. When asked about activities in the classroom and if they helped to build confidence, Student #1 responded as follows:

> Good. I have make-up work I have to do in ECE, just two things. I did finish my project. Remember the PowerPoint I was telling you about? It turned out good. I actually, oh my gosh, I got up there, and I was actually talking to everyone. I was freaking out because I have not had a presentation in front of anyone in so long. So when I got up there and was looking at everyone, I was freaking out! Then my teacher ended up going to the back of the room so I could not see her, and this calmed me down.

It was indicated from the interview that she liked the instructor a lot and thought he was good because he wrote notes down step-by-step. He was easy to predict since he has a pattern and does the same thing every day. It was fun and not boring since he let students ask questions. So the activities for the class were minimal since the work was online. She stated the following concerns when asked if participating in class was intimidating:

> No. Not really. Some of the time, I get frustrated because I can tell students aren't actually listening to what he is saying. They keep asking the same questions over. I want to tell them to stop and just listen to him and to look at what he is writing because he writes every problem on the board. He doesn't just say it; he writes it on the board, but they don't write down the problems. So that bothers me, but what he is actually doing in the class doesn't bother me. I just don't get some people.

There are several courses the student mentioned from high school that she did not do well in or did not like. She talked about how she has never done well in math but that she likes it when she understands. When she does not understand the subject, it is irritating and she does not want to do the work because of math, one of her least favorite courses in high school, she suggested it could have been the teacher. In math, there are different ways in which to solve a problem which makes it less frustrating for the student. She feels as if she can always figure out

a way to solve the problem and sees how these skills can transfer over into helping her daughter with math in school.

The next set of questions from the interview dealt with her interactions with the instructors, how this impacted her learning, and her attitude toward math:

> Like a friend. Just talk normal like a friend, like I have known them. Early Childhood she is like a cousin that you don't see a lot, but when you do see them like more normal… hey, how's it going. Good. Then my math, he is kind of goofy, he messes with you and jokes around. When you come in late and he says you are like an hour late when really you are only like 5 minutes late. Makes the whole class know…If you are not comfortable with your instructors, like a friend, you are not going to want to go to class. If you don't like them, you don't want to go to class; you are dreading going to class. So you are not going to learn. I enjoy going to class because I like my instructors. They are nice to me…I enjoy it more especially when I am taking the notes myself. In high school, I just cheated some of the time. I don't cheat at all now! So I am actually learning it myself instead of from someone else's work. So I actually totally like it myself, and I actually know what I am doing. I like it when I get a problem wrong and then I figure out how to do it…it is fun, like a puzzle.

Reflected up within the interview, Student #1 stated that her goal for the course was to get all of her work done. She was behind somewhat in her courses, which is especially difficult with the math since says she has always struggled. Currently, she described her math skills as average. Even though she may struggle with math, she avoided getting stressed out about it and definitely wanted to avoid issues of anxiety. The strategy she used to avoid stress was to go onto the next math problem and then go back and revisit the problem she struggled with. She had actual anxiety attacks in high school. Now when she begins to experience stress, she knows how

to deter herself from an actual anxiety attack. Last quarter was too stressful, so this quarter she was trying to avoid the stress and focus on setting better priorities.

When she realized she needed to take developmental education courses, she was not surprised. She knew her weakness in math and would rather begin with an easier math course to refresh her knowledge than to be enrolled in a math course which was too challenging. Student #1 did not need to take the developmental reading or English course. She does very well with writing and has always been a good reader, when it is a subject of interest. When reading she can picture things in her mind. The following represents patterns that emerged as part of the data analysis relating to the Academic, Perceptual Preferences, and Emotions from the interviews with Student #1.

Figure 4.1: Student #1 Academic and Perceptual Preferences Patterns from Interviews

Student #1 Interview Academic and Perceptual Chart	
Academic	Perceptual
• Learn better that way • Can't say refer back to school notes • Make-up work • Same thing every day	• By watching someone do it • By seeing someone do it • Better than when people tell me • If I follow them I would be able to learn • It's the visual stuff • Highlighting • Read it once and write it down will help me • I can picture things • We can see it in our heads

Figure 4.2: Student #1 Emotional Patterns from Interviews

Student #1 Interview Emotion Chart		
• Stressed out • Before I hated school • Too much like math • Feeling smart • Don't like reading • Not fun for me • Feel smart • Don't know	• Procrastinator • Haven't changed always been • Get distracted • Don't do it • Rather play • Try not to procrastinate • Don't put my priorities	• Need to figure out • Not really sure • Freaking out • Freaking out • It calmed me down • Like him a lot • I like that • Crazy fun

• Still confused • Really bad at • Horrible at • More stressful • Second guess myself too much • Gets to me • Also stressful • Have to be perfect • She is going to hate • Didn't want to • Now I have to • Can't have a bum mom • Need a job that has good money • It's not fun • Horrible • Bad • Good thing • Fit in now • Don't want to • Would rather • Like spending it • Lots of fun • Like learning • Like it when they come over • Feel smart • Like • Afraid • Fear • Afraid • Proud • Don't want him paying • Tough job • Bad at doing • Want to learn • Didn't so much • Really good at • Know I can do it	above what I want to do • Want to figure out new things • Didn't want everyone to think I am retarded • Lucky • Choice • Choose • Choose • Like college • Want to learn • Want to do what I am doing • Want to be here • Freedom • Choice • Emergency I could leave • Like college • Like freedom • If I don't want to come I don't have to • Didn't want to • Want to stay but I can't • Hate being behind • Hate missing can't stand it • I can't • Really bad • Have to do it • Can't do it • Not what I want to read • I have to really be interested • Don't want to • Not even wanting • If I don't go • Don't know • Don't want to • Not going • Trying not to stress	• Not like boring • Get frustrated • Want to tell them stop • Bothers me • Doesn't bother me • Don't get some people • Don't like • Not a very good • Didn't like • Not good at math • I like it • Never been good • Never liked • Didn't get it • Never got it • Irritated me • Didn't like it at all • Don't want to • Not into it • Math teachers were really good • Frustrated • Why I like it • Don't ever get totally frustrated • Isn't fun • I can tell my daughter • Friend • He messes with you • Jokes around • Not going to want to • I am a sarcastic person • Enjoy it • I like • Totally like • It's fun • Never been good at • stressed out • Don't want anxiety • Didn't surprise me • Like reading • Getting stressed • Too stressed out • Priorities were not good

Each of the three student participants were asked to submit five reflective journal entries with specific due dates during the quarter. Student #1 only submitted two of the five journal entries. The reflective journal entries of Student #1 reflected what was done in order to prepare for classes during the week. She stressed the importance of doing all the homework and understanding the subject matter from the previous week. Student #1 recognized her difficulties with understanding the next section in math and the need to seek tutoring. Later in the quarter she reported that she is falling behind. Her focus and priorities were set on family and work so she has missing assignments which need to be completed. The plan was to hire a babysitter in order to accomplish all the coursework which needed to be done. The following represents patterns that emerged as part of the data analysis relating to the Academic, Emotion, and Perceptual Preferences from the reflective journal entries of Student #1.

Figure 4.3: Student #1 Academic, Emotion, and Perceptual Preferences Patterns from Reflective Journal Entries

Student #1 Reflective Journal Academic, Emotion, and Perceptual Chart		
Academic	Emotion	Perceptual
• Receive tutoring • Do all of my homework • Doing practice quiz over and over • Wrote down what I did wrong	• Really should do • Focused on work and family • Planning on getting a babysitter	• When I got it wrong wrote down what I did wrong so I can use my work as my notes

Each of the three student participants were observed twice in the classroom. The field notes pertain to the behaviors, activities, and events observed in each classroom setting. It was difficult to visually observe the students in this computer lab due to the partitioned work stations. Attendance was taken at the beginning of class but several students are not present. Students

arrived up to thirty minutes late, which did not seem to interrupt the instructor. The instructor asked that all students turn off the monitors and place their focus on the lecture.

After the initial lecture and writing examples on the whiteboard, the instructor began to enlist the student's participation in solving problems together. Students verbalize suggested ways to begin to solve the problems. The instructor guided them through with no and yes responses, asked for group consensus on the right answer, and guided them through how the problem could be solved in different ways. The instructor asked student to work on sample problems individually and then checked on each student to see how they were working the process for the problem. There were back and forth conversations between the instructor and the students. He wanted to make sure they understood the process and were not simply just copying down what was on the board. Not all of the students in class were engaged in the solving of the problems. It seemed as if only a few students were verbally participating. At times the instructor was very direct about what the students should be doing, pointed out their errors, and asked them to ask more questions about the process to solve the problems. Students seemed to like the light-hearted humor and joking by the instructor. The following represents patterns that emerged as part of the data analysis relating to the Academic, Emotion, and Perceptual Preferences from the field notes of Student #1.

Figure 4.4: Student #1 Academic, Emotion, and Perceptual Preferences Patterns from Field Notes

Student #1 Field Notes Academic, Emotion, and Perceptual Chart		
Academic	Emotion	Perceptual
• Turn off monitors • How problem can be solved differently • Don't just copy understand it • Asks for different answers • See mistakes better than just copying • What did you do wrong	• Instructor jokes you were absent • Instructor jokes maybe I can find a better teacher • Scary • Instructor asks about knee • Put snack away	• Turn off monitors • Don't just copy • If you'll listen to me trying to show you how to check answers • See what you did

• Supposed to have a handle on fractions • Students need to ask questions • Don't just copy • What are you going to do • I don't know • My answer is wrong • On final • Asking for answers • Helps students	• Students should worry about story problems • Joke about grams • Joke about spelling on test • Instructor candy for me joke • Wear ear plugs to keep info in	wrong

Member checking provided validity of the research findings. The member checking method included a review from three colleagues of all the data collected from student interviews, field notes from classroom observations, and reflective journal entries of the three student participants. The member check sessions were recorded and transcribed by the researcher. The majority of the member check sections are summarized, paraphrased, and reflected comments from the member check colleagues and the researcher. Parts of the member check sections are written in present tense since it seemed appropriate when reporting on what the colleagues stated.

Included in the research project were member checks conducted by the researcher and three colleagues from the college. Member checks occurred on all the data collected on the three student participants. Each colleague analyzed all the interviews, reflective journal entries, and field notes for each of the three students. Colleague #1 reflected upon the interview transcripts for Student #1 with a statement that it was hard to believe the student liked math and that the student's least favorite course is core to her program. The fact that the student liked math because it made her feel smart was not a surprise. With the developmental education student, it is important to build confidence as well as self-efficacy to prepare the student for greater challenges ahead. It was unusual for Colleague #1 to see that a student hated to read for a core

program course and wondered if this could be attributed to poor academic advising. Student #1 came back for her daughter which is heard all the time, and has a strong support system from family. The student stressed again that she liked math. When asked to reflect upon the field notes, Colleague #1 remarked that the instructor worked the problems out all different ways while trying to address all of the different learning styles of the students. A good instructor would have more collaboration in the classroom. Coaching is another important teaching strategy such as asking students to understand the process of a solving a math problem instead of simply copying the problem from the board. Putting math equations into a frame of reference applied to something in everyday life is crucial for student learning. This aids in the deep learning for students to understand why instead of memorization which is soon forgotten. This instructor was easy to predict, but he was fun; it is important to have the right teacher. The student got frustrated with others in the class when they didn't pay attention, which could be eliminated with more collaborative projects. Collaboration in the classroom can lead to competitiveness among students, student support of one another, and not wanting to let other each other down. There can be some negative aspects too, but overall collaboration is a rich experience which is not as predictable as a lecture. Students cannot simply go through the steps and expect to pass. The student sounded like she is getting overwhelmed with family. The student was planning to get a babysitter but Colleague #1 wondered if the student would actually follow through on that plan. There was also the question of why math was so easy and fun in the beginning but now it is not fun and the student was failing. There was a sense of a lack of motivation and procrastination by the student. At times, the student let other responsibilities get in the way of academic success instead of setting priorities.

Colleague #2 was concerned with Student #1 not having any goals for herself. She came to college because she was told to come, with little direction. There was no excitement from the

student in reading the interview transcripts. The field notes indicated that the instructor was abrupt in answering some of the student questions, along with not giving concise answers to the problems. From the observation transcript, the class environment seemed chaotic to Colleague #2, especially with students coming into class so late which indicated a lack of classroom management. The student liked the instructor even though the classroom seems crazy. The instructor was easy to predict. Colleague #2 was concerned in that the student did not talk about success in the class. It seemed as though the student did have a plan to get caught up in the class.

Colleague #3 reflected upon the student discovering that taking more than two courses was too stressful. There was additional stress in the student's life with a new baby plus work. It was interesting that the student's favorite course was math because she understood it, and it made her feel smart. The student's core course she does not like as much due to her dislike of the reading material and the fact that she felt pressured in taking notes for the group project. The student's main focus was spending time with her daughter, yet she was trying to do it all. There were some small successes along the way in that she wanted to get an education in order to be a role model for her daughter. Money was a big issue for this student along with the stress of taking out a loan in order to pay for college. Her father told her not to worry about working and just to focus on school. The student was not convinced. Then the student talked about learning with pictures and how she didn't think she could learn as well without the images.

Colleague #3 reflected upon the field notes and that the classroom seemed focused. Students came into class and began working on the computers in My Math Lab. The instructor begins the class by asking students to turn off their monitors and to focus on the lecture. The instructor had more of an "I will show you" type of teaching methodology. The lecture appeared to be fun due to the humor from the instructor. There was not a lot of students demonstrating what they knew in the classroom. The student was very conscientious when she was preparing

for class and received tutoring when needed. At this point, the student was feeling the stress of being behind and had a plan in order to get back on track. This was a very short time period with a lot of work to do, and the student was still concerned because she would be away from her daughter. The following represents patterns that emerged as part of the data analysis relating to the Academic, Emotion, and Perceptual Preferences from the member checks of Student #1.

