The Effects of Using OUR READING TOOLBOX:

The Reading-Thinking Connection in a

Community College Developmental Reading Class

by

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by

Sylvia H. Garcia-Navarrete
Dedications

Special prayers to my parents for giving me life, and who from heaven continue to illuminate my path in my day-to-day journey. Thank you Lorraine, for being my guardian angel.

With all my love to my wonderful husband, my daughters, Evy and Cecilia, and my son, Christian, who are the light of my life. A special thanks to my family and friends, especially my mother-in-law for taking care of all of us, and for feeding my cohort. I am truly blessed for having compassionate and caring individuals in my life.

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ABSTRACT

The use of developmental education as a strategy to address the achievement gap in postsecondary education, specifically in reading, continues to present questions and challenges. There is no question that there is a need to assist students who are unprepared for college-level work. Little research has been carried out on the effectiveness of programs that have been designed to help individuals enrolled in developmental education courses. This study examined one innovative approach to developing reading competency at a California community college. Data were gathered from students (N=60). Demographic variables were hypothesized to account for differences in academic performance, and statistical tools used incorporated a variety of multivariate analysis models. Outcomes provided initial data indicating the effectiveness of this new intervention as a way of approaching developmental reading. Information gathered from research instruments focused on students’ attitudes, their sense of involvement and participation in the classroom, and their motivation and interest to read. Adult learners demonstrated a higher level of comprehension, and their ability to think purposefully about what they read, contributed to the creation of a culture of thinking in the classroom. Further research should examine the effects of using the TOOLBOX in a broad array of community college academic disciplines. Providing professional development for faculty to use the TOOLBOX as a primary approach to teaching developmental reading may offer a viable way to integrate these thinking-centered approaches and to help foster a culture of thinking in which students can succeed.
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CHAPTER 1 – THE PROBLEM

Introduction

By 2020, America will once again lead the world in producing college graduates. And I believe community colleges will play a huge part in meeting this goal, by producing an additional 5 million degrees and certificates in the next 10 years. (Obama, 2010, p. 4)

At the 2010 White House Summit on Community Colleges, President Obama addressed his plan for educational reform. The goal of this plan was to increase community college graduation rates by making college more affordable for students, improving technology in the classroom, and challenging community colleges to compete for available funding from private sources like the Gates Foundation. This five-year initiative was designed to increase educational opportunities for economically challenged youths and young adults, as well as to help prepare many others for careers (Community College Research Center [CCRC], 2011; National Center for Postsecondary Research [NCPR], 2010).

If the United States is to meet the challenges of the future, policymakers must provide needed support to colleges and universities and their students. Education, at all levels, must be seen as an important state and federal investment in our future, and policies must be put in place to ensure maximum return on that investment. (Boggs, 2010, p. 4)

Nationwide, more and more high school graduates are continuing on to post-secondary education, including 4-year universities, community colleges, and vocational training schools. Despite educational reforms such as the one proposed by President
Obama (2010), more than half of the students who enter community colleges drop out before they earn a two-year degree and many never transfer, much less attain a four-year degree (California Legislative Analyst’s Office [CLAO], 2008; Texas Guaranteed Students Loan Corporation [TGSLC], 2004). Community colleges prepare students academically for college-level material; yet, a large percent of students are academically underprepared when they enter, that is, they are deficient in basic academic skills such as reading, writing and mathematics (Boggs & Seltzer, 2008). College-administered assessments revealed that 43 percent of community college students and 29 percent of four-year university students are assessed as needing remedial courses.

Because remedial courses often do not contribute credits toward a degree, the investment in taking these courses is a sunk cost for students. Beyond the monetary costs students incur, there is also the issue of lost time. Students not only pay for these classes but also squander time that could have been spent taking classes that contribute to their degrees. (Alliance for Excellent Education [AEE], 2011, p. 4)

Recent studies revealed that although many of these students enrolled in remedial courses, also known as developmental education, there were no significant improvements for students enrolled in these courses (CLAO, 2008; Collins, 2009). Having such a large number of students unprepared in basic skills is having tremendous impact on the job market. Students who work while going to college are not able to be successful in the workforce because they have not attained the basic skills to understand what they read, to know how to think independently and be able to problem solve, or to know how to work collaboratively with co-workers (AEE, 2011; Toland, 2011).
Given projections that two-thirds of all jobs in 2020 will require advanced training or education, we simply have no choice: We must get more of our students – from all walks of life – to graduation day. And it is community colleges that hold the greatest potential to do so. (Complete College America [CCA], 2010, p.2)

“Indeed, one of the most important missions of community colleges is to help students determine the most productive uses of their lives in ways that are compatible with their personal preferences and values” (NCPR, 2010, p.10).

Adding to the concern, a large number of these students who are underprepared do not enroll in the remedial courses; furthermore, community colleges do not require them to do so (Gerlaugh, Thompson, Boylan, & Davis, 2007). A large number of institutions fail to design programs that enhance basic skills, or inspire and motivate students to discover through learning (Botstein, 2011). Given the high percentage of students lacking basic skills, and many not accessing additional support to attain these skills, it is not surprising that approximately 50 percent of first-time college students drop out by the second semester (Bailey, 2009). In addition, most campuses do not have large remedial programs, hence limiting the number of students that can be served each semester (Center for Student Success [CSS], 2007). These statistics, along with a lack of consensus to agree on one structural model across institutions, are not likely to change without implementing innovative instructional strategies that can begin to build basic skills in reading, writing, and mathematics (AEE, 2011; CLAO, 2008).

This study will examine one innovative approach to developing students’ reading competency at a California community college. The sub-sections for this Chapter are
introduced as follows: (1) Background to the Study; (2) Location of the Study; (3) Statement of the Problem; (4) Purpose of the Study; (5) Key Research Questions; (6) Significance of Study; (7) Conceptual Framework; (8) Role of Researcher; (9) Methodology; (10) Limitations; (11) Organization of Study; and, (12) Definition of Key Terms.

Background to the Study

California community colleges serve nearly three million students (California Community College Chancellor’s Office [CCCCO], 2011). A recent study showed that close to 50 percent of the first-time community college students in California tested into basic skills courses, an even higher rate than found nationally (Cohen & Brawer, 2008). The majority of these students were not ready for college-level work and a relatively small number of students attained proficiency during their time at a community college (Boggs, 1998, 2010; Boggs & Seltzer, 2008). According to data from the California Community Colleges Chancellor’s Office [CCCCO] (2011), many students who enrolled in these basic skills classes did not pass. Retention was also an issue considering that about 50 percent of first-time students dropped out of college after their first semester while the other half continued with higher-level academic courses (CLAO, 2008). A large percentage of those who continued with their education at a community college, found developmental courses challenging (Bradley, 2010; Lapp, Fisher, & Grant, 2008). Implications for the workforce in the near future will be a larger number of individuals unprepared to compete effectively in a global economy because they are deficient in oral and written skills, teamwork, problem-solving, and decision making abilities (AEE, 2011; American Promise Alliance, 2007). “In an increasingly global society and economy,
education and training beyond customary compulsory primary and secondary education is seen as essential to a nation’s competitiveness and the standard of living of its people” (Boggs, 2010, p. 5).

In 2008, the California Legislative Analyst’s Office [CLAO] identified state policies and practices that impeded student success and suggested system-wide changes to help improve academic preparedness and achievement for community college students, and maximizing workforce opportunities. For example, they highlighted how the failure to align curriculum from high school to community college stands in the way of students’ progress. This is particularly true of students with basic skills needs in reading who are unaware of the proficiency level they need to succeed as readers in a college setting.

Furthermore, the CLAO (2008) noted assessments are non-mandated; therefore, students may assess into, but they are not required to enroll in developmental reading courses. In addition, teaching practices encourage student passivity which stifles students’ creativity (Botstein, 2011). In short, California’s own policies and practices are placing students at risk of failing and dropping out of higher education. One recommendation given by the CLAO (2008) to address these issues was to consider making structural and system-wide changes, one of which would assist community colleges with identifying, advising, and placing students needing basic skills within their first year.

Other efforts that have targeted these issues include the Developmental Education Initiative [DEI] (2009) and the California Community College Basic Skills Initiative [BSI] (CSS, 2007). DEI is a nationwide initiative, and BSI is a California component of DEI, designed to support community colleges that serve large disadvantaged populations of ethnic minorities who enter college underprepared (CSS, 2007; Developmental
Education Initiative [DEI, 2009]. Despite the amount of funds spent on intervention programs for students who are underprepared at the community college level, the uncertain effectiveness of these interventions continues to be a state and national concern (CLAO, 2008; CSS, 2007; DEI, 2009; Lapp et al., 2008).

**Location of the Study**

Given the interest in students who require basic skills instruction as they begin in community colleges, this study focuses on one large, Hispanic-serving institution (HSI) referred to by the pseudonym Cesar Chavez College, serving approximately 20,000 students. At Cesar Chavez College (2009), over 60 percent of the population is Hispanic, and 70 percent are 24 years old or younger. Cesar Chavez College is located in southern California. The district includes communities along the U.S.-Mexico border and is 88 percent ethnic minority, comprised of the following ethnic percentages: 63% Hispanic, 15% Asian-American/Pacific Islander, 12% Caucasian, 5% African American, 5% Other/Declined to state (see Figure 1). Course improvement rates are at 37 percent and completion rates are at 50 percent (Cesar Chavez College, 2009).

![Figure 1. Ethnicity of Student Population](image-url)
The 2009 self-study reported that of 5,878 first-time students at this community college, 3,787 took the Reading Comprehension section of the College Test for English and Reading Placement [CTEP] (Cesar Chavez College, 2010). The Reading Comprehension section of CTEP is a 30-minute exam that consists of seven reading passages and 35 multiple-choice questions that measure the following skills: Main Idea; Literal Comprehension (recalling facts, understanding sequence, listing); Inferential Comprehension (generalizing, making comparisons, separating fact from opinion); Critical/Evaluative Comprehension (understanding tone and figurative language, recognizing author's bias); and Vocabulary in Context.

Eighty percent or 3,036 of those 3,787 students were assessed as needing to enroll in basic skills courses even though the large majority of these students completed their required English courses in high school and successfully passed the California High School Exit Exam (CLAO, 2008). Of the 3,036 students needing basic skills, 1,180 placed into developmental reading; however, only 395 of these students actually enrolled in a developmental reading course (Cesar Chavez College, 2010). In other words, two-thirds of these students did not receive the necessary foundational skills crucial for college success within the first semester.

Statement of the Problem

There is no shortage of reading interventions that have been designed, implemented, evaluated, and marketed, from K-12 through higher education to help students improve their reading and comprehension skills. Developmental reading programs at community colleges offer a variety of interventions to improve basic reading
skills, through textbooks, workbooks, and online activities, for students who are underprepared. Strategies include self-paced and self-directed practice, rote memorization, peer teaching, and others. The key question is, to what extent do these interventions elevate the quality of students’ thinking as a means to improving their reading comprehension skills?

Changing the way educators view their roles will not be easy. They have invested a tremendous amount of time and energy in the current paradigm and may be resistant or blind to the need to change. Dominant paradigms are not easily changed. Faculty members have been trained by example that they are to provide instruction and to grade students. (Boggs, 1998, p. 6)

Major gaps exist in the teaching and learning perspectives between teachers and students because teachers are inclined to instruct in a traditional mode, whereas the new student generation desires a more collaborative style that is interactive and based on experiential education (CLAO, 2008; Flynn & Vredevoogd, 2010). Teacher preference and experience dictate the choice of the particular materials and instruction that are used (Ash, 2010). Furthermore, few teachers do more than a cursory evaluation of the effectiveness of their approaches, typically relying on student evaluations and completion of the coursework for feedback. Without accurate information as to the effectiveness of these interventions, community college faculty will fail to improve the readiness level of their students, and students will continue to struggle in school and in life (Bailey & Cho, 2010; Gerlaugh et al., 2007).

Many community college students begin their post-secondary education academically underprepared, without educational goals or simply lacking the motivation
to read or learn. “Because students are so busy covering a vast and wide curriculum, little, if any, deeper thinking is occurring” (Gallagher, 2009, p.14). Educators should encourage students to take active roles in their learning by giving them tools to help them interact with text so they understand what they read. “Students must also demonstrate an understanding of key content important to postsecondary success. This key content knowledge is less about knowing specific facts and more about understanding the big ideas that define a discipline” (AEE, 2011, p. 5). “Students themselves may be resistant to change, having spent twelve years in an educational system that required them to be passive in class and to be competitive rather than cooperative outside of class” (Boggs, 1998, p. 6). Therefore, it is imperative to review and evaluate the interventions used to teach developmental reading at the community college level and to determine the actual effects they have on student learning (CCA, 2010).

Purpose of the Study

The purpose of this study is to examine the effects of “OUR READING TOOLBOX: The Reading-Thinking Connection” (TOOLBOX), an intervention that has been implemented in a developmental reading course at Cesar Chavez College. Although initial informal observations have been made, no structured evaluation has been conducted regarding the effects on students’ academic performance and perceptions when using the TOOLBOX as an intervention. In other words, no empirical data or evidence based on a comprehensive research design exists to evaluate how well students perform academically in terms of pre- and post-test scores, class grades, and retention; nor does such evidence exist concerning students’ perceptions of the classroom environment and
course activities, the art of reading, and of themselves as learners in a community college developmental reading class when they are exposed to this intervention.

Most prevalent modes of reading instruction and related texts train students merely to choose from thoughts already provided for them based on questions not emanating from their own minds. Students remain unprepared demonstrate what they have learned and to independently understand or create original thoughts about what they read in a substantive, systematic way. Students are unskilled in thinking critically about what they read and write, and in making a connection with learning and life (Gerlaugh et al., 2007). To put this in context, the following discussion examines some of the relevant background to this particular problem.

The field of developmental reading at the community college level would benefit considerably by examining the effects of using a reading-thinking intervention. Providing important research data about the viability of an intervention that can be considered an alternative to the prevalent types of interventions used for teaching developmental reading at the community college level is essential. By examining a thinking-centered intervention such as the TOOLBOX, insights may be gained as to how to foster students’ abilities to create original thoughts about what they read in a systematic way, helping them understand what they read, and in turn, improving their reading performance and ability to think well.

Specifically, the purpose of this research study was to examine the effects upon students’ academic performance and their perceptions of the classroom environment and course activities, the art of reading, and of themselves as learners when using the TOOLBOX as an intervention in a community college developmental reading class. To
accomplish this, a set of instruments, Pre-Test (see Appendix A and B), Post-Test (see Appendix A and B), and Student Survey Questionnaire, (see Appendix C) were administered and class records, grades and assignments (see Appendix D) were analyzed to investigate how the use of the reading-thinking intervention for one semester in a community college developmental reading class was associated with the measures of students’ academic performance and their perceptions of themselves as learners.

Key Research Questions

The following research questions guided this study:

Research Question One
What effect does using OUR READING TOOLBOX as an intervention have on students’ academic performance in a community college developmental reading course?

Research Question Two
What effect does using OUR READING TOOLBOX as an intervention have on students’ perceptions of the classroom environment and course activities, the art of reading, and of themselves as learners in a community college developmental reading course?

Research Question Three
What effect does using OUR READING TOOLBOX as an intervention have on students’ academic performance when considering the demographics of gender, age, ethnicity, and native language in a community college developmental reading course?

Research Question Four
What effect does using OUR READING TOOLBOX as an intervention have on students’ perceptions of the classroom environment and course activities, the art of reading, and of
themselves as learners when considering the demographics of gender, age, ethnicity, and native language in a community college developmental reading course?

In essence, by collecting data to address and answer these four research questions, insights will be gained in two key areas: (1) students’ academic performance in terms of class grades and assignments; and, (2) students’ perceptions of classroom environment and course activities, the art of reading, and of themselves as learners.

Significance of Study

This study is of particular significance to the field of developmental reading at the community college level because it seeks to determine the effects of using an intervention focused completely on creating a culture of thinking. The significance of completing this study is that it can provide insights into how a systematic thinking-centered approach affects students’ academic performance and perceptions toward classroom environment and course activities, the art of reading, and of themselves as learners in a developmental reading course.