Figure 4.5: Student #1 Academic, Emotion, and Perceptual Preferences Patterns from Member Checks

Student #1 Member Checks Academic, Emotion, and Perceptual Chart		
Academic	Emotion	Perceptual
• Instructor worked out problem all different ways • Tried to address all learning styles • More collaborative learning liked when instructor said don't just copy • Need to put math in frame of reference • Into everyday life • Lot of us just memorized • Collaboration is needed • Instructor is abrupt in response • Not giving concise answers • Chaotic • Lack of classroom management • Instructor is easy to predict • Important to have the right teacher • Instructor has an “I will show you” method in teaching	• Hard to believe • Student likes math • Feel smart • Confidence • Self-efficacy • Hated to read • Came back for kids • Likes math • Frustrated • Competitive • Supportive • Don't let each other down • Negative things too • Overwhelmed • Likes the instructor • Enjoys math because it makes her feel smart • Does not like to read unless interested in material • Pressure in taking notes • Wants to spend time with daughter • Stress from money issues • Planning to get babysitter • Probably won't do it • Lack of motivation • Need some form of motivation	• Frustrated • Misconception of own ability • If I just do the steps • This is not the case • Lack of motivation • Needs to prioritize • Procrastination • No goals • No direction • No excitement • Plan to catch up • Student does not talk about success in class • More than two classes is stressful • Enjoys learning with pictures • Students not demonstrating what they know

	• Let other responsibilities get in the way • Easy and fun now not fun	

Section Two: Discussion of the Findings: Student #2

Included in the research project, each of the three student participants were interviewed twice during the quarter. Student #2 was a student who first attended college as a dual-enrollment student when she was still in high school. She lived with her parents and just started a new job during this quarter. Her plan of study was in the medical area, physical therapy assistant and also to become a massage therapy in order to succeed in the work force. She had already taken several courses at the college level and was currently enrolled in the basic math course. Currently, Student #2 was enrolled in Anatomy and Physiology lecture, Anatomy and Physiology lab, Basic Math, and Composition I. She really enjoyed the basic math course and the lab course associated with the Anatomy and Physiology lecture. She felt the most comfortable with these two courses because she could keep up with the work and the lectures. The other two courses she was enrolled in were not as easy for her to keep up with the pace of the teachers' lectures. When asked to describe her least favorite courses, she responded:

> My anatomy teacher speaks with a very strong accent, and he is difficult to understand. I have to pay attention, but the class is kind of boring…all he does is go through the PowerPoint, and he never varies from that. The class just seems to drone on. The composition class is almost four hours long, so it kind of drones on. It is in a computer class for the most part, and I am not good at computers.

She liked being a college student since she was treated like an adult by the instructors. She liked the fact that the instructors were no nonsense so a lot less time was taken from instruction to deal with discipline issues. Her reason for attending college was that her dad told

her she would not be able to live at home if she did not go. She decided to come to this college because she had previously attended this institution. The 98% employment rate for graduates from the college also helped her make the decision to attend here. She was a third year student with the status of a sophomore. When asked about her strengths and weaknesses in learning, she responded with the following:

> I would have to say my strength is studying outside of school and finishing all of the homework. My weakness would be having a difficult time taking tests. I get test anxiety, which causes me to score more poorly than I would have on a quiz or just homework. It's not that I don't know the information…worrying that I am going to score poorly. I end up scoring not as well as I would have if I weren't worried.

When asked to compare her experiences as a high school student versus being a college student, she responded as follows:

> I think I am a stronger person as a college student because the teachers explain better here. They are willing to help if you need help before or during class, and they are willing to stay after. In high school…all of the people were kids and still quite immature. There were a lot of differences. You had to talk a certain way or dress a certain way. In college, I can dress any way I want and talk any way I want, and I am accepted. The teachers are more mature. In high school, they didn't care if they were swearing at the students, in general. I have never heard a college instructor swear. The homework is generally the same, maybe a little more involved and specified, but the same basic idea. The only other difference is that I have to pay for it. Oh, and if I fail, I still have to pay for it. So that's not fun. I would say that the way the instructors act has had the biggest influence on me. They act as adults, so that has really helped me pay attention and respect them and want to succeed in class more.

Student #2 learned best by reading and taking notes rather than by being a visual learner. When she was at home, she sat in her room and turned on the music. While she was on campus, she sat in the back of the library where there was no one else. At home, she had a desk in her room where she studied and she only had the materials out that she needed to do homework. She generally played music and did not require any food intake to learn. If she needed to take a break, she just continued to study with another subject and kept working.

The second interview with Student #2 consisted of questions pertaining to specific course experiences after the first classroom observation occurred. Activities in the classroom were observed and reflected upon by the student. When asked about activities in the classroom and if they helped to build confidence, Student #2 responded as follows:

> Well, pretty much she has us come up in small groups to the board. If one person doesn't understand it, they can get input from the others. But that's only on lecture days. I only had to go once but there were four of us that day. Two of the students didn't understand what we were doing but I wasn't the one with the pen for the board that day. The person didn't understand it had the pen so we were able to help this person understand the math. I like to help people. Yes, it helps boost my confidence. I see that I am able to help someone and that makes me feel smart. Math is my worst subject, it's hard. I understand most of the stuff so far. Other activities are lab, on the computer, work in the classroom, lecture, well, and sometimes it is just lecture, or she gives us practice problems for us to do at our table with one other person. If one person at the table doesn't understand it, we will work together and figure it out. Sometimes people don't understand the answers or have something wrong. She will go over it and once in a while then we will get called to the board to do the problem. I think this definitely helps because they say that practice

makes perfect but that's not really true. Perfect practice makes perfect. You have to understand it completely inside and out.

As reported by the data collected, the only time Student #2 did not want to participate in any of the activities is when she was having trouble understanding the problem. She felt pretty silly when someone else understood it and she did not. This only happened with the last chapter. She indicated that none of the other kids in class were afraid to ask for help. She did not get how students could be so bold and interrupt the instructor. She did not want to raise her hand and ask the instructor for help. She normally asked the other students around her for help. The last chapter was really hard so she was constantly asking the girl next to her for help. The other student was starting to get upset with her.

As far as educational experiences, Student #2 really enjoyed microbiology and child development. She took microbiology as a dual enrolled student and received an A-. She was interested in the subject. One of the advisors at the college told her that most students did not pass microbiology the first time. The child development course she took at the high school. Before she took the class, she did not want to get married or have children. She really enjoyed the course and realized how much she had learned about the responsibilities of being a parent. Out of all the courses she had taken, chemistry in high school was her least favorite since it was all math and the teacher was kind of crazy. The student struggled with all of the numbers and letters in the equations and did not understand what she was supposed to do. The experience was not great and she lost a lot of sleep over the stress that year due to chemistry and Algebra II. She enjoyed the labs for the chemistry course.

Understanding the topic and the teacher was what lead her to enjoy a class. Liking the teacher plays a major role in her performance in a course. If the teacher is wonderful and the classmates are wonderful, she will be able to get through the course and be successful. Currently,

she is retaking a course which makes it a least favorite especially when the instructor is difficult to understand, does not take questions, and reads exclusively from the PowerPoint. If she likes the teacher, she listens and pays attention more which makes for a better learning environment. When asked what piece of advice she would give an instructor to improve a course, she asked that they invite questions from the students.

When asked specifically about the math course she thought it was going very well because she was able to ask questions. Prior to this course, she hated math since elementary school. Student #2 had a difficult time with times table and knowing multiplication. Now she knew the multiplication table which really helped improve her attitude about math, and she actually looked forward to her next math class. The time spent doing homework, even when she did not want to do homework, had proved to be beneficial. She worked really hard and did the in-class practice questions, extra study questions online, extra problems, and went through a great deal of notebook paper as she practiced the math. She was eager to learn and wanted to know how to do the math, so she could be current with her math skills. She wanted to be as smart as everyone else. The help she received from My Math Lab was wonderful. My Math Lab offered help with every problem and showed examples, which helped her learn. The math book was easy for her to understand, and she loved the fact that there was free tutoring at the college. She was bullied in high school, so she entered college with an angry disposition. She reported that she loves college and loves being a college student. The following represents patterns that emerged as part of the data analysis relating to the Academic, Perceptual Preferences, and Emotions from the interviews with Student #2.

Figure 4.6: Student #2 Academic and Perceptual Preferences Patterns from Interviews

Student #2 Interview Academic and Perceptual Chart	
Academic	Perceptual
• Learned a lot more	• learn best by reading and taking notes

• A lot of studying • A lot of memorization • Read all the papers • Studying • Finishing homework • It's not that I don't know the information • Always being able to do homework well • Just ask people around me • Kind of easy • Tell teacher to invite more questions • Difficult not being able to ask questions • Was able to ask questions • Did homework even when I didn't want to • Would have to get help • Worked hard, really hard • Did in-class practice questions • Did extra study questions online • Did extra problems • Want to know how to do it • Want to be up-to- date • As smart as everyone else • Very eager to learn • Shows an example which is how I learn	• Just sit in my room turn the music on • Where no one else is • Only take out items I absolutely need • Generally play music • Don't need a snack • If I need a break I just go to a different subject and keep working • Mixed different chemicals together

Figure 4.7: Student #2 Emotional Patterns from Interviews

Student #2 Interview Emotion Chart		
• Feel as if I can actually keep up • Other two I can't • Boring • Drone on • Drone on • Being a college student is a whole lot better • Decided to continue • Enjoyed • Really familiar • I decided • Best choice • Think what I succeed in • Difficult time taking tests • Test anxiety	• Like to help • Makes me feel smart • Like • Feel pretty silly • Don't want to • Fun • Enjoy • Interested • Enjoyed • Enjoyed • Nuisance • Fun • Not good at • Fun • Not great • Easy	• Successful • Least favorite • Like • Listen • Pay attention • Did not want to do it • Hated • Hated • Helped my attitude • Felt guilty • Ticked-off • Absolutely love • Love that • Really like that • I was bullied • Pretty much angry

• Worrying • If I weren't worried • Think I am a stronger person • Dress anyway I want • Talk any way I want • I am accepted	• Feel very mature • Liking the teacher • Don't like • Wonderful • Wonderful • Able to	• Love being in school • Love being a college student

Each of the three student participants were asked to submit five reflective journal entries with specific due dates during the quarter. The reflective journals for Student #2 reflected what was done to prepare for classes the following week. In the first journal entry, the student knew she had to prepare for a test in math, which included material from the last four weeks. Extra time to prepare, along with taking practice tests and reviewing questions from the textbook, helped to make the student feel confident about taking the test. In order to prepare for the anatomy and physiology course, the Student #2 re-read the chapters in the book at home while it was quiet because she felt that this would be the best opportunity for her to study. There was another test during that same week in anatomy and physiology, but this time she prepared intermittently throughout the next few days. Journal entry two from the student reflected upon how she did not have enough time to prepare for classes for the week due to her work schedule, chores around the house, and obligations at church. She fit in study time by staying up late and getting up real early in the morning. Toward the end of the week, she had a break in her schedule and was able to finish an English paper. This sporadic weekly schedule did impact her grades. She realized how having other responsibilities could take away from her education.

The third journal entry she admitted she had made a mistake by allowing Facebook as a distraction in her life. She ended up using her study time to look for friends on the website. She did get an idea from Facebook for an English paper, which was the only positive use of her time

on the Internet. The time wasted caused concern for the student and the need to refocus on setting priorities on her education. Journal entry number four indicated that she was able to accomplish a lot of work for the next week of classes. Reading for anatomy and physiology, researching for an English paper, and completing practice quizzes in math were the steps she took in order to prepare for classes. She wanted to focus more on her schoolwork and ignore Facebook to get back on track from the past weeks' mistakes. The last journal entry focused on preparing for final exams. The student took a mandatory pre-exam and continued to take and retake the practice quizzes on the computer through My Math Lab. Student #2 did not feel as if she needed to prepare for the math exam because she knew the material. She needed to prepare for the anatomy and physiology final exam and devoted many hours to study and review. When she came across something she did not understand from the PowerPoint handout or notes, she referenced the textbook. Student #2 also admitted to dealing with test anxiety. She was having difficulty dividing her time and determining how much time to devote to each course. For the English exam she had little idea of what she would be writing for the final, so it was difficult for her to prepare. The following represents patterns that emerged as part of the data analysis relating to the Academic, Emotion, and Perceptual Preferences from the reflective journal entries of Student #2.

Figure 4.8: Student #2 Academic, Emotional, and Perceptual Preferences Patterns from Reflection Journal Entries

Student #2 Reflective Journal Academic, Emotion, and Perceptual Chart		
Academic	Emotion	Perceptual
• Continue to take and retake practice quizzes • Knew I had to study hard • Going through PowerPoint, handouts, notes	• Focusing • Finding time • Admit didn't feel I needed to prepare • Knew I had to study • Didn't quite	• Going through PowerPoint, handouts, notes, looked it up in the book, took notes off of reading, pictures, diagrams, handouts, research • Teacher says the more times I complete practice quiz the

• Something I didn't understand • Looked it up in the book • Trudged through the required reading • Did some research • Completed next chapter • Began working on practice quiz • Finished it • Have read the material • Did math homework • Did some research • Printed lab sheets • Took my time • Completed my math homework • Did not understand the assignment • Buckle down • Getting work and assigned reading done • Study for the next day's quiz • Work on composition paper • Finish my paper • Took practice test • Did several questions from the book • Read the material • House was quiet • Only chance to read without siblings • Studied very hard • Continued to study	understand • Forgot about • Test anxiety • Didn't do so great • Struggled to divide my time • Could do nothing to prepare • Frustrating • Felt like a pop essay • Trudged through • Helped • Ignored • Focus on focusing • Allowed another distraction • Worst idea • Bad idea • Lagging slightly behind • Need to buckle down • Ignore • Focus • Needed help • Took up a lot of time • Not having much time • Hazard • Wasn't a good idea • Boring • Not able to • Studied very hard • Did pretty well	better my score • Read materials for lab, printed lab sheets, focus, printed papers for lab

The classroom observations of Student #2 began with the students signing in on the attendance sheet for the class. The instructor was in and out of the classroom at first, helping students from another class taking a math test in the computer lab which was in another room. The instructor referenced the resources available with notes, examples, and practice problems

which included the answers to verify the work. The instructor was having difficulty with the technology of the Smart Board until one of the students from class come up to help. While working through the first problem for the day, the instructor commented to students not to memorize a definition but to remember the process and why it is done this way. She also made a comment that students need to refresh and renew previous information learned from one of the chapters and to focus on not making silly mistakes such as with subtraction. The instructor left the classroom again to check on the students taking a math test in the computer lab.

Students started talking among themselves and when she entered back into the classroom, she asked the students where she left off in the lecture. By this time, one of the students was laying her head down on the table. When the instructor began working the next problem on the board and asked students to respond with how to work the steps in the problem, no one was responding. Three or four student started to work the problem but the instructor reminded them to watch the directions for the problem. One student remarked “Not going to be too good.” The instructor reminded students again that she needed their help in solving the problem. The student who was laying her head on the table left the room and entered back in a few minutes later. The instructor continued to show examples of how to solve problems but was still having trouble with the technology of the Smart Board. She continued to give them tips on what to watch out for when working through the process to solve problems. The instructor also made a comment to the class that there were not enough practice problems and asked the students for examples. No one responded. There was one student in the back of the room sorting out papers. Students continued to work the problems with the instructor and at one point indicated a mistake made by the instructor. The instructor made light of silly mistakes and turned it into a teaching moment. She also made the comment that when trying to solve a problem if it could be related to money, students would understand. There was another comment made by the instructor that there were

not enough practice problems. The following represents patterns that emerged as part of the data analysis relating to the Academic, Emotion, and Perceptual Preferences from the field notes of Student #2.

Figure 4.9: Student #2 Academic, Emotional, and Perceptual Preferences Patterns from Field Notes

Student #2 Field Notes Academic, Emotion, and Perceptual Chart		
Academic	Emotion	Perceptual
• Resources available • Trouble with technology • Avoid mistakes • Where are we • You have to help do the work • Need to get technology to work • Not enough practice problems • Ask students for examples	• Avoid mistakes silly • Got to help do the work • Not going to be good • Student laying head on desk • Student sorting papers in the back of the room • They don't have enough practice problems • I need to go back to bed • Silly mistakes	• Using smart board • Instructor working problems asking student for help and answer • Students working problems on their own

Member checking provided validity of the research findings. The member checking method included a review from three colleagues of all the data collected from student interviews, field notes from classroom observations, and reflective journal entries of the three student participants. The member check sessions were recorded and transcribed by the researcher. The majority of the member check sections are summarized, paraphrased, and reflected comments from the member check colleagues and the researcher. Parts of the member check sections are written in present tense since it seemed appropriate when reporting on what the colleagues stated.

The member check from Colleague #1 for Student #2 began with the interview transcripts. The colleague mentioned that the student liked this math class because of the instructor. Instructors think they are just teachers when actually they need to not only teach but

also know how to motivate, build confidence, and address the different learning styles of students. It is not necessarily that the instructor is likable; it is more about if students can keep up the pace with the learning. At the college, we do not have a sink or swim mentality in addressing the education of students. It is more about how the instructor makes the students feel about his or her ability. The decision for Student #1 to come to college was made due to her parents asking her to leave home if she did not continue her education. This can lead to students being here for the wrong reasons, but educators can have the power to change that perception for students. It was interesting to Colleague #1 that the students caught the instructor's mistake. There seemed to be confusion in the classroom which concerned this colleague. There was also concern that the instructor seemed to be indicating that the math was so simple and that students should have understood it quickly. There was no checking of student knowledge by the instructor. The students seemed bored and confused in the class.

While reading another passage from the student interview, Colleague #1 questioned if there was any confidence building in this math class. The dynamics in the classroom did not make sense. Colleague #1 loved the fact that the student felt smart but is also concerned that some students have a false sense of confidence, and by the middle of the quarter the student may be behind and/or failing. An inflated perception can have an adverse effect on student learning. Collaboration with students going to the board in groups to work on problem solving is where learning really takes place. There still was concern that the instructor did not know how to manage the classroom. After reading the journal entries, Colleague #1 commented that the student had too many responsibilities other than education, and it was difficult for her to prioritize. This student blamed poor performance on tests because she suffers from test anxiety. The student had never taken steps to truthfully investigate the reasons for her anxiety and the necessary steps to overcome this issue instead of making excuses.

Colleague #2 responded to reading the first interview from Student #2 by indicating that this student was taking too many classes. This student also liked math and the anatomy and physiology lab because of the teachers not due to ownership of his or her own learning. Student #2 had a sense of why she was in college and had developed her own rationale for attending. There was concern from the colleague because the student listed only what she did well and that she always performed poorly on tests. There was a possibility that test taking was not the issue. It may have been her study habits, which would be a contradiction to what the student believed is one of her strengths. The colleague saw excuses for everything with this student. A great deal of information was covered in one class period, which was typical for this math class. The instructor should have been better prepared for class instead of asking students for example problems. It seemed as if the students were not doing the work in the classroom and all knowledge was coming from the instructor.

Colleague #2 liked that there was small group work in this course and that Student #2 was not embarrassed to go to the board. This helped to build self-esteem. There was concern in that the student did not want to get help from anyone else but the teacher. She did not want tutoring. The student wanted the teacher to come over and help her when she did not understand, and she was not willing to get assistance from other sources. She wanted to learn but did not take the steps in order to get the help she needed. Student #2 practiced the problems over and over, along with reviewing notes and handouts from the class. There was a great deal of information in this course, and the student had trouble with what to focus on while preparing for a test. This can be an overwhelming method to use to study for a test. Student #2 needed to be more accountable for her own education instead of relying only on her current study methods and the instructor.

Colleague #3 commented on the student liking math and the lab course for anatomy and physiology because these were both hands-on type courses. The student was bored with the anatomy and physiology lecture course because the instructor spoke with a thick accent and he only read from the PowerPoint in class. The composition course was held in a computer lab and the student did not do well with computers, so this course was not one of her favorites. This student struggled with taking a full load, the lecture only courses, and courses in a computer lab. College was her parent's idea but she did like college because she was dealing with adults instead of children. Student #2 was conscientious about getting a job and having better employment. This was another class where there was a great deal going on with the instructor and students coming and going in the classroom. There was some input from students during the lecture but with many classroom interruptions. This class did not seem to flow with any type of learning model. Most of the instruction in the class was in front of the room on the Smart Board. Once in a while small groups went to the board, but if the student did not have the pen, there was a need to walk the student with the pen through the process. There was not much learning diversity in the classroom. This student worked at the math, and she passed her final exam. As for studying for the anatomy and physiology exam, Colleague #3 thought that the way in which she studied was overwhelming, almost over prepared. The following represents patterns that emerged as part of the data analysis relating to the Academic, Emotion, and Perceptual Preferences from the member checks of Student #2.

Figure 4.10: Student #2 Academic, Emotional, and Perceptual Preferences Patterns from Member Checks

Student #2 Member Checks Academic, Emotion, and Perceptual Chart		
Academic	Emotion	Perceptual
• Likes math because of teacher • More about teacher and help from teacher	• Math is student's favorite • Don't see a lot of ownership	• Small group work • Go to the board • Practice problems

• A lot of info to cover for one class period • Typical class • Instructor should have been better prepared • Small group stuff good • Want my teacher to come over	• Sense of why she is here • Just lists what is good at • Bad at tests • Excuses for everything • Not embarrassed to go to the board • Helps build self-esteem • Doesn't want to get help from anyone • Don't want tutoring • Not willing to utilize help • Doesn't want to take the steps to get help • What to focus on • Overwhelming • Taking more accountability	over and over • Review notes and handouts • Review pictures • Students have a false sense of confidence • Huge confidence down the toilet by middle of quarter • Overinflated perception of ability • Collaboration we help each other • Students need a 24 hour mentor • Likes math because more hands-on class • Discombobulated

Section Three: Discussion of the Findings: Student #3

Each of the three student participants were interviewed twice during the quarter. Student #3 was a second quarter student in the Computer Networking program. The student was enrolled in two day courses: Pre-Algebra and Network 101 Computers. She had to leave college for two years, but she loved coming back. She loved coming to the college and wanted to focus on finishing. She no longer needed to sit around living on nothing and wondering about training for a job. The training she will receive from college will be what she needs in order to be hired. Student #3 described her favorite course:

> Actually, the Networking 101 computers. I do well with computers ever since I was little. I started with Comsomething. I can’t remember what it was…but your keyboard was your movement. I started out taking cartridges, not like they are now but you put it in your modem and use the keyboard. Probably since I was 10 or 14 it’s just I’ve had computers all my life.

Student #3 stated that her least favorite course was math, Pre-Algebra. It was really difficult for her to solve math problems, and she felt as if she cannot do it on her own. She understood that she needed to pass the class because math is a part of life. The student wanted to do it and try her best but that was as far as she would go with math.

When asked thoughts about herself on being a college student and goals in attending college, she responded as follows:

> My goal is to get either a Master's or a Bachelor's degree. Go beyond just a plain certificate. Go and get some training and finish what I wanted to do instead of something I don't like. What I want to do is computers. I wanted to do that and I wanted a degree in it. I want to get a job in something to do with it programming them, fixing them, maybe not so much fixing them, you know how these computers work.

Student #3 responded that she liked being a college student. It was difficult for her at first, and she was really nervous, not knowing what to expect from the instructors. After a while, she settled into the routine and the expectations. She wanted a better life for herself and to have some type of training in order to reach her goals. In college, students are able to take the courses they want to take whereas in high school the state mandates the coursework. The student felt that there was less one-on-one help in high school compared to college. In college, students had the learning center and teachers to support learning. This student wanted to go to college because it seemed as if everyone else was attending college. The other reason for attending college was to do better for her children who are also her support system. Her 16 year-old daughter, who is finishing up a high school degree online, was the one who gave her the incentive to come back to college. Since her daughter did not quit school, she could not quit either.

The next section inquired about the students' strength and weaknesses in learning. She stated that her strengths were being organized, receiving tutoring, and asking teachers questions

even when she was embarrassed. It was easy to fall behind if she did not understand and was afraid to ask questions. Once she fell behind, it was really difficult for her to get caught up in class. A strength she defined was when she watched and learned from someone. It was difficult to do, but she did not quit and kept trying. A weakness she defined was not knowing, just sitting around, and giving up. She defined her main weakness as not understanding and continuing to rework the problem three or four times.

When asked to compare being a high school student to being a college student, she responded as follows:

> You are talking 20 years. High school was hard. High school was hard for me. I couldn't really understand. I didn't really get the help that I needed. High school was where I got bullied a lot. I didn't get help from teachers. College, you have materials, you have people, and you have the one-on-one. You can stay after to get the help. With school, you couldn't get all that. They just handed it to you, and here it is due, you figure it out, whether it was done or not…high school you feel as if you are rushed. You have certain times, that is like one day and get it done. You didn't have the help…in high school, here is the book and you are responsible for it.

The student reflected that the networking instructor had the most impact on her college experiences. Student #2 wanted to listen because it was something she was interested in, and the instructor put students into groups which made it fun and not restrictive. The Essential Math course was also interesting because the instructor used jokes to engage students in the process of solving math problems. English class was a great deal of work and all the work was due the following day which was difficult to fit in with work and kids. The instructor just gave students the assignments with little explanation. Student #3 did not like that teacher since he or

she was unwilling to help students. This student learns best by someone helping her. At home, it was too quiet to study. She was unable to concentrate at home so she prefers to be here.

The next section focused on activities in the classroom. The instructor just started asking students to come to the board to solve problems. If a student was struggling and made a mistake on the board, the instructor just told the student that he or she forgot something in the equation. The instructor would give the student hints and a chance to find the error before giving the answer. There were also handouts with additional problems for students to work on during the week. Additional activities in the classroom included My Math Lab (MML). It helped Student #3 to work on MML, and she actually preferred working through the problems on the computer since she could see how the problem was done. The only disadvantage was that she was unable to work on MML at home because she did not have Internet access. It helped to build her confidence when she was working through a problem on the board in front of the class and could figure out one of the steps in the equation or the solution. She was not one to stand in front of people but she tried not to worry about being criticized, while simply focusing on what she knew. Being rushed or feeling rushed made her feel uncomfortable, lose confidence, and become stressed. She needed the instructor to show her the steps to solve the problem and was unable to work through a handout of problems on her own.

Student #3 talked about all of the courses she had taken up to that point. She liked her science and English courses. The classes she enjoyed the most seem to have had the least amount of pressure with instructors who were willing to help and answer questions. Government class was the worst for her. She hated the course so much that she wanted to burn the papers. It was difficult to understand how all of it worked, and the instructor expected students to keep up the pace. She was one of the students in high school that was left behind. She usually tried to interact with instructors often either before or after class and even sometimes sent them an email. It

helped Student #3 to have one-on-one time with the instructor to clarify questions. The one piece of advice the student would give the computer networking instructor was to do more hands-on practice in the course. In the math course she felt like she was behind, and she would have liked a little more of an explanation from the instructor on how to do the problems. She has an improved level of confidence in math even though she was behind. Previous to this course, she hated math. The goal for this course was to pass with a good grade. When asked what she did in order to achieve this goal, the student responded as follows:

> Just went up to college and figure out, okay do I have the time or the money? Am I going to get stressed out? Is it going to work out? I had the time, and I didn't have to worry about you know little ones or something. I just went up here, and it is time to go back. I thought there was no way…how am I going to get through all this math… It is time to finish this and get it done like I wanted to the past three or four years. I am not going to struggle through the very end.

The following represents patterns that emerged as part of the data analysis relating to the Academic, Perceptual Preferences, and Emotions from the interviews with Student #3.

Figure 4.11: Student #3 Academic and Perceptual Preferences Patterns from Interviews

Student #3 Interview Academic and Perceptual Chart	
Academic	Perceptual
• Can't do it on my own • Not understanding it at all • Have someone help me is best • Concentrate • These stupid mistakes • Hard because I don't have the internet • Activities help • I can write it out • It helps me • Going to the board builds my confidence • Unless she shows me there is no way • Like a little more explaining	• Watching and learning from someone else • Watching people doing • Try to figure it out by hand • Rather use calculator • Instructor should go a little more into the book • Instead of showing a graphic have us try it • Little more explaining

Figure 4.12: Student #3 Emotional Patterns from Interviews

Student #3 Interview Emotion Chart	
• Love coming back • Love coming up • Don't have to sit there • Do well with • Hard time solving • Want to pass • Try to learn • Finish • What I want • Something I don't like • I like it • Do better • Wanted to • Can be what you want • Wanted to do better • Can't quit • Got bullied • Didn't get help • Didn't like this teacher • Two teachers I didn't like in college • She cared • Prefer to be here • Like • Really like • Like • Don't like • No way • I prefer • Don't like being • Never liked	• Okay with it • Builds me • Without being criticized • Who is smarter • Rush • Don't feel at ease • Where I lose confidence • Frustrated • More stress • Don't like it • Don't like paperwork • Didn't like • Didn't like • Like • Worst • All time worst • Pressure • Don't pressure you • Going well • Feel like I am behind • I can do • Where I should be • Hated • Wanted to burn the papers • Didn't like • Left behind • Time to go back • Not going to struggle • No way • How am I going to do this

Each of the three participants were asked to submit five reflective journal entries with specific due dates during the quarter. The reflective journal entries of Student #3 reflected what was done in order to prepare for class during the week. She stayed after class to talk to the instructor and went to the learning center for tutoring. Student #3 asked the instructor for an extra day to turn in work when there were other issues taking up time in her personal life. She

liked working with the instructor one-on-one to recheck her work. Reworking the problems with the instructor was the most beneficial to her learning. Note taking, seeing a tutor, and the extra time spent with the instructor helped her to be successful in the course. What did not work well for her learning was when she felt rushed, made too many mistakes, entered the wrong numbers into the problems, studied too hard, and looked at the wrong examples when trying to figure out a problem.