The TOOLBOX is a systematic thinking-centered approach that students can use across many disciplines, to better understand what they read in a variety of content areas. This set of specially designed critical thinking tools brings the “thinking-centered approach” to life and becomes a functional part of students’ learning processes and lives. Each tool engages the students’ minds in a specific type of intellectual activity that enables them to voice cogent thoughts about what they are reading. Using this set of thinking-centered tools as an integrated whole cultivates the type of intellectual activity inherent in good reading. Once students acquire the ability to use these tools as they read, they will be able to apply them in all areas of reading in school and life. Using the
reading-thinking intervention, students learn how to think while they read which is applicable throughout their academic experiences.

Examining the effects of the TOOLBOX will provide valuable data on how a thinking-centered approach can be used as an intervention to address the general problem of students arriving to community colleges unprepared to succeed in college. In short, the outcomes of this study will help determine if this new intervention, as a way of approaching developmental reading, is effective.

Conceptual Framework

Dr. Richard Paul’s theoretical framework of Fair-Minded Critical Thinking served as a model for this study (Critical Thinking Foundation, 2009). The rationale was two-fold. First, Paul’s model consists of the Elements of Thought (Reasoning), which guided the design of each of the twelve tools in the TOOLBOX, the intervention being evaluated in this study. Second, Paul’s framework is one of the most comprehensive conceptualizations of human thinking to be found in the literature. The model will provide a basis for identifying and looking at other approaches to developmental reading that claim to use critical thinking as an approach. The name of the twelve tools are as follows: Paraphrasing; Headline Created; Significant Sentence Selected; Vital Question Posed; Issue/Problem Identified; Purpose; SEEI; Conclusion; Assumptions; Implications & Consequences; Solution/Recommendation; and, Speaking in the Author’s Voice.

Role of Researcher

As the practitioner-researcher of this study, I am one of the co-developers of this intervention. Participants for this study were my students who were enrolled in two of my courses. Existing information obtained from coursework during the Spring 2011
semester was used for the study. I provided adequate information about the research to my students so that an informed decision could be made as to whether or not they agreed to have their course information (i.e., pre & post-tests, other course assignments) used as part of the study. As the investigator, I conveyed the consent form (see Appendix E) information both verbally and in writing. It was made clear to students that their decision whether or not to participate would not affect their grades nor influence their future relationship with their teacher/investigator.

To ensure the data collected for this study remained unbiased, three reading-thinking intervention experts were identified to participate in a norming session for using the Outcome Rubric (see Appendix F) to score the Pre- and Post-Tests. Each expert independently assessed the quality of the students’ Pre- and Post-Test responses by using an Outcome Rubric specially designed for the TOOLBOX. My role in the norming process was to ensure the raters were familiar with the Outcome Rubric and knew how to apply it as they evaluated the quality of each student’s response to the Pre- and Post-Tests. I did not take part in any of the evaluations of the Pre- and Post-Tests, and before turning these assessments over to the raters for scoring, I was responsible for coding each assessment to ensure all participants’ names were removed from all forms collected to preserve their anonymity.

I am a reading specialist and I have worked with students enrolled in developmental reading at the community college level for over 20 years. I have extensive experience in creating, designing, and implementing the TOOLBOX curriculum as a reading-thinking intervention. In addition to teaching, I have been invited to present this thinking-centered approach at local, regional, national, and
international conferences over the past several years. I co-facilitate workshops and seminars regarding the use of this intervention in the educational community.

Methodology

To gather data needed to effectively address and answer the main research questions of this study, a brief description of the methodology to be used is provided.

The purpose of this study was to examine the effects upon students’ academic performance and perceptions when using the TOOLBOX as an intervention in a community college developmental reading class. For this quantitative methods study, statistical tools used included multivariate procedures. Participants were limited to students enrolled in this investigator’s two courses of developmental reading during the Spring 2011 semester. The method for collecting information in the course included standard instructional procedures used every semester. No additional data were collected for purposes of this study. Information collected included results from the course pre-test, post-test, 25 regular course lessons, four exams, a mid-term, a final, and other activities ordinarily encountered in regular class sessions. Each class met for 75 minutes and there were 32 class meetings in one semester. As a routine part of the course, students completed a Student Survey Questionnaire, Student Information Sheet, and a Student Open-ended Questionnaire where they described their learning experience while enrolled in the reading course. The survey included questions about their perception of the classroom environment and course activities, the art of reading, and of themselves as learners.

Class records only from this course (grades and assignments) were analyzed to gather information on the “who,” “what,” “how,” and “when” of this study. This
information provided insight concerning how the use of the reading-thinking intervention for one semester in a community college developmental reading class was associated with the measures of students’ academic performance and perceptions towards the classroom environment and course activities, reading, and of themselves as learners. Experts independently assessed the Pre- and Post-Tests responses using an Outcome Rubric specially designed for the TOOLBOX. I did not take part in any of the evaluations and before turning assessments over to the raters for scoring, I was responsible for coding each assessment to ensure all participants’ names were removed from all forms collected for confidentiality purposes. After I received all the scores from the three raters, I summed the three assessment scores for each student, and I continued the analysis.

Information collected over the course of one semester was used to answer research questions one and three. Scores on specially designed Pre- and Post-Tests, and a review of class grades and assignments were evaluated for this question. Question three examined demographics of gender, age, ethnicity, and native language. Data pertaining to questions two and four were collected through an end-of-semester Student Survey Instrument to assess students’ perceptions of the classroom environment and course activities, the art of reading, and of themselves as learners. Question four examined demographics of gender, age, ethnicity, and native language.

A number of demographic variables examined account for differences in academic performance in the course, and this study incorporated multivariate analysis models. The specific choices of statistical models were governed by the distribution of demographic variables.
Limitations

Limitations of this study were the following: the sample used for this study was not a probability based sample. The study took place in one setting, a developmental reading course at a Hispanic Serving Institution (HSI). The outcome skill was narrowly focused on developmental reading. The generalizability was questionable with regard to the broad spectrum of the student demographic groups, other settings, and a broader array of academic disciplines. There was one instructor carrying out the study, resulting in uniformity of course delivery. This study represented a ‘nested variable’ issue in that the ORT intervention was implemented by only one instructor with a unique set of skill and attitudes.

Organization of Study

This dissertation followed a traditional five-chapter model to guide readers through the problem, research and conclusions of the study.

Chapter Two examines relevant research studies and trends, as well as existing practices in the field of education, related to the focus of this study to provide a foundation necessary to explore current conditions and make recommendations for this dissertation. This examination allowed the researcher to make the case for why this study was needed and in the way proposed. Chapter Three outlines research methodologies and data collection strategies and included a thorough articulation of the central instruments, the research questions and the questionnaire to be utilized. Chapter Four reports the results of the research data that allow for an understanding of the findings as a basis for reaching conclusions and making recommendations in Chapter Five. Further research
and improvements to practices in the field are recommended in Chapter Five, including identification of problems, suggested interventions and curative strategies.

Definition of Key Terms

The following are brief definitions of the most significant terms used in this study:

*Academic Performance:* a student’s academic performance in terms of pre-test, post-test scores, class grades, retention, attendance, and punctuality.

*Academic Preparation:* prior knowledge, understanding and academic skills a student has acquired in previous classes.

*Achievement Gap:* the observed disparity on a number of educational measures between the performance of groups of students, especially groups defined by sex, race/ethnicity, ability, and socioeconomic status (American Federation of Teachers [AFT], 2004).

*Basic Skills Initiative (BSI):* a comprehensive strategic planning process designed by the Chancellor's Office of California Community Colleges for improving student access and success. Because the development of basic skills is a key focus, the goal is to make sure resources for student success are adequately funded at the community colleges (CSS, 2007).

*Critical Thinking:* thinking about one’s thinking to assess thinking for the purpose of improving that thinking. It is that mode of thinking - about any subject, content, or problem - in which the thinker improves the quality of his or her thinking by skillfully taking charge of the structures inherent in thinking and imposing intellectual standards upon them. Its quality is therefore typically a matter of degree and dependent on, among
other things, the quality and depth of experience in a given domain of thinking or with respect to a particular class of questions (Critical Thinking Foundation, 2009).

*Developmental Education:* an educational program and/or service that commonly addresses academic preparedness, diagnostic assessment and placement, development of general and discipline-specific learning strategies, and effective barriers to learning (National Association for Developmental Education [NADE], 2011).

*Developmental Education Initiative:* a three-year effort that begun in 2009 to identify and develop programs that increase the number of community college students who complete preparatory classes and successfully move on to college-level studies (Achieving the Dream [ATD], 2009).

*Flesch-Kincaid readability tool:* a tool that is used to assess the difficulty of a reading passage on school text written in English (Thomas, Hartley, & Kincaid, 1975).

*Gain Score:* a measure of the improvement of reading comprehension skills that occur over the course of the semester. It is measured by the difference between the Pre-Test and Post-Test Scores.

*Inter-Rater Reliability:* the extent to which two or more individuals (coders or raters) agree. Inter-rater reliability addresses the consistency of the implementation of a rating system. Inter-rater reliability can be more consistent with training, education and monitoring skills of judges (Colorado State University, 2011).

*Norming:* a process by which TOOLBOX experts agree on criteria to assess and rate the Pre- and Post-Tests based on the quality of each response and to assign an appropriate score.
**OUR READING TOOLBOX Outcome Rubric:** a scoring guide used to assess reading comprehension skills. The rubric yields a score on a 0 to 10 scale.

**Perceptions:** students’ personal views based on the classroom environment and course activities, the art of reading, and of themselves as learners as a result of using the Reading-Thinking intervention.

**Post-Test:** a measure of the exiting-level reading comprehension skills after exposure to the 12 tools from OUR READING TOOLBOX.

**Reading-Thinking Intervention Experts:** individuals selected to evaluate the responses given by students on the Pre-Test and Post-Test using the Outcome Rubric.

**Single Group Counter-balanced Test Design:** when all participants take two separate tests, form A and B. Half of the group, group 1, takes test A, and the other half of the group, group 2, takes test B. Later, after the participants have been exposed to the intervention, then group 1 takes test B and group 2 takes test A. The data derived from both assessments strengthens a counter-balanced design because the data provides a “much more precise estimate of the linking relationship” (Dorans, Pommerich, & Holland, 2007, p. 147).

**Total Points Earned:** the total points earned by each student based on his or her performance in the class on graded activities such as readings, exams and presentations.

**Universal Design:** the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design” (Universal Design of Instruction, 2011).
CHAPTER 2 – REVIEW OF THE LITERATURE

Introduction

The review of the literature provides an overview of issues concerning the teaching of reading strategies associated with thinking-centered interventions within higher education, specifically community colleges, directly related to developmental education in the area of reading. The following are reviewed: (1) Educational Reform; (2) Developmental Education; (3) Adult Learning Theory and Learning English-as-a-Second Language; (4) Instructional Quality; (5) Learning Environment; (6) Practices and Approaches; (7) Summary of Literature; (8) Conceptual Framework; (9) Model Under Investigation; and, (10) Gaps in the Research. This chapter concludes with a discussion of interventions examined in this study and the model under investigation. The discussion identifies the gaps in research for the purpose of making a case for the proposed study and how this research can contribute to the knowledge in the field of developmental reading at the community college level. In the following quote, Montessori (1912) described superficial reading that lacked understanding, which is still a deficiency in a large percentage of students today.

The child who has mastered the spelling-book gives the impression of knowing how to read. Indeed, he does read the signs over the shop doors, the names of newspapers, and every word that comes under his eyes. It would be very natural if, entering a library, this child should be deluded into thinking that he knew how to read the sense of all the books he saw there. But attempting to do this, he would soon feel that ‘to know how to read mechanically’ is nothing, and that he needs to go back to school. (Montessori, 1912, p.10)
Nationwide, 75 percent of the 2010 high school graduates were not considered ready for college, according to the American College Testing [ACT] (2010). Today’s economic and demographic trends have brought about a shift in the educational paradigm, resulting in more students returning to school to acquire college level training or degrees (Boggs, 2010). Historically, the primary purpose of community colleges was to provide access to higher education for students of color, students of low socio-economic backgrounds, individuals who were academically-challenged, and others who were denied enrollment to four-year institutions (Boggs, 2010; Cohen & Brawer, 2008; Piland, 2004). American higher education has had a problem with academic under-preparedness since the beginning of this educational concept, meaning many college-level students have required special assistance to succeed academically (Boylan, Bliss, & Bonham, 1997). The use of developmental education as a strategy to address the achievement gap in postsecondary education, specifically in the area of reading, continues to present questions and challenges (Lesik, 2008).

Since the introduction of community colleges, these institutions have served as a stepping-stone to provide educational opportunities, whether it be vocational, academic, or for personal growth, by enhancing students’ knowledge and developing necessary attitudes to succeed in college. “The knowledge gap at community colleges is increasingly being recognized as a national problem. About 65 percent of all community college students nationwide need some form of remedial education” (Foderaro, 2011, p. 1). “Students come to college in pursuit of better lives, higher-paying jobs and clearer paths to accomplish their goals” (CCA, 2010, p. 5). Hence, community colleges are confronted with the increase of students who are underprepared when entering higher
education institutions, resulting in a large percentage of these individuals not completing their academic goals (Boggs, 2010).

The expectation is that students who complete these programs and obtain postsecondary credentials will have the skills that meet the needs of area businesses, improve regional/national competitiveness, and earn a family-sustaining wage as well as be prepared for further learning. (Soares, 2010, p. 9)

Consequently, the deficiency in basic skills will make it challenging for individuals who are not academically prepared to compete for work and find decent jobs at a local, national, and global scale. There is no question that there is a need to assist students who are unprepared for college-level work; however, little research has been carried out on the effectiveness of programs that have been designed to help these individuals to be academically successful (CCRC, 2011).

Educational Reform

A call for educational reform or a reconstruction of instructional methods has been on the radar for over a century to no avail. Educators have worked diligently for over three decades on educational reform to close the achievement gap for schools facing detrimental issues with low levels of academic performance and severe reading deficiencies. As the number of students placing into remedial education continues to grow, community colleges are being encouraged to evaluate and assess the learning paradigm, in other words, the how and what they teach, keeping in mind the impact of the depleted budget (Boggs, 2010). This implies educators would need to redesign programs to help students complete their academic goals. Educational Organizations, such as the National Institute for Staff and Organizational Development [NISOD] are asking
institutions to commit to college completion (CCA, 2010; NISOD, 2011). As part of the education reform agenda, President Obama urged the nation to provide other means of measuring success and failure, besides the “bubble” tests that reflected how well academically disadvantaged students were taught how to think critically and problem-solve. He was not interested in testing, but in learning (Obama, 2010; Posnick-Goodwin, 2009). Obama proposed a $2.5-billion grant program intended to design programs that provide access and success to students considered as academically challenged. Students who were identified for this funding were low-income, physically or emotionally challenged, or had unbearable family issues. Dr. Martha Kantor, Under Secretary of the U.S. Department of Education, supported and encouraged educators to collaborate in the effort of educating the top 100 percent so that the nation could reach Obama’s 2020 goal, that is, to be the nation with the highest percentage of students attaining a college degree (Keller, 2009). Overall, educational reforms attest that the community college is an undervalued educational system that needs support to help individuals build a strong academic foundation, as these students will be required to be prepared to compete in this diverse nation’s highly skilled workforce (Boggs, 2010; Soares, 2010; Tinto, 2009).

Innovation, not antiquated learning strategies is the push Congress is making by investing time and money to educate the nation’s future generation. The Developmental Education Initiative [DEI] (2009) served to identify and develop vital programs nationwide to increase access and success for academically-challenged community college students. This initiative focused on implementing strategies to prepare students enrolled in developmental education to succeed in college-level courses. “Students are often surprised to learn that they still have hurdles to clear before they can begin college-
level work” (Foderaro, 2011, p. 2). Some of the efforts proposed were to: modify policies and practices that supported better student outcomes; accelerate students’ progress for those enrolled in basic skills courses; make academic support services more accessible to students; and most importantly, to revise the curricula and teaching methods used in developmental education so that students could attain an academic degree (ATD, 2009; Brady, 2008; DEI, 2009; Obama, 2010). “Given our current knowledge, however, we can say that there appear to be definite relationships between the presence of certain program components and various measures of academic success among developmental students” (Boylan et al., 1997, p. 10).