She reflected upon who she was and the reason for attending college. She was very well organized and tried to prepare for class while keeping track of all the paperwork required for the math course. She tried to write down the problems from the board, notes from the instructor on how to setup the problems, steps for how the instructor got the answers, and any information that helped her understand the process in her own way. At times, she even recorded the instructor during class. The main focus in studying math for Student #3 was doing the problem over and over again, making the corrections, and redoing the problem until she got the right answer. Working through the process, she was able to see where mistakes were made. It helped when she was able to do half the problems one day and the rest of the problems the next day. Taking time to study for the exams over a three to four day period also helped Student #3. Going to the learning center to study with a tutor had been very beneficial. She marked the problems she did not understand so she could keep track of her questions for the tutor. Knowing more about how to order the problem and different ways to setup and solve the problems helped strengthen her confidence in math. She still struggled with problems containing many numbers because there were too many steps and too many signs to keep track of in the problem. The following represents patterns that emerged as part of the data analysis relating to the Academic, Emotion, and Perceptual Preferences from the reflective journal entries of Student #3.

Figure 4.13: Student #3 Academic, Emotional, and Perceptual Preferences Patterns from Reflective Journal Entries

Student #3 Reflective Journal Academic, Emotion, and Perceptual Chart		
Academic	Emotion	Perceptual
• Stay after class • Ask for another day • Recheck problem with instructor • Doing problem with instructor • Taking notes • Extra time instructor gave me • Putting the wrong number in the problem • Write the problem notes from teacher on the board • How to setup problems • Ask how she got the answer • Write down any information that helps me understand in my own way • Keep everything in order • Record the instructor • Study over and over again • Write down problem and right answer • Do the same problem 2 or 3 times • Do the problem by hand • Redoing until I get it right • Do half the problems one day the other half the next • Study the exam examples for 3 to 4 days • Tutor • Mark the problems I don't understand • Put right number and sign in order • Different ways how to solve and set-up problems • Long problems with lots of numbers	• Rushing • Too many mistakes • Studying too hard • Why I was going • Who I am	• Showing me • Overlooking the problem • Looking at wrong examples • Organized, highlight, write down step by step, write down any information that helps me understand it in my own way • Keep everything in order • Look over the problem • Study print outs with correct answers • Do problems by hand on paper • Do problems over and over again and making corrections to get right answer • Making the same mistakes over and over

• Too many steps • Too many signs in problems		

Each of the three student participants was observed twice in the classroom. The field notes pertained to the behaviors, activities, and events observed in each classroom setting. It was difficult to visually observe the students in this computer lab due to the partitioned work stations. The class began with students in the class trying to talk the instructor into not lecturing today. The instructor remarked that she cared too much about the students' success in the class to skip lecturing for the day. There was a great deal of interaction between students and the instructor before class regarding questions on some of the problems. The instructor decided to begin class on time stating that other students would be coming into class in a few minutes. A schedule was posted on the upper left side of the whiteboard which indicated homework problems and quizzes for the course. The instructor indicated an issue with My Math Lab and made the comment that it was crazy. On this day, students would not be learning anything new but applying what they already knew with polynomials. The instructor was taking students through the steps of the process to solve the equation. She used more than one method to solve the problem. She indicated for the students to use whatever method worked best for them and that it should be pretty easy. Students were actively asking questions in the class and the instructor commented on the good questions. When explaining a step in the process, she wanted to show the students how to do it, said that it was easy, and asked the students if they wanted a challenge. There were students walking out of class to answer their cell phones and students still coming in twenty minutes after the class began.

The instructor asked students to come up to the board and write one of the steps to the problem. A student complained about his penmanship. Several students went to the board to work the problem and the instructor asked the class if they saw how they arrived at the answer.

Then it was time to move on to something new and to start with easy things that they knew. When explaining one of the steps in the process, the instructor told the students not to let little things confuse them up in the process, so they could arrive at the correct answer. Students worked on a problem, and then worked through the steps on the board with the instructor's help. One of the students at the board stated that the wrong answer would kill him but the instructor reassured him this would not happen. The student indicated that he meant on a quiz. The instructor made the comment to the class that they are not the only students who made mistakes. She mentioned that the next section included an easy version of factoring and that the students would like it. Students told the instructor in class that they needed her help. She also mentioned several times during the observation what type of problems were on the final and which problems were not on the final. A student asked what to do when they were absent from a class and the instructor told them to borrow notes from another student who was in class. Then she asked the student if it would be a good or bad experience to borrow someone's notes from class. The instructor proceeded to go over the U.S. metric system and reassured the students that the metric would be much simpler, and that it was based on tens, which was simple. There were rhymes to remember the prefixes for the metric system. In the next section she told students to use the charts to figure out conversions to metrics and also shared with the class that even she did not have the charts memorized. The last part of class dealt with story problems and how to calculate pie. The instructor kept stressing how important these concepts were and mentioned several times that this information would be on the final. The following represents patterns that emerged as part of the data analysis relating to the Academic, Emotion, Perceptual Preferences from the field notes of Student #3.

Figure 4.14: Student #3 Academic, Emotional, and Perceptual Preferences Patterns from Field Notes

Student #3 Field Notes Academic, Emotion, and Perceptual Chart		
Academic	Emotion	Perceptual
• Students watch and listen • Instructor does the work • Let me show you • Students go to the board sometimes • Not on the final • On the final • Whatever works for you • Know what you are doing • Did you guys get that • Start easy with things we know • Don't let this mess you up • Was that the answer • Try this on your own • Instructor helps student at the board • Not the only one who makes mistakes • Room is quiet • Sound of people thinking • Not on final • Not on final • On final • Rhymes to remember • I don't know any of these by memory • On final • On final • On final	• Too many hats today • I care about your success • Student doesn't know what this is • Crazy • Pretty easy • Good question • Easy • Ready for a challenge • Sorry don't have good penmanship • Start easy • It will kill me • No it won't • Easy version • You will like it • I need your help • Good thing or bad thing • Simpler • Simple • Very, very important	• Students are watching and listening • Students occasionally go to the board • Let me show you • Instructor asks students to work the problem

Member checking provided validity of the research findings. The member checking method included a review from three colleagues of all the data collected from student interviews, field notes from classroom observations, and reflective journal entries of the three student participants. The member check sessions were recorded and transcribed by the researcher. The majority of the member check sections are summarized, paraphrased, and reflected comments from the member check colleagues and the researcher. Parts of the member check sections are

written in present tense since it seemed appropriate when reporting on what the colleagues stated.

Member checks were conducted by three colleagues on all three student participants. Each colleague analyzed all the interviews, reflective journal entries, and field notes for each of the three students. Colleague #1 reflected upon the interview transcript for Student #3 and stated that it seemed as if the student just wanted a quick “in and out” for her education. It did not surprise Colleague #1 that this student did not like math. The student thought she needed some type of special learning or hands-on experience in order to ask the instructor questions. Student #3 questioned why she needed this, she did not want to do that, it was a waste of time and not worthwhile. Colleague #1 still thought there was too much disruption in the classroom and that rules should of have been established the first day of class. The instructor showed students different ways to solve a problem. Student #3 understood the instructor because of the way the information was explained. The instructor was encouraging and told the students to solve the problem either way, whatever way worked best for the individual student. Students got a sense that this instructor was going to help them learn. There was some discovery learning happening in this class. The student appreciated that and asked the instructor if she forgot something while writing the steps to a problem on the board. This also helped build the student’s confidence. When the instructor simply gave students the answer, they were not learning and it may have made students feel inadequate. This was a good instructor who devoted a good amount of time to the students. Colleague #1 was concerned with this class in that students were not applying math skills to any real-world situations. It was difficult for students to see the relevance in math with the current curriculum. The way the course read from the field notes is that math was being taught through a rote process by doing the same problems over and over again with memorization which meant there was no depth to the learning.

Colleague #2 reflected upon the interview transcripts with a comment about the student finding something of interest by studying computer science. Student #3 would not be able to succeed in the study of computers if the math skills did not improve. There was a long path of math within the study of computer science and Colleague #2 did not think this student understood that math and technology were related. The lecture within this classroom setting seemed to be interactive which was productive for many students. There was order to the lecture along with student participation and little distraction in the classroom. Students came up to the board to work on problems and it seemed as if it was a non-threatening experience with the instructor guiding students through the problem when necessary. The right answer was mentioned quite often from this student. It was not so much about the right answer as it was about students remembering how to work through the process. Student #3 was doing all the right things to learn, such as redoing problems, seeing the instructor after class, and going to the learning center. The student was willing to take the time, be precise and careful, look at the details of the problems, and look at examples, which is all about learning how to be a student.

Colleague #3 reflected upon Student #3 with the computer course being the favorite class. The student had a goal of a earning a bachelor's degree or master's degree but did not understand that math was a big part of that degree. The student would learn the best that they could and go as far as he or she could versus obtaining a deep understanding of math. Colleague #3 was concerned that this student was unable to express herself and had unclear thoughts about doing something better with her life and not just sitting around. Student #3 did have a goal of wanting a better life. Strengths the student identified included being organized, received tutoring, and asked the instructor questions after class. The student needed to build upon these strengths in order to become as stronger student. One issue the student encountered while in high school was being bullied. This could have a profound effect on all aspects of a student's life including the ability to

learn. This student believed that there was more pressure in high school than in college. Colleague #3 stated that college was like life in that there were a lot of different experiences with instructors and some were not as helpful as others. There was concern again from the instructor that this student had a great deal to overcome in order to be successful. Coming to the board to work on a problem and figuring things out in front of the class did not seem to be a stressful situation for this student. This colleague observed that there seemed to be a great deal of distractions in the room with students coming into class late along with other students going in and out of class to answer cell phone calls. Student #3 tried to figure things out before she asked for help. The student liked the My Math Lab because it was useful to learning. There was a benefit for this student in doing math work on the computer. The work was still frustrating, but the student tried to work through the mistakes, asked for extra time to finish work when needed, and used highlighters to mark the problems, while still struggling with confidence and the ability to focus on schoolwork. The following represents patterns that emerged as part of the data analysis relating to the Academic, Emotion, and Perceptual Preferences from the member checks of Student #3.

Figure 4.15: Student #3 Academic, Emotional, and Perceptual Preferences Patterns from Member Checks

Student #3 Member Checks Academic, Emotion, and Perceptual Chart		
Academic	Emotion	Perceptual
• Disruption in the classroom • Some interactive lecture • Order to the lecture • Student participation • Not distracted • Students stuck on right answer	• Why do I need this • I don't want to do that • Waste of time • Something of interest • Not distracted • Comfortable in the classroom • Trying to take responsibility	• Special learning or hands on in order to ask instructor • Showing different ways to do problems • Instructor leads student to discover own mistakes • Comes up to the board • Instructor let them build their confidence first • Devotes a lot of time redoing problems

		• Wrote process • No applying it to anything • Instructor does interactive learning • Participates • Comfortable in the class • Right answer comes up a lot • Trying to take responsibility • Problems over and over again • Process versus right answer • Sees instructor after class • Goes to the learning center • Willing to take the time • Favorite class computers • Just learn the best I can • Go as far as I can versus understanding deeply • Inability to express self • Unclear thoughts • Doing something better not just sitting around • Having a goal • Asking questions • Needs to identify strengths and build upon them • Being bullied can effect learning • Coming to the board • Try to figure out on own • When she uses MML she likes it • For her to do it on the computer she sees how it is done • Still works even when frustrated • Asks for extra time to work • Marks with highlighters

Section Four: Summary of the Findings

This qualitative, case study research focused on the affective issues of three college students taking developmental education courses over a ten-week time period. Through an interview process, the study encouraged students to explore and reflect upon their college experience, their experiences as a college student, specific course experiences, and the

developmental education experience. Students were also asked to keep reflective journal writings about their experiences in preparing for each week's courses. Classroom observations with a collection of field notes were obtained for each of the three college student participants within the research study. Member checks were also conducted with three colleagues reviewing all of the information gathered on the three student participants during the data collection process. The use of four data sources which aligned to the research questions was intentional and employed to provide proof of triangulation and to ensure credibility.

The participant's learning practices were reported exactly as they occurred and were not reflected upon for quality. This helped to ensure validity of the research. The purpose of the research was to note the educational practices of the participants and to see the differences, commonalities, difficulties, and successes the students encountered during the quarter.

Four important findings evolved as the participants proceeded throughout the quarter. Reflections the participants made upon their own learning practices during the quarter along with the researcher's field notes from classroom observations and member checking from collegiate colleagues all served as data needed to provide validity and reliability. The following are the key findings of the study:

Key Finding 1

Affective characteristics of motivation and attitudes within the developmental education student have an impact on academic success. A student's academic support system, habits of learning, view of their academic successes, and how they learn from their academic failures had a profound effect on their ability to successfully complete developmental coursework.

Key Finding 2

Students who engaged in setting academic goals and focusing on the future were more likely to move forward and meet their academic goals. Focusing on academics studies and not on issues of life over which students had no control over was essential to academic success.

Key Finding 3

Support from the developmental education instructor along with the available resources such as tutoring and My Math Lab, provided students with the necessary structure and support to be academically successful.

Key Finding 4

Students who experienced success in their developmental courses continued to reflect that same type of success in other courses.

Chapter 5 revisits the four research questions which guided the study dealing with students' attitudes, students' perceptions of their academic futures, students' attribution of their success to support from the Developmental Education Program, and students' continued accomplishments of goals when they successfully completed developmental coursework. Data collected for the study provided rationale to address the research questions based on the findings.