California’s educational system initiated a plan, modeled after DEI, to improve student access and success, which lead to the implementation of the California Community College Basic Skills Initiative [BSI] (CSS, 2007). For the past three years, California has spent vast amounts of BSI funds to transform student learning using innovative strategies to gradually begin to close the achievement gap among underprepared students enrolled in basic skills or developmental reading courses (CSS, 2007). Nevertheless, the achievement gap has not narrowed for this group of learners, not only hindering their success at the community college, but also limiting their opportunities to attain a degree, much less compete in the workforce. Nist and Holschuh (2000) believed teachers needed to provide extensive direct instruction and scaffolding to students before allowing them to identify learning strategies that best fit their needs. “Many strategies used in college reading classes do not have support in research. Even fewer have been researched using at-risk students enrolled in college reading courses” (Nist & Holschuh, 2000, p. 87). “Given that our country has suffered these low
graduation rates for a generation or more, it is clear that – in spite of our best intentions –
doing more of the same will just get us more of the same” (CCA, 2010, p. 7). The
description of developmental education will be reviewed to better understand and serve
the needs of the students who are considered underprepared.

Developmental Education

The field of developmental education supports the academic and personal growth
of underprepared college students through instruction, counseling, advising, and
tutoring. The clients of developmental education programs are traditional and
nontraditional students who have been assessed as needing to develop their skills
in order to be successful in college. (National Center for Developmental
Education [NCDE], 2011, p. 1)

The purpose of developmental education is to provide academic opportunities for
students enrolled in postsecondary institutions needing to acquire competencies such as
reading, writing, and math, to succeed in mainstream college courses. These students’
skills are considered to be at least one or more levels below what a particular institution
deems college-entry level.

Developmental education is a comprehensive process. In other words, it looks at
the learner holistically, not piecemeal, and assumes that development is a process,
not a product that simply measures success by an increased test score or a grade in
a skills-based class. (Casazza, 1999, p. 7)

“Developmental” is preferred over the term “remedial” since it represents the
comprehensive efforts of educators in this field (Boylan & Saxon, 2001). The
controversial issue among developmental education is the lack of standardization for
what counts as developmental coursework at community colleges. Developmental education teachers need to have a broader teaching approach and a different attitude about students enrolled in these courses (Brady, 2008). In other words, these students should be viewed as capable of succeeding, rather than be stigmatized and viewed as failures for not understanding basic skills (Kozeracki, 2002).

In the 1960s, community colleges implemented the “open admissions” policy, resulting in an increase of an academically unprepared student population (Cohen & Brawer, 2008). A large number of students, regardless of their previous academic grades, were admitted into the community college, resulting in increased access to higher education. Students had to take numerous remedial courses to prepare them for academic level work because of their deficiency in basic skills. This meant it would not only take students longer to attain a degree, but also the cost would be excessive, and lead to a high percentage of drop-outs.

Community college developmental education students face numerous obstacles as they begin and proceed through their years of higher education. Some of these students find themselves in an academic setting for the first time in many years, and those who have recently graduated from high school often had marginal educational experiences at best. (Willingham & Price, 2009, p. 92)

“...A new American majority of students is emerging on campuses, especially at community colleges” (CCA, 2010, p. 1). Consequently, high school students entering community college assess into developmental education courses with several academic deficiencies, especially in the area of reading and writing (Rouche & Waiwaiole, 2009). These deficiencies impact a student’s ability to excel academically at a reasonable pace
within a typical semester (Goldstein & Perin, 2008). Variables that contribute to the
disparity in educational attainment of students, who assess into developmental education,
begin with less understanding and comprehension of the lessons and of the reading
material assigned, threatening their ability to succeed in college-level courses. In
addition, when students learn that their academic goals need to be put on hold because
they need to take pre-collegial courses, they become discouraged and drop out of college
or they end up enrolling in a private institution where they are not required to take these
courses. Private institutions often offer students a structured environment, delineating
their academic path, and helping them attain a degree in less time compared to public
community colleges (CCA, 2010).

According to the Community College Research Center [CCRC], a major concern
was that only 75 percent of all U.S. community colleges had mandatory placement that
required students to enroll in developmental education courses before they were able to
enroll in academic-level courses (Bailey, 2009). The rationale to require mandatory
placement in remedial courses is that content course instructors will not spend time
teaching students basic skills needed to succeed in their courses. Despite the
recommendations given to students for enrolling in developmental reading courses, more
than two thirds of community college students who entered college with academic skills
deficient in at least one major content area neglected to enroll in a remedial course, and
many others failed to complete the course sequence (Bailey, 2009). Retention and
persistence are major issues in higher education because a large percent of students
enrolled in remedial courses dropped out before completing them (Boylan, 1999; Moltz,
2008; Tinto, 2007). Regardless of the broad range of remedial programs and pedagogies,
there is no strong consensus about how to carry out developmental education most effectively and “there is very little research that reliably measures the causal impact or different approaches to remediation” (Bailey, 2009, p. 2).

To address the current issues of narrowing the achievement gap for developmental education, President Obama has proposed a plan to strengthen the higher education pipeline and address college completion, ensuring that more students successfully complete their degree (CCA, 2010). The plan is to invest in community colleges for the purpose of equipping young people and adults, with high-demand skills and education for emerging industries (Obama, 2011). With the increase of enrollment in higher education, it is imperative that educators who teach adults have a general understanding of the framework for how adults learn.

**Adult Learning Theory**

Adult Learning Theory (Knowles, 1978), provides a framework concerning how adults learn. Those who teach adults should keep the following key issues in mind so that the adult learner maintains focus and interest in learning. First, this theory indicates that educators should communicate to the students the purpose of why it is important to learn specific content. Next, students need to feel empowered by taking ownership of their learning. Learning should be relevant to real-world issues and or personal experiences to which students can connect meaning and should appeal to a wide range of educational preferences and styles. In addition, the curriculum should be of high-interest to the students, so that they will engage in their learning. Finally, all students need guidance and nurturing in gaining confidence and courage to increase their self-esteem as
learners (Conner, 1997-2004). This theory can be applicable to learners of all ages and ethnicities, including adult learners of English-as-a-Second-Language.

Aside from the adult learning framework, a typical curriculum for second language learners is comprised of authentic materials and performance tasks that engage the students in creative activities for the purpose of learning how to read, write, listen and speak in English (Gallagher, 2009; Young, 2006). Regardless of their background, adult learners can have various learning challenges that impede their academic success. One of those challenges can be lack of self-confidence that may be related to previous academic failures. Adult students tend to underestimate their ability to learn and resist learning new ideas or approaches (Pennington, 2011). Overall, learners desire instruction that is relevant and valuable in their lives. Despite the mastering of and enthusiasm for the subject matter, a large number of teachers lack training in practical pedagogy. “Some radical changes will need to take place in how college teaching and learning is viewed” (Brothen & Wambach, 2004, p. 20).

In an attempt to make learning relevant, meaningful, and valuable to students, educators are implementing Content-Based Instruction [CBI], especially in ESL and developmental reading courses. CBI is an instructional technique that integrates a theme, an issue, or a specific focus to develop students’ language or enhance other basic skills through content (Sticht, 1997). In other words, CBI experts assert that students can improve processes in reading or writing when they have extensive content knowledge, as this will enhance their ability to understand and learn through text. Content is used as a tool to help students achieve their learning objectives as it allows them to delve deeper versus “sprinting” through the materials. It is evident that there is a paradigm shift in the
nation’s education system; hence, it is imperative to review what is being done to improve instructional quality.

**Instructional Quality**

Numerous schools fall short of understanding the significance of instructional quality (Grubb, 2009). The American Federation of Teachers (2004) identified key challenges jeopardizing students’ chances to excel in academics, including the lack of fully qualified teachers, non-participation in rigorous, college-preparatory coursework, and unmet instructional needs. Brady (2008) alleged that “for many people, the main purpose of educating isn’t to improve students’ thinking skills but to ‘cover the material’ … in school subjects” (p. 65). Students felt academically disengaged and discouraged from completing assignments when faculty failed to recognize their efforts, which indicated the significance of teacher encouragement as an incentive for students to work hard (Tinto, 2009).

To improve instructional quality, the state of California spent billions of dollars on numerous initiatives that focused on educational reform, ranging from reduction in class size to improving success rates for low-performing schools. The challenge was to improve the quality of education (Grubb, 2009). With this in mind, the Council of Chief State School Officers [CCSSO] and the National Governors Association [NGA] collaborated in developing the Common Core State Standards Initiative (2010) as a result of the increase of students entering higher education institutions academically underprepared. New Common Core State Standards will help strengthen the academic skills for college bound students by providing a better alignment between high school and college curricula. California became the 33rd state to approve and adopt the new
Common Core standards in August 2010 (Posnick-Goodwin, 2009). The purpose of this initiative was to design a framework that demonstrated a common understanding of what students are expected to learn and to be consistent on how to prepare them for college level education as well as the workforce, regardless of where the students lived or went to school (Common Core State Standards Initiative, 2010). PK-12 schools in California intend to begin implementation of these standards in the Fall of 2011, making revisions as needed to the standards.

The Anchor Standards for Reading, as the new standards are called, intend to have “students actively seek the wide, deep, and thoughtful engagement with high-quality literary and informational texts that builds knowledge, enlarges experience, and broadens worldviews” (Common Core State Standards Initiative, 2010). Students should be engaged in real-life issues that make learning much more meaningful to the individuals, connecting these issues with their personal experiences (Lapp et al., 2008; Tinto, 1997, 2009; Tinto, Goodsell-Love, & Russo, 1993). Compared to the current California standards, these new standards allow for deeper instruction because there will be fewer standards to cover throughout the school year. The new standards focus on less “drill and skill” and more on learning strategies. Learning how to use those strategies means students spend more time “thinking and doing” and have opportunities to engage in a collaborative dialogue. Until these standards are implemented completely and evaluated for effectiveness, there will still be extensive need in higher education to assist students in acquiring essential skills to succeed in college.
Learning Environments

Universal Design for Learning (UDL), offers a set of guidelines for creating instructional goals that provide all individuals equal opportunities for learning (National Center on Universal Design for Learning [UDL], 2011) and can make tremendous contributions to developmental education. UDL supports the creation of learning environments that maximize the learning for all students, taking into consideration the different abilities and extensive individual characteristics of the various learners. Educators should create flexible approaches versus a one-size-fits-all curriculum to meet their students’ diverse skills, needs, and abilities (CCA, 2010). UDL environments foster collaboration and communication in the classroom. One suggestion offered by the Center on UDL is to design peer-mentoring activities that enable students to provide one-on-one support to each other. Providing modeling and prompting in several ways, allowing for flexible group work, and assigning multiple roles to students, assists them in learning how to work effectively. Edward Séguin, an influential doctor and special education advocate in France, held rather original views concerning the preparation of teachers of “deficients” or students with disabilities because he felt these students were capable of learning just like all other children (New York Times, 1880). His progressive educational theories continue to influence educators, especially in the field of developmental and special education.

Séguin would have them [teachers] good to look upon, pleasant-voiced, careful in every detail of their personal appearance, doing everything possible to make themselves attractive. They must, he says, render themselves attractive in voice and manner, since it is their task to awaken souls, which are frail and weary, and
to lead them forth to lay hold upon the beauty and strength of life. (Montessori, 1912, p. 37)

Faculty who utilize UDL intentionally offer information in a variety of modes to ensure student engagement and comprehension. By appealing to a wide range of learning styles and preferences, educators equalize learning opportunities that optimize what is relevant, valuable, and meaningful to all learners (UDL, 2011). In other words, the selection of activities should foster the use of the imagination to learn how to solve problems, or make sense of complex tasks. “Authentic interest is generated when students are given the opportunity to delve deeply into an interesting idea” (Gallagher, 2009, p. 10).

Implementing UDL at the beginning of the semester will not only make learning accessible for students, but also accommodate a wide range of learning preferences (UDL, 2011). Practices should encourage respect and inclusiveness towards diversity. Students with and without disabilities tend to participate in their learning when the instructors practice effective interaction in the classroom (Brady, 2008; Tinto, 2007). UDL focuses on many concepts that are important to keep in mind to ensure an equal learning opportunity for all students.

Another area that contributed to learning environments was the seating arrangement in the classroom. McCroskey and McVetta (1978) identified three most common types of classroom seating arrangements: traditional, horseshoe, and modular. Each of these arrangements has a specific function; for example, the modular is applicable to small groups because it segregates students so that they can focus on group work and not be distracted by other students. Several straight rows consisting of five or
six desks per row is considered a traditional classroom arrangement and dominates in most educational settings, beginning with seventh grade and beyond. The type of communication that is imparted in a traditional arrangement is predominantly focused on the teacher’s dissemination of information with very little student interaction. In contrast, the horseshoe arrangement permits teacher-to-student and student-to-student engagement. Arranging desks in a horseshoe allows the teacher and students to see and hear each other, prompting the respect and value of each individual’s ideas and increasing his or her desire to interact and be actively involved in the learning process (McCroskey & McVetta, 1978). Integrating a horseshoe classroom seating into a UDL fosters inclusive learning, as everyone feels they are equal to their peers as they are able to see and hear each throughout the class period.

Practices and Approaches

The purpose of this section is to identify and analyze practices and approaches that most directly relate to the specific focus of this study.

“Children and adults often greatly underutilize their thinking capabilities” (Ritchhart & Perkins, 2008, p. 58). Educators understand there is a need for educational reform. This study examines the quality of instruction in the area of developmental education, especially in reading. It examines the types of strategies and approaches that are currently being implemented in the classroom to improve the quality of thinking to better understand what students are required to read. Below are practices and approaches currently being used to improve the readiness of college students who are academically under-prepared to read at the college-level.
The literature recognizes that developmental education is a critical problem in the field of education. Despite the numerous years of implementing various practices, there is minimal research to demonstrate the effectiveness of these practices (Grabe, 2009). In addition, the achievement gap is wider regardless of the amount of practices. Although these efforts are commendable, the results to prove the efficacy of prevalent practices and approaches are limited (Bailey & Cho, 2010; Nish & Holschuh, 2000). Therefore, either targeted research has not been undertaken or has not been published. Following are documented practices that are used to improve reading comprehension for students enrolled in developmental reading courses.

Partnering for Content Literacy: PRC2 in Action (Partner Reading and Content, To PRC2) designed by Donna Ogle (2009), addressed challenges that students had with content-area reading. This approach consisted of a practical and powerful set of assessments and instructional practices focused on partners reading short books and articles together in a process called Partner Reading and Content, To (PRC2). PRC2 reading strategy required two students to take turns reading their passages and asking questions about what they read. A positive outcome in using PRC2 was that teachers did not dominate lectures because students were discussing among themselves. This strategy focused the teacher’s role on coaching or facilitating the small group discussions, allowing students to be engaged in interactive activities, which in turn deterred them from failing or dropping out of school. The PRC2 strategy demonstrated that when students asked questions, it deepened their understanding. This process fostered critical thinking through questioning; however, students were not taught how to develop high-quality
questions that would spark their intellectual curiosity as they engaged in their discussions. As a result there was disparity in the quality of their dialogues.

*KWL* are acronyms for what we *Know*, what we *Want* to *Know*, and what we *Learned/Still want to learn* (KWL) by Donna Ogle (1986). This reading strategy requires students to organize their thoughts onto a 3-column chart labeled with a *K* (*Know*), *W* (*Want*), and *L* (*Learned/Still want to learn*) in the appropriate columns, which will help the student better process information about a subject matter. The *K* column is considered the pre-reading inventory and it is used to have students first think or brainstorm about the subject matter. After students preview headings, pictures, and table of contents, they write questions about what they still want (*W*) to know. It is suggested the headline be turned into a question and placed in this column. After students complete column *K* and *W*, they read the text and attempt to answer the questions written in the *W* column. In the *L* column, they make a list of what they learned. In relation to the intervention being studied, this practice uses “questions” which is relevant to one of the twelve tools. The drawback for this practice is that it “kills the love of reading” for students because they have to spend time doing activities where they are not learning because the lesson is not intellectually stimulating, but instead could be seen as busy work (Gallagher, 2009).