CHAPTER 5

DISCUSSION OF THE RESULTS

Research Question #1 and Findings

What are developmental education students' attitudes toward taking courses below college-level? Student #1 was not surprised when she found out she needed to take developmental math. She knew she had to learn math and would rather be in an easy math class and learn things over again than be in a hard math class having no understanding of how to solve a problem. There was a great deal of information in the course she did not know but attributed some of her lack of knowledge to not fully paying attention in high school. Student #1 also mentioned she cheated some of the time in high school.

Student #2 was extremely upset when she found out she had to take math that was at a 4^{th} grade level. The student was reminded by her mother that she never really learned math and this course could really help her learn. Instead of talking to an advisor and trying to drop the class, she decided to stay in the developmental education math course. The first day of class she laughed because other students in the class could not subtract. Once she reached a point where she did not understand, she realized why she was in the course. Student #2 had hated math since the third grade. Math had never been easy for her especially multiplication tables.

Student #3 was concerned about the struggle she would have with the developmental education math course and wondered how she would be able to get through the math requirements. This student had been out of school for several years and did not know what to expect or where to begin. The math she had in high school did not include the same material as the college math courses. Student #3 hated math in school since there was insufficient help, and she felt as if she was one of the students who was left behind. She took this course previously at

another college but did not successfully complete it. The student had difficulty understanding the instructor and indicated she was unable to learn due to his strong accent.

Student #1 did not hesitate to take the developmental math course. She knew it would be better to begin by taking an easier math course first to help her review and learn new material without the stress of being in a more advanced math course. Student #2 did not have this same calmness about taking a course below college level. She was upset and wanted to speak with an advisor in order to transfer out of the course. Once she started the course, she quickly realized why she needed to start at this level. Student #3 was overwhelmed with the idea of taking a math course and wondered how she would be able to get through all the work. All three students had different perspectives on taking a developmental education math course. Weiner's theory found that successful developmental students attribute their previous academic problems to lack of effort and motivation (Dembo & Seli, 2004). This indicated the importance of preparing students to work with both the cognitive and affective characteristics while pursuing an education. Benjamin Bloom estimated that 25 percent of student performance is determined by affective characteristics (Moore, 2005). Engaging students cognitively through the affective characteristics of emotions, feelings, motivation, and attitude gives students the tools necessary to learn and grow academically.

Research Question #2 and Findings

How do developmental education students perceive their academic futures? Student #1 stated she was confused and really did not know what to choose as a career. She decided to go into Early Childhood Education because she enjoyed children and needed to make a decision on a major in order to enroll in college. Before she had her daughter, she thought about college but really did not want to attend. Now she wanted to complete a degree so she could find a substantial job to earn enough money to take care of her daughter. When talking about goals for

the future, she planned for her daughter to go to college. She was concerned about making the right decision for her academic future but was mainly focused on the present and wanting to spend time with her daughter.

Student #2 was focused on the future and had a goal of becoming a physical therapist assistant and a massage therapist and had been taking college level courses since she was in high school. This student had learned to be consistent in attending classes and diligent in completing homework. She was looking forward to the classes scheduled for the next quarter. When asked about her math abilities, she described how she was eager to know how to do the problems and to be as skilled at math as other students. Student #2 mentioned a few times how test anxiety took over when she was taking an exam. There may be specific reasons why she was performing poorly on tests, but she has not fully investigated the reasons and tended to use test anxiety as an excuse.

Student #3 wanted to work in some capacity with computers. She was coming back to college after a two-year break and wanted to finish the college degree she started. She looked forward to doing something more with her life instead of just sitting around waiting for life to happen. Student #3 tried to be organized with school materials to help her better prepare for future tests and projects in courses. She was focused on passing classes and getting better grades. Money, time, and transportation were all issues she needed to address before continuing her education. She struggled with doubts about her academic ability and the amount of math she would need to take in order to work toward her future in computers.

Student #1 was unsure of her academic future and possibly needed to change her major. She seemed to have a lack of motivation and excitement about her education. There were many responsibilities in this student's life with a young daughter, living with her parents, school, and work. Student #2 had a solid goal in mind, academically, and knew exactly what she wanted to

do in the future. She had a plan and a path set for her life. Student #3 enjoyed working with computers but did not fully understand the academic path needed to obtain such a career. The need to focus solely on academics for a period of time plays a major role in student learning. It is difficult to learn when the mind is distracted and engaged in other things, normally things out of one's control. Personal concerns can be addressed through an affective domain lens in order to make the necessary adjustments to regain focus on current learning while obtaining new knowledge and skills.

Research Question #3 and Findings

To what extent do students attribute their academic success to support from the Developmental Education Program? Student #1 liked the computer lab portion of the Pre-Algebra course and found the way material was presented with pictures had a positive influence on her ability to learn math. She developed a desire to figure out math problems on her own which had a positive impact on her attitude and self-efficacy about math. She enjoyed the math course and the math instructor. The instructor inserted humor into the lecture portion of the class which appealed to this student. The instructor was predictable as he conducted the course the same way on most days. The student indicated that the math was online so she did most of the homework at home on the computer which she found beneficial. She had confidence in her ability to do the math which made her feel a sense of accomplishment.

Student #2 really liked the Essentials Math Concepts instructor, found the instructor incredibly helpful, and felt confident in her own ability to keep up with the coursework. The instructor occasionally incorporated group work into solving problems in front of the class on the white board. Student #2 enjoyed this because she liked to help people and going to the board to help others solve math problems built her self-confidence. There were times when the instructor incorporated a worksheet of math problems for students to solve with another student in class.

Student #2 found this approach beneficial because if there was something they did not understand, the students were usually able to figure it out between themselves. She loved the My Math Lab component of the course since it offered help with every problem by showing examples on how to reach the solution. The setup of the math book was also easier for the student to understand.

Student #3 had a hard time solving problems in the Pre-Algebra course. She needed a great deal of extra assistance from the instructor and did not feel confident in her ability to find solutions to the problems on her own. The math instructors at the college were helpful and incorporated humor to engage students in the learning process. She learned best by taking notes, having someone help her one-on-one, or by watching the instructor solve a problem with step-by-step instructions. The instructor asked students to write one of the steps to a problem on the board and helped the student work through the process if needed. This helped to build the student's self-confidence. The instructor also included handouts of homework problems for students to solve. Student #3 did not like the handouts and was unable to do the work on her own. She liked working in the My Math Lab for the course homework but found it a little difficult since she did not have a computer at home. This student was able to see how the problem was done on the computer which she found beneficial. Prior to this course, the student hated math. After this course, she understood math's purpose in life and how it enables students to solve problems in everyday life.

Each of the three student participants attributed part of their success to helpful instructors in the classroom. An instructor's relationship with the student also plays an important role in the academic success of students (Saxon, Levine-Brown, and Boylan, 2008). The developmental education instructor may have the greatest impact on a student's success. It is not necessary that the instructor is likable but that he or she is available to support the student. Instructors are not

simply teaching students but play a role in motivating learning. The instructors in all three classrooms had different strengths and weaknesses. It seemed as if each instructor had a genuine concern for the students in his or her own unique way. It is important for the college to employ the right instructors in the developmental education classrooms.

Student's felt additional support from the use of computerized curriculum materials available on My Math Lab. The three student participants each found great benefit to learning through available resources online including tutoring, sample problems, step-by-step explanations, and additional practice problems. The only disadvantage of the online materials was the lack of access for Student #3 who did not have a computer at home. She was able to access the online resources only while on campus.

Research Question #4 and Findings

Do students who successfully complete the developmental coursework continue on to accomplish their goals? Student #1 felt some small successes along the way with understanding the math and doing well on the first project in the Early Childhood Education course. She struggled with taking a full load her first quarter at the college due to responsibilities outside of college. This quarter she was taking only two courses and she felt confident about successfully completing both courses. The next quarter she would be required to take another full load. She was concerned about selecting an appropriate major and worried about her current Early Childhood Education course not applying to a different major. She continued to struggle with procrastination which had always been an issue. Student #1 was planning to consult with an advisor to change her major and continue on in her education.

Student #2 felt confident in successfully completing all of her current courses. She looked forward to taking Pre-Algebra the next quarter. She was able to take the Essential Math Concepts exam early and scored 94% on the final. The physical therapy assistant program is a limited

enrollment program with grade requirements for specific courses. She was retaking Anatomy and Physiology I, along with the lab, in order to obtain a grade high enough to enter the program. She commented on the Composition I course, which had a written final on an unknown topic so she stated it was difficult to prepare for the exam. Studying was an area of strength for this student, but she struggled with taking a full load due to responsibilities outside of college and with the ability to perform to her fullest potential on tests.

Student #3 felt confident that she would successfully complete the computer networking course. The Pre-Algebra course was still a struggle and she was a few chapters behind the rest of the class. She was working at her own pace and understood what she had learned up to this point but did not want to struggle to the end of the course and then find out she did not successfully complete. It was hard for her to find enough time to study. She continued to redo the problems yet continued to struggle in the course and felt rushed, which leads to making the same mistakes over and over again.

The factors that influence success in a student are not identical with the factors that influence a student's withdrawal (Escobedo, 2007). Along with the cognitive domain, a student's motivation, attitude, and anxiety toward learning need to be assessed to properly identify gaps in knowledge or skills. Each of the three student participants had different affective issues to contend with during their educational journeys. This is why a one-size-fits-all approach in aiding students to successfully complete courses does not work. It is a serious mistake to limit learning outcomes to only cognitive values (Saxon, Levine-Brown, and Boylan, 2008). Equipping students with the skills necessary to take responsibility for their own learning employs the affective domain while engaging the cognitive characteristics which leads to academic persistence and success. Rather than an absence of skill or ability (Maddox, 2005), students

attribute attitudes, values, self-regulation learning, self-expectation (White & Harrison, 2007), motivation, beliefs, and grade expectations to academic success.

Concluding Thoughts and Personal Reflections

Findings from the research study indicated the importance of student engagement in the affective domain for improvement of student academic success. Student knowledge of their affective characteristics can also lead to an examination of setting academic goals with a focus on the future to obtain those goals. When students are able to identify affective traits that lead to current academic success, they are able carry those same traits forward to become successful in the future. Incorporating practice within the educational process of how to enhance characteristics such as motivation and attitude will help build confidence within students to improve their academic endeavors. The three student participants within this research study came from different backgrounds yet had similar challenges. Student #1 lacked the motivation and enthusiasm to pursue the Early Childhood Education major. She needs to invest time in taking an aptitude test to make a better decision for a career path which best suits her passion for life. This student has the ability academically to become successful if she so chooses. Student #2 struggled with making excuses about test anxiety for poor performance academically. In order to increase her academic success, she needs to investigate better methods to prepare for tests and examinations. This student is dedicating the appropriate amount of time to study but seems to be studying in order to prepare for testing over all of the course material. This can be a daunting and overwhelming task when faced with notes, handouts, textbook readings, PowerPoint slides, and previous tests and quizzes to study from in preparation for an exam. Knowing how to prepare for an assessment of student learning is part of mastering the skills of being a student. Student #3 displayed weaknesses in her ability to communicate clear thoughts. Poor communication skills also inhibited her cognitive abilities within the college classroom. She has the passion to become

academically successful and has the discipline to study and prepare for class but has not been able to clearly identify her weaknesses. If she is unable to address her weak communication skills, she may not be academically successful.

Instructional strategies within the classroom need to be incorporated to address a variety of students' learning styles. Developmental math classroom observations were conducted at the beginning of the quarter and later on in the quarter which revealed little variation in the classroom activities used to engage students into the learning process. Two of the three student participants were strong visual learners with the other student strong kinesthetically. Incorporating different types of learning activities within the classroom will help to address the learning needs of all students. Instructional strategies used within the developmental math classroom need to be addressed through faculty training along with faculty evaluations and classroom observations to ensure the occurrence of an appropriate learning environment for all students. Classroom management techniques may also need to be addressed through faculty training. There were many disruptions within the one-hour classroom observations. Students coming into class late, cell phone calls, and students leaving early were just a few of the distractions identified during the classroom observations. Interruptions of this type impede the flow of the classroom environment along with disrupting the learning process for many students. These issues need to be addressed through faculty training and supported by faculty evaluation and classroom observations to ensure a positive learning environment for all students.

This study allowed me to engage with the academic and personal lives of three students enrolled in a developmental education course. There were differences among the participants in relationship to affective and cognitive characteristics. All three participants had successful completion of courses previously at the college. By the end of the research project, Student #2 indicated that she had successfully completed the Essential Math Concepts course. Student #3

told me that she did not pass the Pre-Algebra course. I did not have contact after the final exams with Student #1 but felt positive about her ability to pass the Pre-Algebra course. All three participants tested into developmental math only and not into reading or English which is typical for the majority of developmental students at the college. Previous to the developmental math course, Students #2 and #3 shared with me that they hated math. Student #1 had always liked math even though she was not proficient in her math skills. Students #1 and #2 gained confidence in their math ability while taking the developmental course and identified feeling smart when they were able to do the math problems. Student #3 was late for class every time I observed the class. The instructor shared with me that she was always late for class. Student #2 and #3 both shared that they were bullied earlier in life, which had a huge impact on their ability to learn while in high school. Each of the statements listed above have implications for future research into the positive traits of successful developmental education students.

Considerations for Future Research

The limited timeframe of this study was not long enough to thoroughly investigate the traits of successful developmental education students. Expanding this research to include more students in a future study would also be revealing. A deeper study observing the ways in which a student builds upon academic successes and learns from academic failures would add to the body of research on the need to address both the affective and cognitive domains within education. It would be beneficial to continue to follow students after they have successfully completed the developmental education courses to see how the support services for academic success in the college-level courses impacts student learning throughout the rest of their academic program. The effect of high school student bullying on learning as students continue their education through college would be another interesting research study. This type of study would provide

evidence of ways to support students to perform to their fullest potential despite negative situations from previous educational experiences.

Final Thoughts

The need for the college to continue its endeavor to address the affective domain through the curriculum used for courses was evident through the classroom observations. Each of the three students struggled with specific affective characteristics which could of have been addressed through required academic advising with a mentor for the first two years of college. Students who test into developmental education courses need two years of required academic advising in order to master the skills of being a student. Continued academic support is essential for the developmental education student's future success in achievement of their academic goals.

This study indicated the need for the college to continue its endeavor to address teaching and learning in the developmental education classroom. This study unveiled a need for instructor training in classroom management techniques specific to developmental education. A variety of teaching strategies are needed, along with appropriate lecture, to address the learning styles of students. For example, teaching strategies used for learner-centered instruction help to improve student engagement in the classroom and provides the opportunity for students to take responsibility of their own learning. Revisiting classroom management techniques within the faculty training sessions benefits not only the instructor but helps build a positive learning environment for the student.