SQ3R/SQRQCQ/REAP are interactive models used to teach reading that provided opportunities for participants to observe, emulate, practice, and acquire whatever knowledge they were exposed to, with the purpose of helping students improve their reading comprehension (Robinson, 1970). It applied strategies such as “think, pair, and share,” “Survey, Question, Reread, Question, Compute, Question (SQRQCQ),” or “Read, Encode, Annotate, Ponder (REAP).” These strategies allowed students to take control of
their learning and independently monitor their own understanding. Strategies such as these have been around since 1971 and are predominantly found in textbooks used in developmental reading courses (Brady, 2008). The downside of these strategies was students lost interest in reading because they believed all reading was to be done this way, yet real-life reading does not occur this way. In other words, “it is clear that – in spite of our best intentions – doing more of the same will just get us more of the same” (CCA, 2010, p. 7). These approaches, along with KWL, “generally have not been strongly supported by empirical research that directly tests them” (Grabe, 2009, p. 231).

When comparing students’ attitude about reading in kindergarten, fifth grade, and twelfth grade, the level of enthusiasm went from very high to indifference to hostility. “Rather than helping students, many of the reading practices found in today’s classrooms are actually contributing to the death of reading” (Gallagher, 2009, p. 2). These practices which are supposed to instill the love of reading are destroying students’ possibilities of becoming lifelong readers, and in turn are contributing to the achievement gap. “If so much of our subject matter is recondite, inert, overly abstract, and disconnected, is it any wonder that we face so many problems with student motivation and discipline?” (Hendley, 1986, p. 85).

Research revealed that some current educational practices unintentionally discouraged students from thinking critically (Nosich, 2009). Skill development courses remain the tool most commonly used by developmental educators (Brothen & Wambach, 2004). Nosich (2009) implied that teachers made students recipients of the teacher’s knowledge; students were expected to memorize the information only to recite it back on an exam, making them passive learners.
Dewey stated, We cannot claim to respect [students’] freedom of intelligence when we seek to impose ready-made subject matter upon them from without. All too often, we let acquiring take the place of inquiring in school; that is to say, we encourage passive and obedient reception of cut-and-dried materials. What we need to do is allow for the actual problem-solving thinking of the [student], to provide materials and situations that will bring about such thinking. (Hendley, 1986, p. 27)

Curriculum concentrates on “busy work,” in which students mechanically copy ready-made lessons from a book or the board, memorize the “important facts” then put it back on the test, only to discard the information after the tests. “The student is overwhelmed with technical details unilluminated by any general conception” (Hendley, 1986, p. 81). “When students encounter information that they cannot put into their own words, they know that they do not comprehend the information” (Nist & Holschuh, 2000, p. 91). As long as there is internal resistance from faculty to deal with the new generation’s learning issues, students will not be prepared to handle college-level learning (Flynn & Vreedevoogd, 2010). Paul and Elder (2007) purported that to systematically develop students’ in-depth thinking process, the learning environment should be encouraging, stimulating, and rewarding, consequently improving the quality of education in schools. “Besides nurturing relevant skills, education needs to promote open-mindedness over close-mindedness, curiosity over indifference, and so on” (Ritchhart & Perkins, 2008, p. 58).

Dr. Joseph L. Vaughan (2010) from East Texas State University designed a reading-thinking intervention for Vanier College Learning Center that helps students
remember information through understanding called *Self-Monitoring Approach To Reading and Thinking* (S.M.A.R.T.). He cautioned readers not to memorize material but rather read to understand because through understanding then one will most likely remember what was read. The steps Vaughan recommended were to survey the text and check for comprehension at every subsection. He emphasized not to read more than two pages without checking for understanding. Check marks in the margin represented student understood, question marks meant student did not understand. If a student did not understand a section, Vaughan suggested looking back, re-reading, and examining the text to try to identify what was causing the problem, such as a word or a phrase. Looking at the glossary or previous text could help clarify the problem. Once the student understood something, then the question mark was changed to a check mark. Students closed the book after they finished reading the entire selection and then they had to explain to themselves what they understood from the text. They were allowed to look back to refresh their memory. Vaughan stated not to worry about anything that was still unclear, nor should they try to memorize it, but instead, ask someone to explain it later. This SMART approach reiterated that the student re-examine what they still did not understand and to think of what he or she could do to comprehend. The final step was to self-explain what they did to understand. Although Vaughan believes these steps allowed the student to self-monitor and think about what was read, there are no data to prove its effectiveness.

*Content Comprehension Strategy Intervention* (CCSI) was conducted with developmental education students at Bronx Community College of the City University of New York, Los Angeles Pierce College, and Norwalk Community College and was
entirely funded by the Institute of Education Sciences of the U.S. Department of Education. The participants were of low socio-economic status and academically underprepared, lacking basic reading and writing skills. This intervention was a curricular supplement, consisting of ten units that focused on reading comprehension and writing. These units were designed to be self-directed and self-paced to assist students in attaining basic skills essential for successful learning in postsecondary classrooms. The intervention involved practice in written summarization, asking questions based on textbook passages, vocabulary usage, answering questions of the type found on high-stakes tests, and writing opinions about controversial topics. Although this intervention appeared to be successful to a certain extent, the researchers mentioned there was an issue with retention. Based on the number of students who took the pre-tests compared to the number of those who took the post-tests, the study reflected high attrition (Perin, 2007).

A professor of biology at a college in New York designed an intervention titled CREATE as a means to help underprepared readers understand scientific texts. The acronym “CREATE” stands for Consider, Read, Elucidate hypotheses, Analyze and interpret the data, Think of the next Experiment. Using short readings, students Considered what they already knew about the topic being introduced by creating a concept map that served as a starting point for the lesson. Students were placed in small groups and then Read the text to identify additional ideas to be added to the original concept map. Close reading was the next step and students looked up meanings to unfamiliar words in the dictionary. Using a graph, students worked together to chart information they would present to the class. Elucidate the hypotheses required that the
small groups engaged in a dialogue to ensure they answered the questions. A significant point made by the author was that although everyone read the same text, not all groups came up with the same hypotheses or questions (Hoskins, 2010).

Depending on how in depth the instructor wanted the students to examine the study, they analyzed and interpreted the data. At this point, the instructor challenged the students to ask questions and consider how specific problems relating to their study could be addressed. Questions were posed to engage students in a dialogue. The observations revealed that students learned to think critically when they were able to make connections with their learning; consequently, the information that the students were being taught became meaningful to them. Research has shown that interactive learning models provide a framework that engages students in taking control of their learning through practical activities (Lapp et al., 2008; Tinto et al., 1993). Successful developmental programs emphasized meeting students’ needs, making teachers accessible to students, providing substantive and meaningful coursework, and creating a safe learning environment (Brady, 2008; Lesik, 2008; Tinto, 2009). The final step to this approach was “Think of the next Experiment.” Based on all the hypotheses or questions identified by the class, students selected one to design their next study. For this activity, the instructor checked in on each group to ensure all students were contributing to the discussion. This active-learning approach engaged students in close reading so as to creatively thinking about scientific matters as well as possible implications to society. Instructors spent less time lecturing and more time guiding students to use CREATE to analyze scientific texts; most importantly, having students learn to think as if they were scientists (Hoskins, 2010). The teacher’s observation for this approach indicated some
success on student performance and perceptions; however, as with other strategies, there was no formal evaluation of its effectiveness.

Summary of Literature

The literature recognizes that attainment of academic achievement continues to be a significant problem for students entering higher education. The achievement gap has not narrowed for this group of learners, not only hindering their success in college, but also limiting their opportunities to compete in the workforce at a local, national, and global scale. There is no question that there is a need to assist students who are unprepared for college-level work; however, little research has been carried out on the effectiveness of programs that have been designed to help individuals enrolled in developmental education courses.

The literature clearly indicates that developmental education is a critical problem in the field of education. Despite the numerous years of implementing various practices, there is minimal research to demonstrate the effectiveness of these practices (Grabe, 2009; Nist & Holschuh, 2000). The research revealed that with the current educational reform, institutions are being challenged to improve the quality of learning for students, especially those enrolled in remedial courses, despite the lack of funding. The most effective interventions systematically developed students’ in-depth thinking processes and were delivered in a learning environment that was encouraging, stimulating, and rewarding. Although these efforts are worthwhile, the results to prove the efficacy of prevalent practices and approaches are limited. Therefore, either targeted research has not been undertaken or has not been published.
Conceptual Framework

Everyone thinks; it is our nature to do so. But much of our thinking, left to itself, is biased, distorted, partial, uninformed or down-right prejudiced. Yet the quality of our life and that of what we produce, make, or build depends precisely on the quality of our thought. Shoddy thinking is costly, both in money and in quality of life. If you want to think well, you must understand at least the rudiments of thought, the most basic structures out of which all thinking is made. You must learn how to take thinking apart. (Critical Thinking Foundation, 2009, p. 4)

Paul’s Fair-Minded Critical Thinking theoretical framework served as the model of this research study (Critical Thinking Foundation, 2009). The rationale is two-fold. First, Paul’s framework consists of the Elements of Thought (Reasoning), which guided the design of each tool in the intervention being evaluated in this study. Second, Paul’s framework is one of the most comprehensive conceptualizations of human thinking to be found in the literature and thus will provide a substantial basis for identifying and looking at other approaches to teaching developmental reading that purport to be to some degree focused on thinking as an approach. Paul’s framework will be valuable in guiding the design of the materials and instruments to be used, and in reaching conclusions and making recommendations for this study. Paul’s framework consists of the following eight Elements of Thought (Reasoning): (1) Purpose; (2) Question at Issue; (3) Information; (4) Concepts; (5) Interpretations and Inferences; (6) Assumptions; (7) Implications and Consequences; and, (8) Point of View.

Following are the descriptions to each of Paul’s elements of reasoning. The first element of thought is Purpose, which generates the goal or objective of what is being
accomplished. The stated purpose should be clear. *Question at Issue* guides one’s thinking so as to gain clarity of the issue or problem being addressed. Asking vital questions can help solve problems by analyzing the issue more in depth. *Information* consists of sufficient data, evidence, facts, or experiences that are accurate and necessary to answer the questions or problems that need to be clarified or resolved. *Interpretations and inferences* are made based on the sufficient information gathered, giving meaning to the data, evidence, facts, or experiences that are used to logically solve or figure out something. To express thoughts clearly, it is important to understand the meaning of *Concepts* so that what is being communicated is clear and make sense. The process used is *stating, elaborating, exemplifying,* and *illustrating* unfamiliar concepts. *Assumptions,* or presuppositions are beliefs that are taken for granted. It is imperative to consider how assumptions are shaped to avoid making erroneous conclusions. *Implications and Consequences* are inherent in one’s thoughts and actions. Thinking logically through the negative and positive implications of what could happen can help one make decisions in a situation before acting that will lead to consequences. All thoughts come from someone’s *Point of View,* meaning what you are looking at and how you are viewing things from diverse perspectives allows one to consider differing frames of reference (Elder & Paul, 2007).

Paul’s framework helped guide the design OUR READING TOOLBOX. Below is the list containing the 12 tools from the TOOLBOX and 8 elements in Paul’s model (see Figure 2).
Although the twelve tools have been listed in this order, it is important to remember that this is not a linear way of thinking; conversely, the starting point can be at any place. “Learning is a consequence of thinking” (Ritchhart & Perkins, 2008, p. 58). Students internalize the tools through continuous practice, acquiring a “system-analyzing-system” that allows them to assess and analyze their thinking, and communicate their thoughts in anything they read. Students can improve the quality of their thinking as they gain a new, in-depth understanding of what they read (Paul & Elder, 2008). In order to develop an analytical mind, students will require guidance, instruction, and practice as
they examine the quality of their thinking while applying intellectual tools that have been
designed using Paul’s conceptual framework as a model (Paul & Elder, 2008).

Model Under Investigation

Excellence in thought must be systematically cultivated by developing the mind
(Elder & Paul, 2007). A new intervention, OUR READING TOOLBOX: The Reading-
Thinking Connection (TOOLBOX), when compared to Paul’s conceptualization of the
essential Elements of Reasoning, provides students with intellectual tools by which they
can derive meaning from what they read. The purpose of education is to teach students to
“understand” and learn how to actively apply new learned knowledge and to cultivate this
knowledge beyond the classroom setting (Ritchhart & Perkins, 2008). This model was
designed to help students develop thinking skills by utilizing a set of tools that actively
engage the mind in deeper thinking for the purpose of understanding and retaining
knowledge longer than beyond the test or duration of the course (Paul & Elder, 2008).

This intervention consists of a set of twelve specially designed tools that bring the
“thinking-centered approach” to life by becoming a functional part of students’ learning
processes. Students use these thinking tools to actively engage with the text and
progressively better understand what they read. “This power of concentrated logical
thinking does not exist in the mind ready-made; it must be developed gradually”
(Hendley, 1986, p. 84). By using the TOOLBOX, students acquire the standard
comprehension skills such as main ideas, supporting details, inferences, and vocabulary
that are cultivated in a thinking-centered reading classroom. The tools are used to engage
the students’ minds while reading, without the mechanics-oriented, drill and skill process.
If we want instructors to teach in such a way that students learn to think their way through content rather than memorize bits and pieces of information for tests; if we want students to embody traits of mind such as intellectual empathy, fair-mindedness and confidence in reason, we must explicitly place critical thinking at the heart of the curriculum. (Elder, 2010, p.1)

The goal of learning is not only to think deeply about what one is learning, but also to understand it (Ritchhart & Perkins, 2008). Using the thinking-centered tools of the TOOLBOX, students do not just read words, but rather think about those words in specified ways as directed by individual tools for the purpose of understanding what they read, and to express their own thoughts about that reading. “When a system of mass education sends students on their way with meaning attached to thousands of ideas like Jeffersonian democracy and green technology, efficient, society sustaining dialogue is possible” (Brady, 2008). Following are the twelve tools found in the TOOLBOX with a brief description of how each tool engages the students’ minds in a specific type of intellectual activity that enables them to voice cogent thoughts about what they are reading.

*Paraphrasing:* Put sentences that they have read into their own words

*Headline Created:* Create a headline (title) that expresses the main idea of the selected reading

*Significant Sentence Selected:* Select sentences they think are most important in what they have read and tell why they selected them

*Vital Question Posed:* Ask the author, or someone in the reading, questions they would really like to have answered
**Issue/Problem Identified:** Identify issues or problems raised in the reading

**Purpose:** State why they think the reading was written

**S-E-E-I:** State, Elaborate, Exemplify, and Illustrate concepts (words, ideas) in the reading which they need to better understand

**Conclusion:** Identify what they think is the most important conclusion the author comes to in what they have read

**Assumptions:** State what they think the author (or someone else) is taking for granted in what they have read

**Implications & Consequences:** State what they think will happen if we follow, or do not follow, what the author (or someone else) in the reading is suggesting should be done

**Solution/Recommendation:** State what they think should be done to deal effectively with the issues or problems presented in the reading

**Speaking in the Author’s Voice:** State ideas or answer questions about what they read as if they were the author or someone else in the reading

The purpose of applying these tools is to help students independently develop the quality of their thinking so that they can acquire a deeper level of understanding about what they read as well as foster their ability to express or articulate creative thoughts about what they have read. Each tool focuses the mind so students can independently analyze and interpret the readings to learn the materials versus recalling de-contextualized or trivial facts to recite back on a test, which is predominately how comprehension is typically measured. The purpose of implementing this thought process was to eliminate the “storing of information in short-term memory” that would be gone the minute after the learners were done taking tests (Brady, 2008). Instead of students
wasting their time absorbing someone else’s thinking, students needed to be trained to think and ask questions, which would in turn make them think about their thinking.