APPENDIX A: HEMISPHERE QUESTIONS

How often are your decisions based on objective facts, rather than feelings?

When you are involved in a task, how strongly does outside stimuli (noises, talking, music, etc.) interfere?

Do you consider yourself psychic?

Do you like using symbols or images in solving problems?

How good are you at teaching or explaining by manipulating objects?

How good is your sense of direction?

Are you statistically or musically creative?

Are you logical?

How good are you at solving crossword puzzles?

How quickly can you read?

How vivid are your daydreams?

How good is your ability to think of synonyms for words?

Do you remember dreams often?

How vivid are your dreams?

Are you fluent in using words?

How good is your ability to understand kinesthetic instructions (movement and action)?

How good is your ability to rely on images in remembering and thinking?

Do you use a playful approach to solving problems?

Do you use a serious, all business approach to solving problems?

Do you like to keep things open, fluid, spontaneous?

Do you like experiences to be planned and structured?

Do you like to think or read while sitting upright?

Do you like solving problems by trial and error?

How often does your thinking consist of words?

How often does your thinking consist of mental pictures or images?

Do you like teaching or explaining by visual presentation?

APPENDIX B: INTERVIEW QUESTIONS

College Experience

I would like to ask you a few questions about your college experience. Tell me about being a college student.

- What are all the courses you are taking?
- Which are your favorite courses?
- Which are your least favorite courses?
- Why are these courses your favorite?
- What is it about the least favorite courses that does not work for you?

Being a College Student

I would like you to talk about yourself and what lead you to college. Tell me about being a college student.

- What is your goal in attending college?
- What is it like being a college student?
- What were all the issues you considered in becoming a college student?
- Which seemed the most important for your decision?
- Who is your support system outside of college?

I would like you to talk about your strengths and weaknesses in learning.

- What are your strengths in learning? What is the meaning of strength?
- What are your weaknesses in learning? What is the meaning of weak?
- Where did they come from?
- How do you know?
- In your opinion, compare being a high school student to being a college student.
- What are all of the differences?
- Which have had the most impact on your college experiences?
- How do you learn?
- Where do you go to learn?
- What do you do to learn?

Specific Course Experiences

I would like to change gears a little now and talk about the class I've been observing. Tell me about this course.

- What are all the activities that occur during class?
- Are there any more activities?
- Tell me about these additional activities.
- How would you describe each activity?
- Which activities do you participate in during class?
- Could you help me understand why you participate in these?
- What is it about other activities that hinder your participation?

The Developmental Education Experience

I want to know about several aspects of your learning as a college student.

- What are all the (math, English, or reading) courses you have taken starting with high school?
- Which of these courses were your favorite?
- Which of these courses were your least favorite?
- What is it that contributes to making a class your favorite?
- What contributes to making a class your least favorite?
- Describe how you interact with your instructor.
- Describe how interaction with your instructor impacts your learning.
- If you could give an instructor one piece of advice to make the course better, what would be your advice?
- Of course, this class is about (math, English, or reading) and I wondered about how (math, English or reading) goes for you.
- How did this course change your attitude about (math, English, or reading)?
- What did you do in order to achieve your goal in this course?
- How would you describe yourself as a (math, English, or reading) student?
- What did you think when you found out that you were assigned to (Essential Math Concepts, Pre-Algebra, English Review, or College Reading)?

APPENDIX C: SAMPLE OF STUDENT INTERVIEW TRANSCRIPTION

Interviewer: Okay. I think now we are ready. What I am going to do, the next series of questions I will probably divide in half some of them we will talk about today and the other half we will talk about the next time we meet face-to-face. Okay?

Student: Okay.

Interviewer: And what I will do is all of these notes and things I will be transcribing and you know if you ever want a copy of anything, I can give you a copy. But this these questions are geared more towards you like as a student and the first set of questions, and I would like to you explain as much as you can okay (I'll try from the student) so we are not rating stuff now (laugh from the student) I want I would like a lot a lot of dialogue so the first set of questions are about your college experience and I would like you to tell me about being a college student. Okay. What are all the courses you are taking right now?

Student: Right now just, Pre-algebra and Early Childhood Development (okay from interviewer) just those two. I got way too stressed out the first what is it semester, right (quarter from interviewer) my first quarter here, I couldn't do it again.

Interviewer: Were you here in the summer or spring?

Student: Spring.

Interviewer: Okay. So you had summer off and you had time to think about

Student: Yeah**.** I had to take a break before I hated school. So I took it off (laughing). I had a new baby and work and it was too much I couldn't do it.

Interviewer: So which of those are your favorite courses?

Student: I guess I don't know I actually like math which is weird cause I don't know I'm not the greatest at math but I've always liked it I am actually doing really good in it right now which is why I probably like it because I like feeling smart . That's really why I like it (laughing) but I don't know Early Childhood Development really we are reading right now. I don't like reading right now unless I choose to read it so that's not fun for me. I like the math. I feel smart in it (okay from interview) so I would go for the math.

Interviewer: Which is your least favorite course?

Student: Ha, ha Early Childhood Development right now and because I still really don't know what I want to do. I just chose it to choose college. Keep going back to it because I like kids so I just chose it to do it. I am still confused on what I want to do when I grow up.

Interviewer: So you have kind of explained to me but maybe you can give me some more details about why these are your favorite why the math is your favorite course at this point. I mean it's not like one is your absolute favorite and the other course is not.

Student: They are both pretty easy. I don't have so they are good but right now I have a project in Early Childhood which that I have to read the whole chapter and take notes I am really bad at taking notes horrible at taking notes actually so that sucks I don't like that and then my partner is relying on me to do that so that is even more stressful and then we have another project thing we have to do after that but it is really not that bad only two projects that's it not other homework so I have lots of time to spend with my daughter.

Interviewer: Now have you ever had a class on taking notes.

Student: I just kind of figured it out are good for me to understand it and that is really all I need because I need to understand it so.

Interviewer: But like you say it is just the thought of taking notes for someone else.

Student: I second guess myself. I do it too much. So that's what gets to me.

Interviewer: Okay so you have kind of answered the next question which is 'What is it about the least favorite courses that does not work for you?'

Student: Note taking.

Interviewer: The note taking (yeah from the student) and reading at this point too and then the pressure of note taking for other another student.

Student: We split our project thing into two which is fair we have to do it.

Interviewer: How many are in your group?

Student: Just two me and her so but it is also stressful she is really, really smart so it is like oh my gosh she had like a 4.0 in high school kind of thing and I didn't so it is like oh no I am going to have to be perfect she is like a perfectionist note taker she is really nice I really like her but it is like oh no she is going to hate my notes.

Interviewer: Well maybe too even if you could approach it like 'well let me see how you take notes' maybe you can learn from her maybe you can learn from each other you know which is kind of the beauty of team projects like that.

Student: It is not due until November second though so which is good so that's okay.

Interviewer: Right, right. Okay. The next section of questions I would like to ask is about being a college student. Okay. I would like you to talk about yourself and what led you to college. Tell me about being a college student. What is your goal in attending college?

Student: To finish. I don't know. To get a degree so I can a good job and have money for my daughter really she led me to college…I was planning on going…but I really didn't want to and then I got pregnant and I'm like now I have to go. She can't have a bum mom. She led me to it.

Truthfully, she is making me want to do everything so I need a job that has good money. I still don't really know what I'm going to do so I am going for something that sounds good but I don't know so that sucks if I want it since I am going to take all of these classes and I change my mind I am going to have to take more classes.

Interviewer: Well, but like the math, that will transfer to anything. So like you say it will be just like your ECE courses.

Student: But the money stuff it's not fun for school. So that is horrible and I was almost thinking about taking off for a little bit to save up money but that would be bad too so I am kind of stuck in that situation so I think I am just going to keep coming back and taking out more money for school. Because I have to go for her and then she'll go to college and that's a good thing.

Interviewer: What is it like being a college student? I mean just with all that you have going on working, being a mom, and being a student.

Student: Right now it's not stressful. I was a t first but I think I am taking easier classes right now which is good and like I like it here it is small I need small classes. But work I like my job I'm actually I'm not the new girl anymore so I fit in now and my daughter is older so that's more fun but its I don't know I like it now I am afraid of next quarter? (yes quarter from the interviewer) because I have to take all the full classes three classes I don't want to do that because I would rather work to make money than go to school which my dad keeps telling me I shouldn't do that and that I should go to school but I like making money because I like spending it on her (right from the interviewer) it's a lot of fun (right from the interviewer) but I like learning because going like the math class I'm relearning what I learned in high school because I didn't learn in high school cause I fell as if they didn't help me as much so I like when they come over and actually help me feel smart I actually know what I'm doing now I like that

Interviewer: Now are you in that lab class?

Student: Yes, and I like him…he is a really good teacher because he teaches with pictures and I need that I need that a lot I can't learn without pictures I don't think (laugh)

Interviewer: Well… have something to drink or to eat I don't want to keep you from eating.
Student: I am okay.

Interviewer: Okay. What were all the issues you considered in becoming a college student?
Leaving my daughter and money but first quarter was paid for so that was a lot of help which was fun but really it was the money is what I was afraid of because I am a single mom living with my parents still so that's always a fear.

Interviewer: What classes did you have last quarter?

Student: Composition which I was afraid of I was going to fail which was really bad I passed it with a B. I passed that one better than the other ones and I had basic math and psychology yup and then just the welcome to Baker class.

Interviewer: Which seemed the most important for your decision? What was the one thing that helped you decide yes this is what I want to do?

Student: My parents and my daughter and to make my parents proud that I am doing something and I guess my brother because he wasn't doing anything and I didn't like that because he was my best friend 21 years old and he wasn't doing anything with his life but hanging out with his bum friends and doing, doing stupid stuff so actually by me going to college he did something with his life he is in the Army he wanted to go into the Marines but he couldn't because of stupid decisions he had made so he ended up going into the Army. So that's my family.

Interviewer: What, how long has he been in the Army?

Student: He just went in in February, no not that long ago.

Interviewer: Where is he now?

Student: He's in Georgia. We went to his graduation in Ma…I don't even know (laugh) he was just home that's why it is confusing. Sorry about that…

Interviewer: No. I was just wondering if he had been in for a long time.

Student: My whole family is military. My daughter's dad is in the Marines. So my whole family is military.

Interviewer: So that probably made your father happy when your brother decided.

Student: My dad was in the marines. The whole Army thing so I told my family not to say anything because he needed the Army.

Interviewer: Who is your support system outside of college?

Student: My mom and my dad. My mom helps me with my daughter so when I go to work and school she watches her for everything and then my dad tells me I have to go to school he keeps telling me that if I'm in school I don't have to have a job so I mean but I choose to have a job because I don't want him paying for everything so I mean even though I have a kid I mean you know it's a tough job. So it's my parents.

Interviewer: So do you and your brother still talk support each other in the decisions you have made.

Student: We do and I have my daughter call him every now and then. She plays with my phone. She likes it. (that's cute from interviewer)

Interviewer: Okay next I would like to talk to you about your strengths and weaknesses in learning. What do you feel are your strengths in learning?

Student: I want to pass my classes (laughs). I am really bad at doing this. I want to learn I want to figure out new things. I didn't so much the first quarter I guess. Now I actually want to figure out everything and what I am good at. I want to learn new things.

Interviewer: So how would you define a strength then when you are talking about these things?

Student: What you are good at I guess. What you can do.

Interviewer: It is what you do well or feel confident in.

Student: Yes. Like my math. I am really good at doing my math now. Because I know I can do it I don't second guess myself with the math anymore. Like I used to and if I do something wrong I don't feel dumb and I used to do that and I ask for help because I didn't want everyone to think I am retarded that is not the right word .

Interviewer: We know what you mean or I know what you mean anyway.

Student: So I don't know. I don't second guess myself anymore with homework and stuff I just ask for help when I need it.

Interviewer: What would you what would you think or describe or say of yourself is a weakness?

Student: Homework. I am a procrastinator really bad. I haven't changed with that (laughing) I have always been a procrastinator.

Interviewer: So this is probably a good quarter for you then since you don't have a lot of homework.

Student: Yeah. Cause I try to read my book at work and but then me and the girls start talking and then the other people because we work in the mall and guys at the jewelry store and I get distracted and I just don't do it and I'll go home and play with my daughter and if I am upstairs I just can't go in and start doing my homework I would rather play with her.

Interviewer: So, how would you define a weakness then? What do you think the meaning of a weakness is?

Student: What you can't do, what you think you can't do, kind of what holds you back. I'd say what holds you back.

Interviewer: So where did these strengths and weaknesses in your learning come from?

Student: Weaknesses. They've always been there I try to not be a procrastinator but I don't put my priorities and what I have to do above what I want to do but my strengths I have a really

good support system they tell me instead of putting me down ……..I have them telling me school that you need to go to school. I'll watch your daughter. So my family helps me out with that. I have a friend whose parents are telling her not to go to school and she needs a full time job and not to be hanging around her son all the time she needs to be making money for him. So that has really opened my eyes to how lucky I am. So that it amazes me, it is really weird, I don't understand it.

Interviewer: Not everybody has the same upbringing or you know home structure it's just hard to believe that ….not until you get out into the world and (yeah from Student #1) it's hard to understand (I don't like it from Student #1)

Interviewer: In your opinion, compare being a high school student to being a college student?

Student: I like college because you don't have rules you get to do what you want pretty much and it's, it's your choice if you want to come or not. In high school, I had to come and so it made me not want to learn and in college I got to choose what to learn and I get to choose if I want to come or not and to pay for it that makes me want to come but its I don't know I like college because I actually want to learn it I want to do what I am doing. I want to be here.

Interviewer: You have a choice of the classes you want to take and when you want to take them.

Student: You would get in trouble for stupid little things. In here the teachers are like okay you can do whatever you want if you want to leave early that's fine go ahead but it's you that its hurting not me.

Interviewer: So if you had to make up a list of all the differences between high school and college what would the list consist of?

Student: College you have more freedom its more treated like an adult high school you are treated like a kid you don't have the freedom even though you are supposed to be an adult but they are supposed to treat you like one. High school (a long pause) my teachers did treat me like an adult but not as much as college. If I needed my teachers after school here I think they would help me and then we have the tutors here too. I don't think every college is like that but it is here like that.

Interviewer: Have you ever used that service?

Student: Yeah. I did for the writing or composition and what else if something were to happen like and emergency I could leave and I wouldn't get into too much trouble for it but in high school I would even an emergency you would get in trouble for it so you are supposed to be an adult. It's cool. I like college. I like the freedom. I like them putting the responsibility on me instead of someone telling me what to do, catering to me, and babying me. I guess responsibility.

Interviewer: Which of all these difference which have had the most impact on your college experiences so far?

Student: Probably the freedom if I don't want to come I don't have to but I know that it would hurt me (laugh) because some mornings oh I don't want to go to school today like today actually I didn't want to I had a headache when I woke up and then my daughter was really happy when I woke up and I was oh I really want to stay but I can't I can't because then I'll be behind I hate being behind. I hate missing what the teacher says. I can't stand it because then I won't know what to do next week so I can't.

Interviewer: Very good. Do you think that was a good decision?

Student: Yes it was. Because the homework thing I am really bad at homework so I have done it.

Interviewer: How would you describe how you learn? How do you think you learn?

Student: By watching someone do it first. I learn better that way. By seeing someone do it and then me trying it I am better that way then people telling me how to do it. Because it's not that I can't follow directions well like if someone were to tell me how to get somewhere I would get lost. But if I follow them I would be good (laugh).

Interviewer: How do you do with written instructions?

Student: If it is written out really, really good word for word exactly how to do it I can do it but if it's just bits and pieces it would take me a while. I have to do it over and over and read it over and over and keep trying I would eventually get it but it would take me a while.

Interviewer: Where do you go to learn?

Student: Where do I go to learn? Do you mean to study?

Interviewer: Is it the Student Center? At work?

Student: My room. I just go to my room. After everyone is asleep

Interviewer: You do better at night then?

Student: Cause for some reason I can never sleep at night so I just I like it when everyone's asleep or if nobody is home I just sit at home and do whatever. I can clean. I can study. I can do whatever. But I like sitting in my room when my daughter is asleep and study. I like that. I tried studying in the library and it just doesn't work. I don't know maybe because people are around. I don't know. I just can't do it.

Interviewer: What, um, do you have a desk?

Student: No. I just put stuff on my bed. I guess because that's what I've always done I mean in high school and everything so I am just used to it?

Interviewer: What do …this will be the last question for today. What do you do to learn?

I mean, how do you set yourself up, how do you prepare yourself…do you do any mental preparation, or any snack preparation, or noise a little bit of noise the TV or the radio… how do you…what do you do to learn?

Student: I have to have music, I don't know why but I do I need to have music when I read it works better if I have headphone in though instead of just music which I don't understand it doesn't make sense to me a little more and then I just read and highlight (read and highlight from the interview) or I have to have like a paper underneath the line or I have to read it over and over again it's like it just goes right through which because if it's not what I want to read it doesn't sink in and my math and stuff I have to write it out because we do it on the computer right now but if I don't write the problems out I don't know what I'm doing so and I have to actually do the problem step by step even if I already know what I'm doing so I guess it's the visual stuff.

Interviewer: So like when you said you write off the screen what about the writing and the repetition, does this help you too?

Student: Yes. Yes because with the notes and stuff I am highlighting it and it kind of helps me but I still don't really understand what I read or once I go through and I write it down it will help me more because I still don't know what I've read (right from the interviewer)

Interviewer: When you take notes like that do you refer back to them often just to try to remember?

Student: It's something I want to understand but I'm not really interested right now not really but I mean school wise I have to really interested in the notes to want to go back and my thing and this really doesn't relate to school but like my Bible I highlight I can remember and I can understand better what I've read and that helps me and I can go back and read what I've read and I don't have to write……but I can't say the school stuff, that's how that works.

APPENDIX D: SAMPLE OF STUDENT REFLECTIVE JOURNAL ENTRIES

Reflective Journal Entry #1: As I was preparing for school this week, I looked overt schedule on the baker college web page and saw that I would be taking a math test over everything gone over week one through week four. When I found out about this, I decided that I could use some extra studying. I took a practice test that is on Blackboard several times, and I did several questions from the book. This helped me prepare, as well as to strengthen my skills in math. I took the test, but I am unsure as to what the grade is at this point. But I feel that my preparation helped my score.

In preparation for my anatomy and physiology lecture, I read the material. I knew ahead of time that there was a test on Thursday and so I read and studied the chapters the test was over. Truth be told, it was really boring, and it took a lot not to fall asleep. But the house was quiet, and I knew that was probably the only chance I would get to read without my siblings needing help on homework or my parents needing me for chores. Because of this I persevered and read chapters 3-6 and took the test today.

In anatomy and physiology there was also a test Thursday over thematerials covered in class during weeks 3-4. I was not able to study for more than an hour at home during the weekend, so in between classes on Tuesday and all day Wednesday I studied very hard. On Thursday, after math, I went to the cafeteria, grabbed a bite to eat, and pulled out my books to continue to study. I got in another hour and a half of studying, and thanks to my last minute jam session with the books, I feel I did pretty well on the test.

Tomorrow (or rather today) I have math in the morning, and composition 1 later in the day. I have a rough draft due for a paper. The paper is an analytical piece, analyzing two of any of the following: articles, pictures (or ads), or pieces of music. I decided to use two ads, one promoting smoking, the other against the act, to show people that even though many groups glamorize smoking it is really bad for the health of the entire body, not just the respiratory system. In preparation for turning in this paper, over the weekend, I added more material on the effects of smoking on the entire human body. I touched up the introduction, and lengthened the conclusion some.

Reflective Journal Entry #2: This week I really didn't get much time in preparation for classes. Every night I had work from Thursday until Tuesday, so I was pretty busy. Even finding time during the day was difficult because my dad needed help around the house and property. Church took up a lot of time on Sunday and Wednesday, so I stayed up late in the night and got up early in the morning to prepare for classes. I was able, almost every morning, to study and reads the required chapters for my classes, from 5:30-8:30am

For Tuesday morning, the morning jam session I was able to get in before having to face math, A and P 1. Luckily for me, there were no tests or quizzes. On Wednesday, I got a few hours break from yard work at home to study for the next day's quiz in A and P lab. I also had lecture, but only participation questions. These questions were graded, but only as homework and to gauge how well the class understands the material. Thursday night-thankfully-I didn't have to work and was able to work on my composition paper for two hours. I was able to finish typing, editing, and touching up my paper, which was due on Friday at one p.m.

Not have much time to study this week was a hazard to my grades, but I managed to pull it off. Staying up late wasn't a good idea, nor was getting up so early to study. I now understand what it is like to have many responsibilities that take away from schooling.

Reflective Journal Entry #3: This past week, any day I was at home, and the temperature was above 50 and not raining, I helped my dad outside. This was very much a repeat of last week, other than the fact that this week, I allowed another distraction into my life: Facebook. Many people had been pestering me to get a Facebook, and so I finally let my sister make me an account. That was my first big mistake. Getting involved and searching for my friends was another, but using my study time to be on the website was the worst idea of all.

This week I got very little study time, so using my time on the web was a very bad idea. To tell the truth, the only part of Facebook that worked ok was that I got an idea for my next comp paper. This coming paper is an informative paper that has to be 6-8 pages. It can be on any topic. My brother reminded me of all the terrors of farming, and meat processing. He told me it would be a good topic to write my paper on because I can get 6 or more pages out of it.

I did, however, manage to complete my math homework over chapter five. I was lagging slightly behind in the class due to my not understanding the assignment. I also printed off a bunch of papers for anatomy and physiology lab to help me in preparation for a test we had to take. I did also study for another test, for A&P lecture on Thursday. And truth be told, I need to buckle down, ignore messages from friends, and focus on getting work and assigned reading done.

Reflective Journal Entry #4: This week, I was able to get lots done. I trudged through the required reading in anatomy and physiology, which took forever. I got started on the paper in comp, and have two of the six pages! I did some research on the paper and got a few of the five sources I have to have for the work cited page. I completed the next (and last) chapter in my math class! Then I began working on the practice quiz. I finished it only one time, but the teacher says that the more times I complete it, the better my score is bound to be. I have lab of anatomy on Thursday, and have (as previously mentioned) read the material so I am prepared.

Everything I have done this week to prepare for classes has really been a help. I ignored Facebook, and did my math homework. I did some research for comp, and I printed lab sheets containing the power points for class. I took my time in looking over the comp books, so I don't make any unnecessary mistakes in my paper. One thing that could have helped me prepare for anatomy class is not jumping up every few minutes to do something, or pausing from notes to write something totally unrelated elsewhere. I need to focus on focusing, even though I got the reading done and I comprehend it pretty well.

Reflective Journal Entry #5: Studying for final exams was really tough. Focusing was a problem, As well as finding the time to crack open the books. But because I knew I would fail them miserably, I pulled those thick old tomes out once more...

Following is a list of the classes I had to study for and a quick explanation of what I did to prepare for the final exam.

Basic math essentials MTH 091: for basic math, we were given a mandatory pre exam which was to be turned in the day of the exam. I completes this, then continued to take, and retake the practice quizzes on the compute through mymathlab. I'll admit, I didn't feel I needed to prepare for this one as much, because I understood the math. I passed this exam with a 94%.

Anatomy and physiology 1: For this exam, I knew I had to study hard. I devoted hours if free time to this class, mostly going through the powerpoints the teacher handed out, and the notes I took. When I came across something I didn't quite understand, or forgot about, I looked it up in the book. I ended up reading what seemed like half the book, and took notes off that as well. Sadly, test anxiety took over the day if the exam, and I didn't do so great.
Anatomy and physiology lab: This exam as going to be hard, and it was the same day as my math and anatomy lecture. I struggled to divide my time so I would be attequately prepared for this section of the final. All I really did was go through the books pictures and diagrams of the body, and what we had covered in class. I went over and over it, then studied the handouts for the entire ten weeks. I took the exam and and I think I got a solid score.

Composition 1: This was the one I really could do nothing to prepare for. It was frystrating to know that I had to walk into re room and write what felt like a pop essay. I had little idea what the question was going to be that I had to write on. I walked in there blind.

APPENDIX E: SAMPLE FIELD NOTES FROM CLASSROOM OBSERVATION OF STUDENT

I am in the classroom at 12. It is hard to see in the class with the individual work stations. Another instructor came in looking for something. The instructor for the class asks if anyone has seen a pair of classes. No one responds. The students talk lowly among themselves before the instructor begins the class. Instructor is waiting for student to come into class. He begins to take attendance. There is a total of 22 students in the class with some missing today. Now we are set says the instructor. He asks students to turn off their monitors – everyone but Ashley because she is working ahead of the class. He checks to make sure all are off. We will start with Chapter 5 so get out a notepad and pencil to take some notes. The instructor writes a problem on the whiteboard. Students begin to suggest how to solve the problem such as common denominator, cross multiply, the instructor says no and then states students will need to multiply across. Still trying to solve the same problem student responds to the 7^{th} power. Yes, from the instructor. The instructor asks about the bottom of the problem. Two students reply. Are we done asks the instructor. No, students reply. The instructor asks how this problem can be done differently. These ideas should be with you from Essential Math states the instructor.

Second problem is written on the whiteboard. Again, this is a multiplication problem states the instructor. Instructor is working with the students to solve the problem asking about what other numbers can be cancelled. Yes, the variables several students respond. The instructor asks for any questions and if there is another way to solve the problem. He shows another way and states that it is a lot better to cancel early instead of later. Then he shows an example of how to work the problem and not reduce the fraction until the end. Student wants to speak to the instructor privately and he speaks to her.

Another problem. Student says can't you flip it? The instructor responds jokingly asking the student if she has other work to do. This student is working ahead and has already completed these homework problems. Instructor wants the other students in the class to respond since they are struggling with the material. Another student asks the instructor to redo the steps again so she can better understand. Another student suggests cancelling another set of numbers. The instructor states that we are not subtracting we are actually cancelling. Can this still be reduced? Instructor jokes with another student who seems to have a knee injury. Another student is still trying to solve the problem and reduces at the end. Cancelling in different place 2/10 is really 1/5.

This will be new to most of you states the instructor. Finding the LCM (least common multiple) or common denominator. Find the LCM of 33, 18x, and 2x2. Wow! from a student. First step (he is writing on the board) to find the prime factor of each term 3x11, 2x9x which is 2x3x3xx, 2xx. What we can do now is build the LCM –write this down in your notes. Whatever first term part of LCM, pay attention to, add any of these that are not already down here 3.11.2.x put the other three down there, this is important, even repeats so 3.11.2.x.3 now you need to write this down in your notes so when you read it later you will understand. Don't just copy it, understand it – work through the problem. Student doesn't understand and he explains it to her again. Last one? Just and x responds a student. 3.11.2.x.3.x= x2 only if something is missing. Make up your LCM (198 responds a student) That makes a lot of sense responds a student. Let's do another responds the instructor. Can I erase it? Find LCM of 30, 20x, 5x2 (Students are still strolling in 26 minutes

into class). He responds work on it to another student who is working on an individual problem. You were absent on Thursday he says individually to a student. Anybody have an answer? Students are supposed to be working on solving the problem from the board. Responses from students 30x2, 300x2, 1000 2, 60x2, 600x2 some students raise their hands to answer. Anybody else with a different answer asks the instructor. 900x2 Make sure you break your numbers all the way down. Students are giving answer break down. Anybody want to change your answer? Just a minute to recheck your work. Instructor calls on a male student 1500x is his response. Another student says she has the same answer and can see how he got his answer. Another student changes their answer to 60x2. Another 30x2 I already have that on the board says the instructor. 2.3.5.2.x another 15 seconds to change your final answer 60x2 shouts out a student not 900x2. The other male student who responded 1500x now wants to square his answer. Okay what do we have here 2.3.5.2.x.x states the instructor. What don't we already have down here is what goes down? 300x2 can be erased all of them but 60x2 a different student answers. Do you see your mistakes, asks the instructor. Better than just copying it down. Maybe I can find a better teacher jokes the instructor. Need to practice this one – any further discussion? See what you did wrong? Student questions about another x. Your calculator will only find for 2 terms, numbers.

The next problem deals with common denominator we need a common denominator. Make up LCM or common denominator (students just get up and move around) He tries to demonstrate on another side problem. Throw y on top 5y + 2x again, mark this in your notes. I still don't understand comes from a student. Instructor explains and now the student understands. How are you doing he asks another student. You are supposed to have a handle on fractions. Another student moves up front. Instructor states that he needs students to ask questions. What do you think he asks as he points and talks to the students. Alright? Can I erase? Can we go on? One of the students who came in late now leaves early.