Often the education of children consists in pouring into their intelligence the intellectual content of school programmes. And often these programmes have been compiled in the official department of education, and their use is imposed by law upon the teacher and the child. (Montessori, 1912, p. 27)

When students answer questions on multiple-choice tests, their minds are likely to focus on the importance of finding the “correct” answers, meaning that what they selected was NOT the product of their own thinking. Rather, these answers have come from someone else’s thinking. Students welcome the challenge in their learning versus being told what to know because it is going to be on the test. “Students’ understanding of content, and even their memory of content, increases when they think through – and with – the concepts and information they are studying” (Ritchhart & Perkins, 2008). They discover they not only remember, but also demonstrate learning the material by teaching the information they have acquired to the other students (Brady 2008; Elder & Paul, 2009; Flynn & Vredevoogd, 2010; Posnick-Goodwin, 2009; Tinto, 2009). Students use selected Thinking-Centered tools to derive meaning on specifically selected passages to help them progressively better understand what they are reading. It is clear that students will develop the capacity to think for themselves as they read, through continuously applying the tools to what they read. Copying information directly from a passage does not work when using these tools, rather, students are required to think about and provide responses that demonstrate deep understanding about what they have read.
In implementing the TOOLBOX intervention model, high quality and authentic passages from various content-areas have been selected. These include the reading passages identified for Pre- and Post-Tests, course assignments, the mid-term and final. Based on level of the reading course, the Flesh-Kincaid readability tool is used to determine the readability level of the passage so that the passage is equivalent to the reading level being assessed. The Flesch-Kincaid Readability tool, used in the field of education, is designed to indicate the readability grade level as well as the difficulty of a reading passage it gives a general idea of how easy or difficult the passage is to understand. The grade level formula calculates several text statistics such as the number of syllables in a word and the number of words in a sentence. The end score corresponds to a specific grade level for which the passage is written. While this readability tool is not perfect, it provides a general sense of the passage’s readability level and can be used when adapting the TOOLBOX to any given grade (Thomas et al., 1975).

The learning environment in which the TOOLBOX approach is delivered plays a vital role in transforming students’ perceptions about themselves as readers, the art of reading, and their attitude towards reading. Students feel empowered when they take ownership of their learning. Learning should be relevant to real-world issues and/or personal experiences to which students can connect meaning and should appeal to a wide range of educational preferences and styles. This approach allows for deeper instruction as students focus completely on “thinking and doing,” delving deeper and engaging in collaborative dialogues versus “sprinting” through the materials. In other words, educators should design learning environments that provide interactive opportunities to help students develop critical thinking competency.
Classroom design also enhances the quality of learning. Universal Design for Learning [UDL] supports the creation of learning environments in which educators equalize learning opportunities that optimize what is relevant, valuable, and meaningful to all learners, taking into consideration the different abilities and extensive individual characteristics of the various learners (UDL, 2011). UDL environments foster collaboration and communication in the classroom. Students with and without disabilities tend to participate in their learning when the instructors practice effective interaction in the classroom (Tinto, 2007). McCroskey and McVetta (1978) identified the “horseshoe” seating arrangement as it permits teacher-to-student and student-to-student engagement. The teacher and the students are able to see and hear each other, prompting the respect and value of each individual’s ideas and increasing his or her desire to interact and be actively involved in the learning process.

In closing, the TOOLBOX contains a set of thought-provoking tools, which are used as a means to strengthen students’ thinking abilities and provide a sense of direction needed to explore and discover deeper learning. Educators can create flexible approaches to meet their students’ diverse skills, needs, and abilities. With use of selected tools, students are immediately involved in thinking as they read. Gradually and systematically, learning to focus their minds and improve their thinking, students will further enhance their ability to communicate clearly about what they read. And, as stated in the Learning Environments segment, considering UDL and integrating a “horseshoe” type classroom seating, fosters inclusive learning as everyone feels they are equal to their peers as they are able to see and hear each throughout the class period.
Gaps in the Research

It will be very difficult to meet the Obama administration’s goal of increasing the number of community college graduates by 5 million by 2020 without making significant progress on improving outcomes for students who arrive at community colleges with weak academic skills. (Bailey & Cho, 2010, p. 1)

Research on the overall remedial education suggests that the results of the varied practices have been disappointing. Despite students completing basic skills courses, they continue to struggle in college level courses and a large number of them do not attain a degree. Varied strategies and approaches currently being used to improve the readiness of college students who are academically under-prepared to read at the college-level were reviewed, such as KWL, SQ3R, SMART, CREATE, and several others. As Nist and Holschuh (2000) revealed that teachers believed they needed to provide extensive direct instruction and scaffolding to students before allowing them to identify learning strategies that best fit their needs. Hence, there is limited research that supports how these strategies and approaches are helping students develop the capacity to think for themselves about what they read. Students are rarely challenged to demonstrate what they have learned; rather, they are storing information in short-term memory that is later put back on a test.

Instead of students wasting their time absorbing someone else’s thinking, recalling de-contextualized or trivial facts to parrot back on a test, which is predominately how comprehension is being measured, students needed to be trained to think and ask questions, which would in turn make them think about their thinking. (J. M. Levine, personal communication, February 23, 2011)
“Finding better ways to address the needs of underprepared students is a necessity for meeting the Obama administration’s goal of increasing the number of community college graduates by 5 million by 2020” (Bailey & Cho, 2010, p. 51). Nationwide, educators are joining forces and calling for educational reform so as to come up with effective ways to begin to narrow the achievement gap. Common Core Standards are adopted with the intent to align curricula between high schools and higher education. Billions of dollars have been poured into initiatives as incentives to encourage educators to design and create innovative strategies that will address the increasing number of under-preparedness. Understanding important elements, such as the adult learning theory, a universal design for learning, and instructional quality have been addressed in the discussion as to how they can contribute to the design of an effective learning environment.

Carrying out this study can provide insight as to how using these tools to teach developmental reading can help students better understand what they read. The most effective interventions systematically develop students’ in-depth thinking processes and are delivered in a learning environment that is encouraging, stimulating, and rewarding. Examining this intervention can demonstrate how students perform academically. It will reveal if their perceptions of themselves as readers have changed over the course of the semester as they apply these tools, which require them to think about, and provide responses that demonstrate deep understanding about what they have read.
CHAPTER 3 – METHODOLOGY

Introduction

An outline of the research methodology and the data collection strategies as well as the research questions and central instruments are described in this chapter.

This Chapter focused on outlining the research methodology used to answer the research questions generated for this study. The research approach used and why it was chosen to examine its association with students’ academic performance and their perceptions of themselves as learners when using the TOOLBOX as an intervention in a community college developmental reading class are delineated in this chapter. Ten subsections within this chapter describe as follows: (1) Research Design; (2) Participant Sample; (3) Quantitative Method; (4) Key Research Questions; (5) Hypotheses; (6) Variables; (7) Instruments; (8) Data Collection; (9) Ethical Considerations; and, (10) Limitations.

Research Design

The purpose of this study was to examine the effects upon students’ academic performance and their perceptions of the classroom environment and course activities, the art of reading, and of themselves as learners when using the TOOLBOX as an intervention in a community college developmental reading class. A specific focus of this study was to investigate how the use of this reading-thinking intervention in a community college developmental reading class for one semester, was associated with measures of students’ academic performance and their perceptions of themselves as learners. The field of developmental reading at the community college level would benefit considerably by examining the association between the use of a reading-thinking
intervention and acquisition of reading skills. Important research data about the viability of an intervention should consider offering an alternative to the prevalent types of interventions for teaching developmental reading at the community college level. Data were analyzed using quantitative methodology techniques. The information gathered for this study derived from participants’ coursework, such as lessons, exams, pre- and post-tests.

Participant Sample

Students enrolled in the practitioner-researcher’s classes were the participants of this study. Data of this study were gathered from students (N=60) representing two sections of developmental reading at the institution being studied. Students enrolled in these courses were either placed there based on the results of the college entrance exam scores or by passing the course that is one level below the course being studied. The information for this study was derived during the Spring 2011 semester (January through May). The investigator conveyed this information both verbally and in writing so that participants could make a decision whether or not to participate in the study.

Quantitative Method

A number of demographic variables that were hypothesized account for differences in academic performance in the course were examined, and the statistical tools used for this study incorporated a variety of multivariate analysis models. The distribution of demographic variables governed the specific choice of statistical models. PASW Statistics 18.0 software was used to analyze the data (IBM, 2011).
Key Research Questions

The study examined measures of students’ academic performance and their perceptions of the classroom environment and course activities, the art of reading, and of themselves as learners, from using OUR READING TOOLBOX as an intervention by posing the following four key research questions:

Research Question One

What effect does using OUR READING TOOLBOX as an intervention have on students’ academic performance in a community college developmental reading course?

Research Question Two

What effect does using OUR READING TOOLBOX as an intervention have on students’ perceptions of the classroom environment and course activities, the art of reading, and of themselves as learners in a community college developmental reading course?

Research Question Three

What effect does using OUR READING TOOLBOX as an intervention have on students’ academic performance when considering the demographics of gender, age, ethnicity, and native language in a community college developmental reading course?

Research Question Four

What effect does using OUR READING TOOLBOX as an intervention have on students’ perceptions of the classroom environment and course activities, the art of reading, and of themselves as learners when considering the demographics of gender, age, ethnicity, and native language in a community college developmental reading course?
Hypotheses

The research questions served to develop and test the following hypotheses at the .05 confidence level.

H1.1 There will be no significant association between the Post-Test Scores and the measures of the TOOLBOX assignments, tests, and NRR activities.

H1.2 There will be no significant association between the Gain Scores and the measures of the TOOLBOX assignments, tests, and NRR activities.

H2.1 There will be no significant association between the Post-Test Scores and the scores obtained from the student survey instrument.

H2.2 There will be no significant association between the Gain Scores and the scores obtained from the student survey instrument.

H2.3 There will be no significant association between the Total Points Earned and the scores obtained from the student survey instrument.

H3.1.1 There will be no significant differences on Post-Test Scores between male and female students.

H3.1.2 There will be no significant differences on Post-Test Scores between age groups.

H3.1.3 There will be no significant differences on Post-Test Scores between ethnic groups.

H3.1.4 There will be no significant differences on Post-Test Scores between English native language and other language.

H3.2.1 There will be no significant differences on Gain Scores between male and female students.

H3.2.2 There will be no significant differences on Gain Scores between age groups.

H3.2.3 There will be no significant differences on Gain Scores between ethnic groups.
H3.2.4 There will be no significant differences on Gain Scores between English native language and other language.

H3.3.1 There will be no significant differences on Total Points Earned between male and female students.

H3.3.2 There will be no significant differences on Total Points Earned between age groups.

H3.3.3 There will be no significant differences on Total Points Earned between ethnic groups.

H3.3.4 There will be no significant differences on Total Points Earned between English native language and other language.

H4.1 There will be no significant differences between males and females on Student Survey Instrument Scores.

H4.2 There will be no significant differences between age groups on Student Survey Instrument Scores.

H4.3 There will be no significant differences between ethnic groups on Student Survey Instrument Scores.

H4.4 There will be no significant differences between English native language students and other native language students on Student Survey Instrument Scores.

Variables

The primary independent variables used in the study represented the demographics of the participants from this study:

- IV: Gender
  - IV_{Female} = Female
  - IV_{Male} = Male
• IV: Age
  • IV$_{17-24}$ = 17 - 24
  • IV$_{25-40}$ = 25 – 40
  • IV$_{41-55}$ = 41 – 55
  • IV$_{56+}$ = 56 +

• IV: Ethnicity
  • IV$_{AA}$ = African-American
  • IV$_{Asian}$ =Asian
  • IV$_{Cauc}$ = Caucasian
  • IV$_{Hisp}$ =Hispanic

• IV: Primary Language Status
  • IV$_{Engl}$ =English
  • IV$_{Other}$ =Non- Native English

• IV: Course Assignments
  • IV$_{ORT}$ = TOOLBOX assignments
  • IV$_{NRR}$ = Newspaper/Novel Read and Respond lessons
  • IV$_{Tests}$ = ORT Tests

The dependent variables in this study were the Post-test scores, gain scores, total points earned, and the student survey instrument scores;

• DV$_{PTS}$: Post-Test Scores
• DV$_{G}$: Gain Scores
• DV$_{TPE}$: Total Points Earned
• DV$_{SSI}$: Student Survey Instrument Scores
Instruments

Information obtained for this study was derived during this Spring 2011 semester from routine course materials and assessments. This information included results from the course pre-test, post-test, 25 regular course lessons, four exams, a mid-term, a final, and other activities ordinarily encountered in regular class sessions. Each class met for 75 minutes and there were 32 class meetings in one semester. As a routine part of the course, students were asked to complete a Student Survey Questionnaire, a Student Open-ended Questionnaire (see Appendix G), and a Student Information Sheet (see Appendix H), so as to gather the students’ learning experience while enrolled in this course as well as demographic information. The survey included questions about their perception of the classroom environment and course activities, the art of reading, and of themselves as learners. A Student Information Sheet was designed to gather information concerning student demographics including gender, age, ethnicity, and first language. Below is a description of the two measures used to collect data concerning students’ perceptions of reading.

(1) Student Survey Instrument provided insights to students’ perceptions of the classroom environment and course activities, reading, and of themselves as learners in a community college developmental reading course, as well as information concerning students’ attitudes, their sense of involvement and participation, their motivation and interest, and their sense of purpose in daily lessons and activities in class and outside of class. The Student Survey Instrument contained 18 questions in the form of 5-point Likert scales as follows: 5=Strongly Agree, 4=Agree, 3=Undecided, 2=Disagree, 1=Strongly Disagree (see Figure 3).
I found myself involved and engaged in the class work and assignments in this course.

- Strongly Agree
- Agree
- Undecided
- Disagree
- Strongly Disagree

**Figure 3.** Sample Student Survey Instrument question

(2) Student Open-ended Questionnaire allowed students to respond to the following three open-ended questions, which provided the researcher with substantive information for a qualitative content analysis:

1. How has your experience using the TOOLBOX affected your perception of yourself as a reader?
2. Describe how using the TOOLBOX affected your reading ability.
3. How has your experience using the TOOLBOX affected your attitude towards reading?

The purpose of the Pre-Test was to assess students’ reading comprehension skills levels and obtain a baseline measure before introducing them to the TOOLBOX intervention implemented in the developmental reading course. During the first week of the semester, the reading instructor administered the Pre-Tests to all students enrolled in the two sections of the developmental reading courses identified for this study. Using a counter-balanced test design, group 1 read a passage and responded to prompts for Test A, and group 2 read an alternate form of the test, also reading a passage and responded to prompts for Test B. The reading course outline defined the exit level students needed to obtain by the end of the semester. The Flesch-Kincaid Grade Level (Thomas et al., 1975)
tool was applied to verify the readability level of the passage to ensure it was written at the appropriate reading level. The purpose of the prompts given help direct the students thinking as they read. Every student answered the prompts that incorporated the use of 12 tools utilized by the TOOLBOX intervention to improve reading comprehension skills. Students completed the Pre-Test assessment during one regular 75-minute class meeting as part of the standard curriculum. Students received minimal directions to complete the assessment to show authentic administration of the tool. The tools used were: (1) Paraphrase; (2) Headline Created; (3) Significant Sentence Selected; (4) Vital Question Posed; (5) Issue/Problem Identified; (6) Purpose; (7) SEEI; (8) Conclusion; (9) Assumptions; (10) Implications/Consequences; (11) Solution/Recommendation; and, (12) Speaking in the Author’s Voice.

After experiencing the intervention for one semester, students took the alternate forms of the tests used for the Pre-test, as the Post-test. The purpose of the Post-Test was to assess students’ exit level of reading comprehension skills after completing the developmental reading course that implemented the TOOLBOX intervention. The reading instructor administered the Post-tests during the last week of the semester to all students still enrolled in the two sections of developmental reading identified for this study. Students spent 75-minutes, the entire class period, to complete the Post-Test. The instructor provided minimal directions, again administering in a manner that represented authentic use of the tool. The group who took form A of the Pre-test, took form B of the Post-test, and the group who took form B as the Pre-test, at the end of the semester took form A as their Post-test. (See Figure 4)
Before the scoring of the Pre- and Post-tests, the researcher removed all participants’ names to preserve their anonymity before any scoring took place. To ensure that the data collected remained unbiased, three reading-thinking intervention experts were identified to norm the TOOLBOX Outcome Rubric used to yield scores for the Pre- and Post-Test responses. The expert team had extensive experience working with the TOOLBOX, using it to develop curriculum. They were familiar with the Outcome Rubric and how to apply it when evaluating students’ work. The experts have also co-presented on this topic, with and without the researcher, at numerous conferences.