The instructor writes another problem on the board. This is scary responds a student. What is this he asks the class a division problem states a student. How do we solve? Student says to flip the problem. This is nice says the instructor – see where it came from he asks the students. Do you know? Don't just copy. Get it into your notes. He asks student again about her knee – need to put snack away he says to another student.

Okay. You will find these in your next homework. Story problems? Students worry and really should with story problems he jokes. 10 1/6 is the answer – it's just a subtraction problem with fractions – you got your calculator. Student shouts out answer 180miles plus change. Instructor is working individually with a student who is trying to work out the problem – Okay, let's move on – parenthesizes, right? – in notes. Instructor writes the problem on board 1 gallon gone 18 miles, 2 gallons gone 36 miles. Simple whole numbers (some students are contributing) 183 miles 10 1/6 x 18 = student trying to use calculator having trouble (another student leaves)

APPENDIX F: SAMPLE TRANSCRIPTION OF MEMBER CHECKING FROM A COLLEAGUE

(Colleague is reading the first interview from student.) Well, I guess part of it is the way in which the student communicates orally in that there is a lot of confusion going back and forth with different subjects at the same time. If one were to read this as it is written, it is kind of a little bit disconnected. When you take it as something as someone is speaking, I can see that, however, when the student talked for a long time, it was really easy to get lost in their communication. The other thing, I was not all surprised when the student said their favorite class was not their math class or the developmental class, it was computers. I am not all surprised by that, that is typical with our students is that they really don't like their math classes and they prefer the program courses or the courses that they see as being more connected to their futures. The other thing that struck my attention, the student has a goal, which is a goal of a master's or bachelor's degree in something to do with computers or programming and yet at the same time does not get that math would be a big part of that degree. Not just the dev ed, but a degree at the bachelor or master's level you would have to go to a much higher level of math then the student perceives. This student also seems to say yes I get it I will have to do the math is part of life, almost repeating like what he or she has heard, but it does say that math deals with computers in a way too but I am just going to learn the best I can and go as far as I have to versus understanding more deeply that if the student wants to get a bachelor's or master's degree in computer programming, the amount of math that he or she will need is more than what they have an understanding of. The other thing is when talked about what it was like to be a college student, this is typical of developmental ed students that nervousness, anxiety that feeling of being overwhelmed, whole bunch of homework, whole bunch of this and that, and then the other thing that is typical of our faculty here is whole thing about willing to help you out and offering that support but the student feeling more or less overwhelmed.

(Second passage) So, my initial response about this again is the inability of the student to clearly express a response to the question and to even have clear thoughts about what they want to say. It is a pretty jumbled response especially to that first question about issues in becoming a college student. The comparison of going to college and it was interesting that they were not pressured here in college, there were pressures in high school, but there were not pressures here at college. The student thinks that you can choose your classes here and whereas in high school you were required by law and you didn't have any choice, you had to graduate. Whereas here, you can choose any class you like and there isn't the pressure. They also pointed out here they felt more supported with our learning center and our teachers. They did not have that in high school but they seem to appreciate that here. The next part of that, the most important part of that decision, I felt that the student kind of got lost answering that question and went on to talk about nursing which is not what they are interested in but then does say something that is typical about our non-traditional student is that I wanted to do better than my kids. I wanted to be a model for my kids so if I can do it you can do it. To me, that is typical of our students that they are here to better themselves, they are here to show their kids that education is important, and is an answer. I connected with that but the other part of what was the important part of that decision it was pretty jumbled about the idea that everyone else is going and making something of themselves and training it just kind of veered off into nursing. And then the last question in this section about the support system, again, it was interesting that she looked to family and she looked to her daughter, a person to whom she was trying to model for was also the person who was her

support. She talks about her daughter who just went online and found a military school and is now 16 going on 17 and going to an online military school. That is quite interesting the daughter almost had more understanding of the future than the parent and also that they are kind of both supporting each other at the same time even though it is different path, but that neither one of them wanted to quit and that each of them wanted to do something better with their lives and not just sit around watching TV or playing games all day long. Again, to me it is a lot about them having a goal and wanting to have a better live and a want to do something more meaningful in their lives and kind of realizing in some way, shape, or form that education is the key to that but not being really clear about what that commitment means about what education means, and what it really means in that it just doesn't mean to show up every day.

(Third passage) Okay. In this section you are trying to ask what the student's strengths and weaknesses are. This student started out saying that being organized, having a tutor, and then it got kind of confusing for me when they started talking about the learning teacher which must be the classroom teacher that way if you can ask questions because if you fall behind it is hard to catch up. Strength are organized, tutoring, and asking questions is kind of what I pulled out even though it is not easy to pull this out with the way in which the speaking is. Then the how do define a strength and then it kind of went into learning something from someone else and being able to watch and do it, that is how she would define a strength. To me the question was more general but she got specific about her strengths. Weaknesses are kind of difficult to pull out but not sitting around and giving up and not understanding and you get stuck and you try multiple times and even though you are stuck. This kind of contradicted what she said before when you were asked before she would go to tutoring, she would go to tutoring, but the weakness is if she didn't know she would just be stuck and wouldn't know what to do and would try it over and over and so describing this again just not understanding it, not knowing it is pretty much what it is. As far as, where they came from, strengths came from watching someone else, weaknesses came from someone else, they just move forward or fall back. So this is kind of confusing, strengths come from watching others and what they do well and weaknesses come from just giving up and not really, not a real sense of depth of understanding of the question. This student has some sense of what they want to do and where they want to go but is struggling the path and how to do that. Hasn't quite figured out yet how to get help with figuring out strengths and building on those strengths.

(Fourth passage) Oh, here, 20 years. This student has been out of high school for 20 years and feels that high school was and college has not been as hard but college has been more helpful so far and they give you all the materials, willing to help her, which is not what she experienced in high school to you go try to figure it out I don't have time for you type of situation. The other thing that just jumped off the page is that she was bullied a lot in high school. Here we think that bullying is a modern day problem when really bullying has gone on forever. It can affect not only other aspects of their lives, but it can affect learning in that they don't want to become someone who is going to ask question or someone who is going to stand out in the classroom. If they were being bullied by someone, that would just be used as ammunition. I am a little concerned for this student to tell you the truth I don't know how far into college she is or into the program but she continuously believes that college is not a pressure and that everyone is very helpful and that they are going to make college fun, it is not so strict, and that they will help you all of the way. I am glad that has been her experience so far but I think that college is like life. There are a lot of different experiences that are going to happen and you work with a lot of

different types of people and a lot of different types of teachers that not everyone may be as helpful in college and not everyone will be less pressure, not everyone will be like what you felt in high school. Again, what is really interesting is her language because, this one sentence, I just have to read it, Like in Essential Math, he showed us one example after another, and he kind of made a joke about it like my Aunt Sally in the problem and to her it is kind of one jumbled example. Part of what I see is that she is not able to sort out and she speaks in this language where she is not able to sort out. She is taking in a lot I think she is absorbing a lot here at college but I am not sure she has been able to make sense of what she has been experiencing so far. Then she tells that she has had one English teacher so far that has kind of been overwhelming to her in that she has to be writing and it is due the next day. There is just a lot of things that are overwhelming to her when it came to the English class and she was explaining that that was more similar to her high school experience of a sense of being overwhelmed and then she has a sense I think of most of her experiences so far as teachers who care. Teachers are willing to go beyond to help her or someone else and like I said before I am concerned that that is not going to be that same for all of the teachers she experiences at any college. Just like it would not be the same at any profession when you are an employee and you have a boss. Some are going to be caring and care about the pressure you are under but they are still going to ask to do the work and be responsible. Whereas other are not going to care so much about what is going on in your private life they just want you to show up and know what's going on and be effective and efficient. This is a very interesting student I would say a very complex student, has a lot of going on in her life or his life, has a lot going on in their life, and trying to sort through it and make sense of it all but just in the way in which the speaking, the response to the questions, there is a lot for this student to overcome down the road in order to be successful.

(Field notes) Oh. Okay. Quite a class. A lot of what the students were doing was answering their phones and walking out of the classroom. Even the very beginning, I have 3 minutes before class starts, I will be right back from the instructor, to me that just set a tone, well it just set a tone. Okay. The instructor came back, there were students still strolling in, there were students trying to talk to the instructor, there were students asking questions, there were students confused about the homework, there was a lot of confusion at the beginning. So then I didn't see a good transition of okay now we are in class, and now this is what we are going to be doing today, and I need all of you to bring your attention to working with me or any of that but just starting to do this. Let's cover this chapter, let's go through some problems. There are already problems up on the board and throughout the entire class just about, for a certain time period, students are still coming in, and with student's phones ringing multiple times, students leaving the classroom, to me there were a lot of distraction in this description. A lot of distractions. It would have been difficult for me as a student to understand what was going on because of the distractions, and are students in and out and their phones ringing, let alone to try to understand a complex subject that for these students is difficult to understand. To me this wasn't a very well established learning environment. There was not structure in the way many of our developmental ed type students or students who struggle with math or whatever it is, need structure. I did not see structure. I saw some students attempting to interact with the instructor and offer parts of the problems. I think even going up with this student they asked a questions and were asked to put up what they had on the board, this student is trying to contribute. Someone questions her but she was right. Just a lot of commotion and confusion. I did see further down that they then began to talk about how some of this would be used in Introductory Algebra, so looking toward future learning but at the same time saying I am glad you like it. You will be doing a lot of it in Introductory Algebra, is

not going to help you much right now. So that to me was a real disconnect, okay somewhere in the future, if I have to take this class, I might need this but not making the connection to what they were doing in this class. I…we have a policy about phones. We have a policy about phones and this is…they have to set the tone for their class in the beginning. This instructor, it seemed, was more about showing the student and telling instead of doing.

(2nd interview) Okay. So what I saw here was that there is a lot of board work going on from the student's point of view and doing problems on the board and then she said just recently the instructor started asking students to come up to the board and do the problems on the board and she lets them try to figure it out on their own and this student went up there to work on it and found that she had a stupid mistake and she knew what she should of done but she just forgot it. There are lectures, going up to the board, handouts, writing problems on pieces of paper, I guess I was a little disappointed that the MY Math Lab was not really central to the class. It is like homework, I think, My Math Lab is used like homework and the student struggles with it because she doesn't have the internet and she does go to the library. When she does work on My Math Lab, she likes it. She likes working on the computer she says and she can see the process and if there is something she gets stuck on then she says you have to go to a tutor or to the learning center and I am not sure if she knows that built within My Math Lab examples, and tutoring, and lectures, and other places to go if you are stuck on something. So if she wasn't able to see a tutor, or getting up to go to the learning center wasn't for her, she might not know that there are other things in My Math Lab that might help her get over that hump but in a different way. She likes what goes on the board in a way because it is something you would do on paper but she says several times that for her to do it on the computer so you can see how it is done. She again here she is expressing if you don't know how to something, when it comes to the exam you won't know how to do it. If she doesn't get this down, what will this mean for her exam and making sure she can pass the class. She thought it did build confidence to go up to the board but she doesn't like being in front of people and never has liked it. She is worried about what other people are going to say if she does do something. I think she did feel good about figuring it out and being able to contribute to the class without being made fun of or being bullied. Interesting perspective on what this class is about and what goes on in the class.

(Reflective journal entry on how student is dealing with their own learning.) Okay. Again, it is interesting because this student really struggles with her writing and communicating but the message is clear underneath that she is trying very, very hard and that she is doing the work even though she sometimes gets very frustrated with making a small mistake and it takes her off of the wrong track she talked about rushing through My Math Lab and because she rushed My Math Lab, she made mistakes by putting the wrong number in the problem. So it wasn't that she didn't know how to do the work, she is rushing, and the rushing seems to be based on pressure that she was having something else going on at home. She was appreciative that the instructor was willing to work with her since she had things happening at home. Pays attention in class, she asks questions, she asks the instructor, she goes to a tutor, she works in My Math Lab, she does all of the things she needs to do and probably then some and yet she struggles. There are just issues of communication that I think are going on, probably and certainly willing to put in the effort. She asks for extra time to work, she does all the right things as far as what you should do as a student in asking questions and she talks about marking with highlighters and she is paying attention in class, she is getting extra help from both the teacher and the tutor and she is working in My Math Lab, I mean she is doing all yet still struggling with kind of confidence and the

ability to just focus in on the schoolwork which I think us hard for her because she ends up making mistakes that she hopefully knows about but she didn't have that attention or focus on that she needed to do the work that she is capable of that's what I got out of it. Wow. Wow.

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ABSTRACT

POSTSECONDARY DEVELOPMENTAL EDUCATION AND ITS IMPACT ON STUDENT LEARNING AND ACADEMIC SUCCESS

by

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May 2012

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Major: Curriculum and Instruction

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This study explores the affective characteristics of students taking developmental education courses at the postsecondary level. It is widely acknowledged in research that affective issues still remain at the forefront of impeding the success of developmental education students. This is one step in examining the types of interventions which may aid in the academic success of students. This study focuses on an ethnographic approach as it relates to learning and the academic success of developmental education students. Through an interview process, the study encourages students to explore and reflect upon their college experience, their experiences as a college student, specific course experiences, and the developmental education experience. Along with studying the potential academic conflicts a student may encounter, both personal and institutional conflicts will be examines. In addition, this study may contribute to the research on how a college can best support developmental students, both in and outside of the classroom.

In this study, a qualitative design methodology is utilized through an ethnographic approach which is supported by a case study format. Data collection in the natural setting is used to develop a narrative of the experiences of three developmental education students over a period of one quarter. Data sets include transcribed interviews, field notes from classroom observation,

reflective journal entries of each participant, and transcribed member checking. Data collection authentically documents and represents each participant's experiences while taking developmental education courses. Constant comparative analysis of the data identifies meaning and patterns across categories.

This study focuses on the participants' reflections of their own college experiences, being a college student, specific course experiences, and developmental education experiences. Key findings emerged that support current research in how affective characteristics impact the academic success of a student, setting academic goals and focusing on the future helps to move a student forward to meeting those goals, support from the developmental education program can aid in student academic success, success in developmental courses can help a student succeed in other courses. Significant and worthwhile personal changes occur with implication for all areas in student learning and academic success.

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May 2012	Doctor of Education Degree, Wayne State University Major: Curriculum and Instruction
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