Both Pre- and Post-Tests were collected and graded at the same time to avoid pre-judgment of students’ ability from the expert raters. Each expert independently assessed the quality of the students’ Pre- and Post-Test responses by using this Outcome Rubric specially designed to evaluate the use of the 12 tools. To address the issue of possible investigator bias, the course instructor did not take part in scoring the Pre- and Post-Tests. The instructor coded all Pre- and Post-Tests before submitting them to the experts who independently rated all the tests. Pre- and Post-Tests were scored at the same time, and those scores were summed. In order to adjust for Pre- and Post-Test score inflation, experts did not know if the test they were rating was a Pre- or Post-Test. The counter-
balanced design as well as the use of the Flesch-Kincaid readability tool to determine equivalency of forms were introduced to assure inter-rater reliability among judges independently scoring Pre- and Post-Tests (Colorado State University, 2011). This approach served to mitigate potential bias related to individual differences among the judges.

Data Collection

Data obtained for this study were derived from standard course curriculum that was designed and approved to be used for this course. Scores on specially designed Pre-Test and Post-Test, and a review of class records were evaluated for Question One and Question Three. Regarding the four research questions listed on page 60, Question Three differs from Question One as it examined demographics of gender, age, ethnicity, and native language associated with Total Points Earned, Gain-Scores and Post-Test Scores. Data pertaining to Questions Two and Four were collected through an end-of-semester Student Survey Instrument to assess students’ perceptions of the classroom environment and course activities, the art of reading, and of themselves as learners. Question Four also examined demographics of gender, age, ethnicity, and native language.

Students’ participation in this study did not affect or deprive students of any instruction and they had full exposure to the curriculum. The information was comprised of results from the course Pre-test, Post-test, 25 regular course lessons, four exams, a mid-term, a final, and other activities ordinarily encountered in regular class sessions. As a routine part of the course, students filled-out a Student Information Sheet, and responded to a Student Survey Questionnaire and a Student Open-ended Questionnaire
where they describe their learning experience while enrolled in this course. The survey included questions about their perception of the classroom environment and course activities, the art of reading, and of themselves as learners, which were analyzed by the investigator using the PASW Statistics 18.0 software, a comprehensive statistical tool used to solve research problems (IBM, 2011).

Ethical Considerations

This study was considered and approved by SDSU Institutional Research Board as an Exempt Research based on the following criteria. For this study, there was no advertising for the purpose of recruiting participants. A signed consent is generally not required for exempt research. The investigator provided adequate information about the research to potential subjects so that an informed decision could be made as to whether or not they would agree to having their course information (i.e., pre- & post-tests, other course assignments) used as part of the study. The investigator conveyed this information both verbally and in writing. It was made clear to students that their decision whether or not to participate would not affect their grades nor influence their future relationship with the teacher/investigator.

Existing data were used for the study, including results from the course pre-test, post-test, 25 regular course lessons that incorporated a different combination of the tools for each of the activities, four exams, a mid-term, a final, and other activities ordinarily encountered in regular class sessions. To respect personal and academic privacy, all students’ personal and academic information was self-reported and no information was obtained from official school records. There was no violation of confidentiality since all information was coded and all individual identifiers were removed, shredded and
discarded by the researcher to ensure data collected remained confidential. All data were secured in a locked drawer located in the researcher’s office of employment and destroyed when the dissertation was completed. Neither audio recordings, video recordings, nor focus group interviews were conducted in this study.

Limitations

Limitations of this study are the following: The sample used for this study is not a probability based sample. The study takes place in one setting, a developmental reading course at a Hispanic Serving Institution (HSI). The outcome skill is narrowly focused on developmental reading. The generalizability is questionable with regard to the broad spectrum of the student demographic groups, other settings, and a broader array of academic disciplines. There is one instructor carrying out the study, resulting in uniformity of course delivery. This study therefore is representative of a ‘nested variable’ design (Mertler & Vannetta, 2010) in that the ORT intervention is implemented by only one instructor with a unique set of skill and attitudes.
CHAPTER 4 – DATA ANALYSIS

Introduction

Chapter Four provides an overview of the data analysis. The findings answered the four key research questions articulated for this study. The purpose of the study was to examine the effects on students’ academic performance and their perceptions of the classroom environment and course activities, the art of reading, and of themselves as learners when using OUR READING TOOLBOX (TOOLBOX) as an intervention in a community college developmental reading class. By examining the TOOLBOX, a thinking-centered intervention, insights were gained as to how it fostered students’ abilities to create original thoughts about what they read in a systematic way. This research provided information on how using these tools to teach developmental reading helped students enhance their ability to think well and improve their reading performance.

This chapter is divided into the following sub-sections so that the research data obtained can be readily understood. (1) A Brief Review of Methodology reiterates the four research questions that drove this study, and the research design used for gathering the data to address these questions; (2) Descriptive Statistics identified the selected Demographic Data (independent variables) about the participants in this study; (3) Cross Tabulations further analyzed the demographic data found under Descriptive Statistics, showing the interrelationships across the selected demographic data (e.g. Hispanic, male, 17-25, and English as primary language); (4) Descriptive Statistics Regarding Student Survey Instrument identified the three sub-scale scores from the survey questionnaire which are: the classroom environment and activity, the art of reading, and, of themselves
as learners; (5) *Findings of Four Key Research Questions* were divided by and discussed within the following four sub-headings, Effects on Academic Performance; Effects on Students’ Perceptions; Effects on Academic Performance by Demographics; and, Effects on Perceptions by Demographics; (6) *Content Analysis of Open-Ended Statement* illustrated the themes that emerged for each of the three open-ended questions; and, (7) a *Brief Summary of Data Analysis* as a basis for discussion and to make conclusions, as well as make recommendations to present in Chapter Five.

**Brief Review of Methodology**

This brief review of the methodology reiterates the research design used for gathering the data to address the four research questions that drove this study. The research method used for this study was predominately quantitative, with a brief qualitative content analysis. A number of demographic variables that accounted for differences in academic performance in the course of the participants, such as gender, age, ethnicity, and language, are included under the descriptive statistics section. Key findings that resulted from testing the hypotheses put forth in the study were examined using the software PASW Statistics 18.0 tool. A variety of multivariate analysis models were incorporated to analyze the data in this study. The specific choice of statistical models was governed by the distribution of demographic variables.

This quantitative analysis was relevant to research Questions One, Two, Three, and Four. The data was gathered from the students’ course work, tests, and survey instruments during the Spring 2011 semester. After providing adequate information about the research to potential subjects, they made a decision as to whether or not they would agree to having their course information (i.e., pre- & post-tests, other course
assignments) used as part of the study. The investigator conveyed this information both verbally and in writing. It was made clear to students that their decision, whether or not to participate, would not affect their grades nor influence their future relationship with the teacher/investigator. To respect personal and academic privacy, all students’ personal and academic information was self-reported and no information was obtained from official school records.

The qualitative data for the content analyses were obtained from three open-ended questions concerning the students’ perceptions, abilities, and attitudes towards reading. The purpose of the qualitative component was to gain insight concerning the effects the TOOLBOX had on students’ perceptions towards reading relevant to research questions two and four. Substantial information was gathered for each question. These responses were coded and placed into various categories. Several themes emerged from these responses and the range of comments for the three questions yielded significant information concerning students’ perceptions about themselves as readers, abilities, and attitudes towards reading.

The quantitative and qualitative data analyses provided a comprehensive overview concerning the effects on students’ academic performance and their perceptions of the classroom environment and course activities, the art of reading, and of themselves as learners when using the TOOLBOX as an intervention in a community college developmental reading class.

Descriptive Statistics of Demographic Data

Descriptive statistics identified the four selected demographic variables represented in this study, which included gender, age, ethnicity, and language. There
were a total of 60 participants in this study, a 100% response rate. Demographic information concerning participants’ gender revealed there were a total of 38 or 63% females and 22 or 37% males. The demographic breakdown information delineating participants’ ages depicted 54 or 90% of the students were 24 years old or younger, and only six, or 10% of the participants were 25 years or older. There was no representation of the 56+ age group this semester. The demographic information depicting ethnicity was self-reported by participants. Out of the 60 students, a total of 45 Hispanic students represented 75% of the participants, while only six or 10% identified themselves as African-American, and nine or 15% self-reported Asian-American as their ethnicity. There was no representation of the Caucasian students, although there have been Caucasian students enrolled in past semesters. Demographic information concerning Primary Language was self-reported by participants. Out of the 60 students, a total of 23 or 38% of students self-reported that English was their primary language. A larger number, 37 out of 60, or 62% identified their primary language as Other.

Cross-Tabulations of Demographic Data

To delve deeper into and further analyze the demographics of the participants, the investigator ran three cross-tabulations of Gender by Ethnicity, Gender by First Language, and Ethnicity by First Language that showed the interrelationships across the selected demographics. The results illustrated the following:

The cross-tabulation of Gender by Ethnicity illustrated an equal number of African-American female (3) and male (3) participants. Asian-American female (4) and male (5) participants were almost evenly divided. However, the Hispanic students comprised the largest ethnic group, and within this group there were twice as many
females (31) than males (14). In the cross-tabulation of Gender by First Language, the outcome displayed that the larger number of participants, who self-reported English as their primary language, were females (14) when compared to male (9) participants. There were more females (24) than males (13) whose first language was not English. Overall, females were the highest represented group, and of that group, the largest number was the female group whose primary language was not English.

Three ethnic groups, African-American, Asian, and Hispanic, along with the number of participants from each group whose first language is English or Other were depicted in cross-tabulation of Ethnicity by First Language. Of the 60 participants, there were no African-American participants whose first language was Other. Approximately half (5) of the Asian-American group self-reported English being their primary language and the other half (4) reported Other, meaning English was not their first language. In the Hispanic group, one-fourth (12) of the students stated English was their primary language while almost three-fourths (33) claimed Other as their primary language. This result can be attributed to the fact that the college is a Hispanic Serving Institution.

Descriptive Statistics Regarding Student Survey Instrument

As a routine part of the courses being used for this study, students completed a Student Survey Questionnaire that contained three sub-scales. The purpose of the Student Survey Questionnaire Instrument was to gain insight into students’ perceptions of the classroom environment and course activities, the art of reading, and of themselves as learners in a community college developmental reading course, such as information concerning students’ attitudes, their sense of involvement and participation, their
motivation and interest, and their sense of purpose in daily lessons and activities in class and outside of class. There was a 100% response rate from the participants.

An item analysis was conducted for each of the three sub-scales. Results of these three analyses revealed acceptable levels of internal consistency reliability. An exploratory factor analysis was conducted to assess the level of orthogonality among the three sub-scales. Results of this analysis suggest that further work might be in order in terms of the instruments refinement.

Survey sub-scales information is as follows: There are three sub-scale scores, (1) Classroom Environment and Course Activities, (2) the Art of Reading, and (3) of Themselves as Learners, consist of six questions per section, in which each question was rated using a Likert Scale, ranging from 1 (Strongly Disagree) to 5 (Highly agree). The Mean for each section had a possible range from 6 (very turned off) to 30 (extremely thrilled). Scores for the three areas were remarkably similar, Classroom Environment and Course Activities (M=27.27, SD=2.483), the Art of Reading (M=26.10, SD=3.224), and Of Themselves as Learners (M=26.40, SD=3.310).

Of the 18 Student Survey Questions, the investigator identified three of the highest-scored responses and the three of the lowest scored responses. The three questions with highest Mean scores referred to “Meaningful Activities” (M=4.60, SD=.567), “Useful Feedback” (M=4.67, SD=.542), and, “Tools were Helpful in Class and in Life” (M=4.77, SD=.465) with five points being the highest possible score. The three questions that had the lowest Mean scores referred to “Reading is Essential in Life” (M=4.13, SD=.947), “Interest in Reading” (M=4.17, SD=.763), and, “Look Forward to Reading” (M=4.18, SD=.770). The difference in these scores was 0.5 and the
interpretation was that although students enjoyed using the tools, the art of reading was their least favorite or top activity. Overall, the Student Survey responses illustrated a very positive learning experience.

Findings of Key Research Questions

The four research questions served as the basis for generating the statistical formulas used to test the various hypotheses at the .05 level of significance. The study examined measures of students’ academic performance and their perceptions of the classroom environment and course activities, the art of reading, and of themselves as learners, from using OUR READING TOOLBOX as an intervention.

Association between Post-Tests Scores and Academic Performance

Research Question One

What effect does using OUR READING TOOLBOX as an intervention have on students’ academic performance in a community college developmental reading course?

The Hypotheses related to Question One are the following:

H1.1: The outcome of the multiple linear regression technique revealed that there is a statistically significant association between Post-Tests Scores and course assignments as shown in Table 1 below.

Table 1

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>126.811</td>
<td>3</td>
<td>42.270</td>
<td>6.788</td>
<td>.001a</td>
</tr>
<tr>
<td>Residual</td>
<td>348.735</td>
<td>56</td>
<td>6.227</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>475.546</td>
<td>59</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
A follow-up analysis of the data found that the dependent variable PTS had the strongest relationship with the independent variable ORT ($r = .463$). There was also a correlation with the independent variable Test Scores ($r = .304$). The only independent variable that was not significant was NRR ($r = .186$).

H$_{1.2}$: Analysis of data found that the dependent variable GS had no significant correlation with any of the three independent variables ORT, Tests, and NRR.

*Association between Students’ Perceptions and Academic Performance*

Research Question Two

What effect does using OUR READING TOOLBOX as an intervention have on students’ perceptions of the classroom environment and course activities, the art of reading, and of themselves as learners in a community college developmental reading course?

The Hypotheses related to Question Two are the following:

H$_{2.1}$: The data analysis revealed a statistically significant association of the dependent variable PTS with the three sub-scale scores of the SSI – Classroom Environment and Course Activities, the Art of Reading, and Of Yourself as a Learner as shown in Table 2 below.

Table 2

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>59.724</td>
<td>3</td>
<td>19.908</td>
<td>2.681</td>
<td>.056</td>
</tr>
<tr>
<td>Residual</td>
<td>415.822</td>
<td>56</td>
<td>7.425</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>475.546</td>
<td>59</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A follow-up analysis of the data found that the dependent variable PTS had the strongest relationship with the independent variable and two of the three independent
variables taken by themselves, Classroom Environment \((r=.348, p=.003)\), and, Of Yourself as Learner \((r=.251, p=.027)\). The Art of Reading \((r=.190, p=.073)\) was not significant.

\textbf{H2.2}: There were no significant findings regarding the multiple linear regression of the dependent variable GS and the three sub-scale scores of the Student Survey Instrument, classroom environment, yourself as learner, and the art of reading.

\textbf{H2.3}: There were significant findings when using the multiple linear regression technique on the dependent variable TPE and the independent variables of the three sub-scale scores of the SSI, Classroom Environment \((r=.670, p<.001)\), Yourself as a Learner \((r=.672, p<.001)\), and the Art of Reading \((r=.546, p<.001)\) as shown in Table 3 below.

\begin{table}[h]
\centering
\begin{tabular}{lccccc}
\hline
Model & Sum of Squares & df & Mean Square & \(F\) & Sig. \\
\hline
Regression & 386983.8 & 3 & 128994.615 & 19.859 & \(0.000^a\) \\
Residual & 363741.8 & 56 & 6495.390 & & \\
Total & 750725.7 & 59 & & & \\
\hline
\end{tabular}
\caption{Regression; Association of TPE w/ Three Sub-Scale Scores of SSI}
\end{table}

\textit{Association between Academic Performance and Demographic Data}

\textbf{Research Question Three}

What effect does using OUR READING TOOLBOX as an intervention have on students’ academic performance when considering the demographics of gender, age, ethnicity, and native language in a community college developmental reading course?
The Hypotheses related to Question Three are the following:

H3.1.1: There were no significant differences based on the results of the \( t \)-test regarding the outcome measure on PTS between gender.

H3.1.2: There were no significant differences based on the results of a one-way analysis of variance on the outcome measure on PTS between Age groups.

H3.1.3: There were no significant differences based on the results of a one-way analysis of variance on the outcome measure on PTS between Ethnic groups.

H3.1.4: A statistically significant difference was found on PTS between Language groups \( (t=2.381, \text{df}=58, p=.021) \). The Mean PTS for the two groups are English=18.6739 and Other = 16.9459.

H3.2.1: There were no significant differences based on the results of the \( t \)-test regarding the outcome measure GS between gender (female and male).

H3.2.2: There were no significant differences based on the results of a one-way analysis of variance on the outcome measure on GS between Age groups.

H3.2.3: There were no significant differences based on the results of a one-way analysis of variance on the outcome measure on GS between Ethnic groups.

H3.2.4: There were no significant differences based on the results of the \( t \)-test regarding the outcome measure on GS between Language groups (English and Other).

H3.3.1: There were no significant differences based on the results of the \( t \)-test regarding the outcome measure on TPE between gender.

H3.3.2: There were no significant differences based on the results of a one-way analysis of variance on the outcome measure on TPE between Age groups.
H₃.₃.₃: There were no significant differences based on the results of a one-way analysis of variance on the outcome measure on TPE between Ethnic groups.

H₃.₃.₄: There were no significant differences based on the results of the $t$-test regarding the outcome measure of TPE between Language groups.

*Association between Expressed Perceptions and Demographics*

**Research Question Four**

What effect does using OUR READING TOOLBOX as an intervention have on students’ perceptions of the classroom environment and course activities, the art of reading, and of themselves as learners when considering the demographics of gender, age, ethnicity, and native language in a community college developmental reading course?

The Hypotheses related to Question Four are the following:

H₄.₁. There were no significant differences based on the results of the $t$-test regarding the outcome measure of Student Survey Instrument, regarding gender groups.

H₄.₂: There were statistically significant differences based on the results of a one-way analysis of variance on the outcome measure on SSI between Age groups.

Results in the analysis revealed the following significant finding $[F (2,57)=3.868, p=.027]$. Despite this significant finding, they should be interpreted with caution as the homogeneity of variance assumption was not met. The Mean scores for each of the three age groups are as follows: 17-24 = 78.8, 25-40= 87.5, 41-55=89.5. Post-Hoc analysis revealed significant differences between the 17 - 24 group and the 25-40 group ($p=.003$) as well as significant differences between the 17-24 group and the 41-55 group ($p<.001$).
H₄.₃: There were no significant differences based on the results of a one-way analysis of variance on the outcome measures between Ethnicity on Student Survey Instrument.

H₄.₄: There were no significant differences based on the results of the $t$-test regarding the outcome measure of Total Survey Scores between Language groups (English and Other).

Content Analysis of Open-Ended Statements

The purpose of the qualitative content analysis was to gain insight into students’ perceptions and better understand individual experiences of using the TOOLBOX by coding the responses and identifying emerging themes. To acquire this information, at the end of the semester each student responded to a Student Open-ended Questionnaire containing three open-ended questions. The three questions were:

1. How has your experience using the TOOLBOX affected your perception of yourself as a reader?

2. Describe how using the TOOLBOX affected your reading ability.

3. How has your experience using the TOOLBOX affected your attitude towards reading?

Substantial information for the content analysis was gathered from 60 students, as all the students responded to all three open-ended questions. The initial analysis consisted of reviewing question by question. All the comments were read and placed into groups and then coded. A number of the responses were of a brief and general nature, nevertheless with positive reactions, such as, “I love the TOOLBOX,” “It was a great experience,” “My attitude changed.” Certain themes emerged from the comments, which
were then re-coded and collapsed. The range of comments in response to the three questions yielded clearer information concerning students’ perception, ability, and attitude. The themes and sub-themes are addressed according to these areas.

Question One examined how using the TOOLBOX affected students’ perception of themselves as readers. The TOOLBOX was designed to help students develop thinking skills by utilizing a set of tools that actively engage the mind in deeper thinking for the purpose of understanding and retaining knowledge longer than beyond the test or duration of the course. “Children and adults often greatly underutilize their thinking capabilities” (Ritchhart & Perkins, 2008, p. 58). In analyzing Question One, the theme of Creating a Culture of Learning emerged. The goal of learning is not only to think deeply about what one is learning, but also to understand it (Ritchhart & Perkins, 2008). Providing modeling and prompting in several ways, allowing for flexible group work, and assigning multiple roles to students, assisted students in learning how to work effectively, thereby creating a culture of learning.

Sub-themes were comprised of Awareness, Understanding, and Inquisitiveness. Students felt academically engaged and encouraged to complete assignments when the instructor recognized their efforts, which indicated the significance of teacher encouragement as an incentive for students to work hard (Tinto, 2009). In writing about their specific experience, students repeatedly made the following types of comments, comprising the sub-theme Awareness. “Before, I was only reading words without understanding,” “I now understand the purpose for reading,” and, “When I began using the TOOLBOX, it opened up my eyes to how much I could NOT comprehend.” “Students actively seek the wide, deep, and thoughtful engagement with high-quality
literary and informational texts that builds knowledge, enlarges experience, and broadens worldviews” (Common Core State Standards Initiative, 2010). With the sub-theme of Understanding the following statements were made, “Each tool helped me better understand the reading,” “I know how to break down the reading to read better and clearly understand” “Using the toolbox deepened my understanding about what I am reading.” Students not only achieved their learning objectives, but also felt empowered, taking ownership of their learning. Third sub-theme focused on Inquisitiveness. Several students communicated this new attitude for inquiry, for example, “I am more intrigued in reading,” and “I am interested in reading new things such as global issues.” Curriculum of high-interest kept students interested and engaged in their learning.

Question Two asked students to describe the effects the TOOLBOX had on their reading ability. Adult students tend to underestimate their ability to learn and resist learning new ideas or approaches (Pennington, 2011). Students independently developed the quality of their thinking, acquiring a deeper level of understanding about what they read. Development of Comprehension Skills was the overall theme that evolved from this question. Use of the tools helped foster students’ ability to express or articulate creative thoughts about what they read. Two sub-themes identified were Know-how and Reading Strategies for interaction/connections. Learning was relevant to real-world issues and/or personal experiences to which students could connect meaning. In the domain of Know-how, students mentioned “Reading is easier because each tool explained how the important things can be found.” A recurring comment was “I am able to look at reading in different ways with the tools.” Students expressed how their ability to read was impacted through the TOOLBOX experience with comments such as “It made me a
better reader by learning techniques that are useful to break down the readings and understand them completely.” Each tool focused students’ minds to independently analyze and interpret the readings to learn the materials versus recalling de-contextualized or trivial facts to recite back on a test.

*Reading Strategies for interaction/connections* was another sub-theme in this domain. Students used selected thinking-centered tools to derive meaning on passages, developing a capacity to think for themselves. Students noted how these strategies worked. “I interact more with the reading.” “I can make personal connections/make meaning with the reading.” And, “I can read with an idea or question in my head to find the answers while I am reading.” One significant statement made in support of this sub-theme was “Using the Toolbox helps me breakdown the reading materials into small pieces and allows me to put little bits of information together to show a whole detailed piece.” This approach allowed for deeper instruction as students focused completely on “thinking and doing,” delving deeper and engaging in collaborative dialogues versus “sprinting” through the materials.

Question Three focused on the TOOLBOX experience and how it affected their attitudes towards reading. Knowles’ theory (1978) indicated adult students lack self-confidence that may be related to previous academic failures, and recommended educators communicate to students the purpose of why it is important to learn a specific content. Students’ responses to Question Three provided an insight on students’ disposition, or change in behavior and effects the TOOLBOX had on their personal motivation, confidence, and worth. Students provided a number of examples that reflected a high level of *self-efficacy*, making it the overall theme for Question Three.
With guidance and nurturing, learners gained confidence, courage, and increase in self-esteem, in a learning environment in which the instructor equalized learning opportunities that optimized what is relevant, valuable, and meaningful to all learners. Motivation was a sub-theme based on the following comments. “I enjoy reading more than before and find reading more interesting,” “I want to keep reading a variety of books, and understand what I read,” and as students had enhanced their reading skills, they realized “Reading isn’t that boring anymore and my interest to read books has increased.” Differences in abilities and extensive individual characteristics of the various learners were taken into consideration (UDL, 2011). These students were motivated to read which lead to the second sub-theme of confidence. Students shared the following statements “I feel more comfortable with figuring out the text I read.” “I feel more relaxed, not stressed out and I have a more positive attitude when reading.”

Students welcomed the challenge in their learning versus being told “what to know” for the test, revealing their level of self-confidence had increased. Students voiced the following, “I no longer have to worry that I won’t understand what I read.” Increased motivation and confidence allowed students to feel competent, elevating their sense of Worth. A number of students expressed a positive change in their attitude through the following statements. “Reading now seems worthwhile and the information is useful,” “Learning how to read well will help me in the future,” and several acknowledged the Worth of reading making the following statements, “I understand the value of reading and the importance of being able to read well.” The TOOLBOX contains a set of thought-provoking tools, which are used to strengthen students’ thinking abilities and provide a sense of direction needed to explore and discover deeper learning.
Overall, students made positive comments on all three open-ended questions, which gave a representation that the experience using the TOOLBOX was beneficial in numerous ways. After using the TOOLBOX, students’ perceptions of reading had improved. They felt they had the skills and tools to be able to read and understand what they read. Having a different perception about reading and knowing they had the ability to better understand what they read, served to transform these students’ attitudes, or dispositions.

Summary

This study attempted to provide insights as to the effects upon students’ academic performance and their perceptions of the classroom environment and course activities, the art of reading, and of themselves as learners, when using the TOOLBOX as an intervention in a community college developmental reading class. The data collected and analyzed were used to answer the four research questions, and gain insights in two key areas: (1) students’ academic performance in terms of class grades and assignments; and (2) students’ perceptions of classroom environment and course activities, the art of reading, and of themselves as learners. The data analysis serves as a basis for the discussion, drawing conclusions, and making recommendations presented in Chapter Five. The discussion will provide responses to the key research questions, and conclusions will be made about the findings. Implications for specific stakeholders will be outlined and recommendations will be identified for practice and or future research.
CHAPTER 5 – DISCUSSION

Introduction

Chapter Five provides the discussion and conclusions reached based on the findings from the data analysis in Chapter Four, and similarly examines key implications and makes recommendations for practice in the field and for future research.

Examining the effects of the TOOLBOX provided valuable data on how a thinking-centered approach was used as an intervention to begin to address the general problem of students arriving to community colleges unprepared to succeed in college. This study examined the effects upon students’ academic performance and their perceptions of the classroom environment and course activities, the art of reading, and of themselves as learners when using the TOOLBOX as an intervention in a community college developmental reading class. The findings of this study revealed how this approach supported positive student outcomes, accelerated students’ progress for those enrolled in basic skills courses, and most importantly, that the revised curricula and teaching methods used in this approach helped students enrolled in developmental reading reach an academic goal (ATD, 2009; DEI, 2009; Obama, 2010). The outcomes provided initial data indicating the effectiveness of this new intervention, as a way of approaching the teaching of developmental reading. Approaches, such as KWL and SQ3R, “generally have not been strongly supported by empirical research that directly tests them” (Grabe, 2009, p. 231). The model used to evaluate the effectiveness of this Thinking-Centered approach could also be adapted to evaluate other prevalent interventions used in the teaching of reading.
Discussion/Conclusions

For this study, a problem was stated and four key research questions drove the research to investigate this problem. A variety of data, using predominantly quantitative methodology, enhanced by qualitative data, were collected from 60 participants to address these questions. The data were analyzed in Chapter Four, highlighting the results. These results serve as the basis for reaching the following conclusions for each question.

Research Question One

What effect does using OUR READING TOOLBOX as an intervention have on students’ academic performance in a community college developmental reading course?

Quantitative data gathered and analyzed for Question One purported the TOOLBOX had a positive effect on students’ academic performance. Using a multiple linear regression technique, the intent was to find possible associations of the dependent variables, Post-Test Scores and Gain Scores, with the three independent variables that were comprised of three different types of assignments, Toolbox lessons (ORT), Novel Reading Responses (NRR), and Tests. Outcomes of this question revealed that for the participants’ academic performance there was statistical significance with the ORT assignments and Tests when associated with the Post-Tests. The outcome of the multiple linear regression technique revealed the relationship between the Post-Test scores with course assignments and exams, all of which employed the TOOLBOX, revealed students performed well academically.

Conclusion One: Students demonstrated a significantly higher level of comprehension and thinking ability after using OUR READING TOOLBOX (TOOLBOX).
Conclusion Two: Successful development of reading skills requires that students be provided with extensive guided practice using substantive and meaningful intellectual tools and strategies.

Two conclusions were reached for Question One, concerning the effects the TOOLBOX had upon students’ academic performance when they employed the tools in all the course work and exams completed throughout the semester. They read and responded to prompts by using a different combination of the tools on specifically selected readings. The continuity of applying various tools to substantive readings, on homework or exams throughout the semester, gave the students an opportunity to learn how to think deeply about and understand what they read.

Using the thinking-centered tools of the TOOLBOX, students do not just read words, but rather think about those words in specified ways. As directed by individual tools for the purpose of understanding what they read, students expressed their own thoughts about that text. The twelve tools found in the TOOLBOX engaged the students’ minds in a specific type of intellectual activity that enabled them to voice cogent thoughts about what they read. By using the TOOLBOX, students acquired the standard comprehension skills such as main ideas, supporting details, inferences, and vocabulary, which was cultivated in a thinking-centered reading classroom. The purpose of implementing this thought process was to eliminate the “storing of information in short-term memory” that would be gone the minute after the learners were done taking tests (Brady, 2008).

Supporting these conclusions are the open-ended responses students wrote about the effects the TOOLBOX had on their reading ability. The TOOLBOX was designed to
help students develop thinking skills by utilizing a set of tools that actively engage the mind in deeper thinking for the purpose of understanding and retaining knowledge longer than beyond the test or duration of the course. This is how students Developed Comprehension Skills, as the tools helped foster students’ ability to express or articulate creative thoughts about what they read, leading into the domain of Know-how. Students learned how to apply the tools to text making reading “easier because each tool explains how the important things can be found.” “It made me a better reader by learning techniques that are useful to break down the readings and understand it completely.” Students expressed how their ability to read was impacted through the TOOLBOX experience. Students used selected thinking-centered tools to derive meaning on passages, developing a capacity to think for themselves conveying the theme of Reading Strategies for interaction/connections. “I can make personal connections/make meaning with the reading.” And, “I can read with an idea or question in my head to find the answers while I am reading.” The literature addressed the importance of student engagement to ensure the learner maintained a focus and interest in learning (Knowles, 1978). Overall, the effects of employing the TOOLBOX was highly significant, meaning that continuous use of the tools helped students perform well academically on course work and exams.

Research Question Two

What effect does using OUR READING TOOLBOX as an intervention have on students’ perceptions of the classroom environment and course activities, the art of reading, and of themselves as learners in a community college developmental reading course?
Quantitative data gathered and analyzed for Question Two indicated that the TOOLBOX had a positive effect on students’ perceptions of the classroom environment and course activities, the art of reading, and of themselves as learner. Using a multiple linear regression technique, the intent was to find possible associations between each criterion Post-Tests, Gain Scores and Total Points Earned with all three sub-scales of the Student Survey Instrument—classroom environment and course activities, the art of reading, and of themselves as learners. There was a significant correlation between Post-Test Scores and two of the three independent variables, classroom environment and course activities, and of themselves as learners. All three areas rated above four points on a five-point Likert scale. The most favorable of the three sub-scales was the classroom environment and course activities. Students expressed that the learning environment and course activities were meaningful. Perceptions or beliefs about of themselves as learners were also positive. The literature upholds that students who have positive learning experiences are most likely to complete their academic goals.

**Conclusion Three:** The learning environment and course activities created a *culture of learning* in the classroom.

**Conclusion Four:** The tools used in combination with the strategies kept students focused and interested in learning.

**Conclusion Five:** Students’ perceived themselves as learners who were capable of thinking about and understanding what they read.

Three conclusions were reached for Question Two, concerning the effects the TOOLBOX had upon students’ perception of the classroom environment and course activities, the art of reading, and of themselves as learners by employing the tools in all
the course work and exams completed throughout the semester. Quantitative data supporting these conclusions were gathered from the research instruments used in this study. Student Survey Questionnaire responses provided insight into students’ perceptions of the classroom environment and course activities, the art of reading, and of themselves as learners. The information focused on students’ attitudes, their sense of involvement and participation in the classroom, their motivation and interest to read course assignments, and their sense of purpose in daily activities completed in class and outside of class. An item analysis was conducted for each of the three sub-scales. Results of these three analyses revealed acceptable levels of internal consistency reliability. An exploratory factor analysis was conducted to assess the level of orthogonality among the three sub-scales. Results of this analysis suggest that further work might be in order in terms of the instruments refinement. In other words, the sub-scale measures did not remain within the designated matrix, but rather intersected into the other two matrices due to the interpretation given to each question asked on the questionnaire. Rewording unclear questions can resolve this issue.

The continuity of applying different tools to various readings, on homework or exams, as well as in self- and peer-evaluations throughout the semester, gave the students an opportunity to learn how to think deeply about and understand what they read. Applying a few tools to each reading, students engaged with their reading and delved deeper into the text versus “sprinting” through the materials. The literature addressed the importance of student engagement to ensure the learner maintained a focus and interest in learning (Knowles, 1978). This result supported the request to revise the curricula and
teaching methods used in developmental education so that students could obtain an academic degree (ATD, 2009; DEI, 2009; Obama, 2010).

Based on the qualitative content analysis, themes that emerged from the data conveyed that students need educational settings, which create a culture of learning. The TOOLBOX was designed to help students develop thinking skills by utilizing a set of tools that actively engage the mind in deeper thinking for the purpose of understanding and retaining knowledge longer than beyond the test or duration of the course. “Children and adults often greatly underutilize their thinking capabilities” (Ritchhart & Perkins, 2008, p. 58). Providing modeling and prompting in several ways, allowing for flexible group work, and assigning multiple roles to students, assisted them in learning how to work effectively, thereby creating a culture of learning. Students felt academically engaged and encouraged to complete assignments when the instructor recognized their efforts, which indicated the significance of teacher encouragement as an incentive for students to work hard (Tinto, 2009). “I now understand the purpose for reading,” and, “When I began using the TOOLBOX, it opened up my eyes to how much I could NOT comprehend.” Students gained Awareness and Understanding by actively seeking the wide, deep, and thoughtful engagement with high-quality literary and informational texts that builds knowledge, enlarges experience, and broadens worldviews” (Common Core State Standards Initiative, 2010). Students not only achieved their learning objectives, but also felt empowered, taking ownership of their learning. Curriculum of high-interest kept students interested and engaged in their learning. Students internalized the tools through continuous practice, acquiring a “system-analyzing-system” that allowed them to assess and analyze their thinking, and communicate their thoughts in anything they read.
The purpose of education is to teach students to “understand” and learn how to actively apply new learned knowledge and to cultivate this knowledge beyond the classroom setting (Ritchhart & Perkins, 2008).

**Research Question Three**

What effect does using OUR READING TOOLBOX as an intervention have on students’ academic performance when considering the demographics of gender, age, ethnicity, and native language in a community college developmental reading course?

Quantitative data gathered and analyzed for Question Three revealed the TOOLBOX had a positive effect on academic performance for students who self-reported English as their primary language. Using a t-test technique, the intent was to find significant differences between primary language groups, English and Other. Data to support this question indicated a significant difference between the dependent variable of PTS, with independent variable representing the demographics of language groups. A follow-up analysis showed no significant differences when associated to Gain Scores between both groups. Knowles’ (1978) Adult Learning Theory, which is applicable to learners of all ages, ethnicities, languages, or gender, indicated that learning should be relevant to real-world issues and/or personal experiences to which students can connect meaning and should appeal to a wide range of educational preferences and styles. In addition, the curriculum should be of high-interest to the students, so that they will engage in their learning.

**Conclusion Six**: English as the primary language learners demonstrated a higher level of comprehension and thinking ability compared to the non-native English speakers who participated in this study.
Conclusion Seven: Authentic materials and course activities enabled students to experience success through the reading-thinking connection.

Two conclusions were reached for Question Three, concerning the effects the TOOLBOX had upon students’ academic performance when considering the demographics of gender, age, ethnicity, and language. Outcomes revealed that students who self-reported English as their primary language demonstrated a higher level of comprehension and thinking ability compared to the group of students who self-reported English as their second language. However, a follow-up analysis, Gain Scores indicated No significant differences, as both groups showed over a 6-point gain. Adult students tend to underestimate their ability to learn and resist learning new ideas or approaches (Pennington, 2011). The TOOLBOX served to level the playing field for this group of learners. The literature review validated that a typical curriculum for adult learners should be comprised of authentic materials and performance tasks that engage the students in creative activities for the purpose of learning (Gallagher, 2009; Young, 2006). The Reading-Thinking intervention served this purpose for the 60 students, as they used a combination of tools from the TOOLBOX to approach and understand their readings.

Examining the effects of the TOOLBOX provided valuable data on how a thinking-centered approach was used as an intervention to begin to address the general problem of students arriving to community colleges unprepared to succeed in college. The type of communication that is imparted in a traditional classroom is predominantly focused on the teacher’s dissemination of information with very little student interaction. “All too often, we let acquiring take the place of inquiring in school; that is to say, we encourage passive and obedient reception of cut-and-dried materials. What we need to
do is allow for the actual problem-solving thinking of the [student], to provide materials and situations that will bring about such thinking” (Hendley, 1986, p. 27). Brady (2008) alleged that “for many people, the main purpose of educating isn’t to improve students’ thinking skills but to ‘cover the material’ (p. 64). The purpose of implementing this thought process was to eliminate the “storing of information in short-term memory” that would be gone the minute after the learners were done taking tests (Brady, 2008).

Qualitative data supported these conclusions, which were reached concerning the effects on students’ reading ability when they used the TOOLBOX. Reading Strategies for interaction/connections was a theme in this domain. According to the literature, the importance of student engagement ensured that the learner maintained a focus and interest in learning, making learning much more meaningful to these individuals (Knowles, 1978). Excellence in thought must be systematically cultivated by developing the mind (Elder & Paul, 2007). Each tool focused the mind to think about and understand what they read in different ways. Students could not just skim through the text and find key words that gave them the correct answer, rather, they had to read and understand what they read so that they could articulate cogent thoughts about the text as a whole.

Research Question Four

What effect does using OUR READING TOOLBOX as an intervention have on students’ perceptions of the classroom environment and course activities, the art of reading, and of themselves as learners when considering the demographics of gender, age, ethnicity, and native language in a community college developmental reading course?

Analysis of the quantitative data indicated the TOOLBOX had positive effects on students’ perceptions when considering selected demographics. Results showed students
engaged with their reading and delved deeper into the text, versus “sprinting” through the materials. In other words, applying the tools to a specific reading permitted the student to process the information, rather than superficially covering the content and moving on to the next lesson without having an understanding of what was just read.

**Conclusion Eight:** Adult Learners (age 25 and older) perceived the classroom environment and activities in a more positive way when compared to the students who were 17 to 24 years of age.

**Conclusion Nine:** Employing the TOOLBOX fostered a sense of confidence and courage among adult learners, contributing to a positive view of themselves as readers.

**Conclusion Ten:** Using the TOOLBOX as an intervention transformed students’ perceptions with regard to the art of reading.

Three conclusions were reached for Question Four. Data supporting conclusions Eight, Nine, and Ten looked at the effects the TOOLBOX had on students’ perceptions about the classroom environment and course activities. According to the quantitative data analysis, a statistically significant difference was found in outcome measure on Survey Questionnaire Instrument between Age groups. The information gathered from the research instruments in this study focused on students’ attitudes, their sense of involvement and participation in the classroom, their motivation and interest to read course assignments, and their sense of purpose in daily lessons activities in class and outside of class. Results in the analysis revealed that the six participants, ages 25 to 55, scored higher than the participants whose age ranged from 17 to 24 years old. Today’s economic and demographic trends have brought about a shift in the educational paradigm, resulting in more students returning to school to acquire college level training.
or degrees (Boggs, 2010). All students, regardless of age, can benefit from these tools as they are used to engage the students’ minds while reading, without the mechanics-oriented, drill and skill process.

In support of the qualitative data relevant to this questions, Paul and Elder (2007) purported that to systematically develop students’ in-depth thinking process, the learning environment should be encouraging, stimulating, and rewarding, consequently improving the quality of education in schools. This data captured the students’ voices concerning their experience of using the TOOLBOX, and its effects on students’ attitudes towards reading. The responses provided an insight on students’ disposition, or change in behavior and personal motivation, confidence, and worth. Students provided a number of examples that reflected a theme of high level of self-efficacy. Some responses were of a brief and general nature, nevertheless with positive reactions, such as, “I love the TOOLBOX,” “It was a great experience,” “My attitude changed.” The learning environment and course activities fostered inclusive learning, as everyone felt she or he was equal, and it prompted the respect and value of each student’s ideas and increasing her or his desire to interact and be actively involved in the learning process (McCroskey & McVetta, 1978). Students who had positive learning experiences were most likely to complete their academic goals. Practices should encourage respect and inclusiveness toward diversity.

Overall, curriculum for adult learners should be comprised of authentic materials and performance tasks that engage the students in creative activities for the purpose of learning. Adult learners need guidance and nurturing in gaining confidence and courage to increase their self-esteem as learners. Applying these tools levels the playing field for
all participants, regardless of age, ethnicity, language or gender. They can develop the ability to independently analyze and interpret the readings to learn the materials versus recalling de-contextualized or trivial facts to recite back on a test, which is predominately how comprehension is typically measured. Students of all ages can be trained to think and ask questions, which would in turn make them think about their thinking, instead of wasting their time absorbing someone else’s thinking.

The TOOLBOX is one answer to President Obama’s plea to the nation to provide other means of measuring academic success and failure, besides the “bubble” tests that do not reflect how well academically disadvantaged students think critically and problem-solve. The TOOLBOX can transform students’ perceptions, attitudes, or dispositions of reading, as they feel they have the skills and tools to be able to read and understand anything they read.

Implications for Stakeholders

Implications for the field of developmental reading can be considered for students, developmental reading faculty, administrators, and policymakers if they consider implementing the TOOLBOX.

Implications for students enrolled in developmental reading, as they are the primary stakeholders, will begin with the quality of learning. Teaching students how to use this set of thinking-centered tools as an integrated whole cultivates the type of intellectual activity inherent in good reading. Students turn from being passive learners to active learners as they engage in their learning. They develop the capacity to think for themselves as they read, through continuously applying the tools to what they read. Students welcome the challenge in their learning versus being told what to know because
it is going to be on the test. Once students acquire the ability to use these tools as they read, they are able to apply them in all areas of reading in school, and in life. Using the reading-thinking intervention, students learn how to think while they read, which is applicable throughout their academic experiences, ensuring their knowledge and skills optimize opportunities for success. Students feel empowered when they take ownership of their learning.

There will also be implications for developmental education faculty as they are in direct contact with students. One implication could be to consider a broader teaching approach and a different attitude about students enrolled in developmental courses. “Given that our country has suffered these low graduation rates for a generation or more, it is clear that – in spite of our best intentions – doing more of the same will just get us more of the same” (CCA, 2010, p. 7). Hence, students should be viewed as capable of succeeding, rather than be stigmatized and viewed as failures for not understanding basic skills (Kozeracki, 2002). Collaboration with content-area faculty will be necessary so as to begin to infuse TOOLS into content-area courses and to obtain substantive and meaningful readings from various disciplines that could be used as readings in developmental reading courses. The literature disclosed that in states like California, students are not mandated to take developmental courses in their first semester and many students enroll in content-area courses when they do not possess the basic skills to be academically successful (CLAO, 2008). This collaboration would be of great benefit as the content course instructors have a large number of students needing to take developmental reading, yet bypass it. Workshops will be hosted on how to infuse the Thinking-Centered intervention or something else that is rooted in a thinking-centered
approach into the curriculum. The tools could help level the playing field for this group of students who may be deficient in basic reading skills. In order to successfully carry out this collaboration, instructors need the administration’s support as they may require having release time to collaborate, design, or create curriculum.

There are implications for leadership at community colleges. Administrators currently have many challenges as they try to meet the demands of the nation. “In an increasingly global society and economy, education and training beyond customary compulsory primary and secondary education is seen as essential to a nation’s competitiveness and the standard of living of its people” (Boggs, 2010, p. 5). In order to demonstrate they are working to meet the demands, they must begin by building a culture of evidence. They need to support instructors who are interested in infusing and implementing the TOOLBOX in their courses. Administrators will need to collect data necessary to demonstrate the success of the programs, especially those involved with basic skills. Administrators will need to find funding to support professional development workshops and trainings for faculty and students who are interested in learning how to use the TOOLS. Funding can be used to sustain programs and pay faculty and staff. Examining the effects of the TOOLBOX can provide valuable data on how a thinking-centered approach used as an intervention can begin to address the general problem of students arriving to community colleges unprepared to succeed in college. The plan is to invest in community colleges for the purpose of equipping young people and adults, with high-demand skills and education for emerging industries.

Implications for policymakers may begin with policies needing to be evaluated to ensure they are supporting and encouraging innovation at educational institutions. The
community college is an undervalued educational system that needs support to help individuals build a strong academic foundation, as these students will be required to be prepared to compete in this diverse nation’s highly skilled workforce (Boggs, 2010; Soares, 2010; Tinto, 2009). California’s own policies and practices are placing students at risk of failing and dropping out of higher education. Other means of measuring success and failure are needed, besides the “bubble” tests, which reflect how well academically disadvantaged students are taught how to think critically and problem-solve. Institutions will need to accept responsibilities and be held accountable for student learning. If not, implications for the workforce in the near future will be a larger number of individuals unprepared to compete effectively in a global economy because they are deficient in oral and written skills, teamwork, problem-solving, and decision making abilities (American Promise Alliance, 2007). This means institutions need to evaluate the type and nature of programs offered at their campuses to ensure they address the needs of their students. Implementing the TOOLBOX can help narrow the achievement gap as it helps students develop their abilities to think well, increasing their opportunities to compete in the workforce at a local, national, and global scale.

Recommendations for Practice

The following recommendations are offered for practice addressing both the use of the TOOLBOX itself and the use of evaluation strategies for reading interventions.

Recommendation for Practice One: Community college reading programs need to give serious consideration to holding professional development workshops for the faculty on how to integrate the TOOLBOX as an intervention to accomplish high quality learning.
This recommendation derived from the conclusions made above so as to improve the quality of thinking for all students. The TOOLBOX contains a set of thought-provoking tools, which are used as a means to strengthen students’ thinking abilities and provide a sense of direction needed to explore and discover deeper learning. Educators can create flexible approaches to meet their students’ diverse skills, needs, and abilities. With use of selected tools, students are immediately involved in thinking as they read.

Students needing developmental education sometimes enroll in content-area courses and may not be academically prepared to succeed in college level coursework (Boggs, 1998, 2010; Boggs & Seltzer, 2008). “When a system of mass education sends students on their way with meaning attached to thousands of ideas like Jeffersonian democracy and green technology, efficient, society sustaining dialogue is possible” (Brady, 2008). The literature disclosed that in states like California, students are not mandated to take developmental courses in their first semester and many students enroll in content-area courses when they do not possess the basic skills to be academically successful (CLAO, 2008). One recommendation given by the CLAO to address these issues was to consider making structural and system-wide changes, one of which would assist community colleges with identifying, advising, and placing students needing basic skills within their first year. To begin to address the issue of success at the community college level, implementing the TOOLBOX into content-area courses that are impacted with students needing developmental education would be beneficial.

Recommendation for Practice Two: ‘Strategies for Teaching and Learning’ used together with the TOOLBOX need to be employed in the reading classrooms as a viable way to bring the Thinking-Centered approach alive.
This recommendation is made based on learners’ desire to have instruction that is relevant and valuable in their lives. Despite the mastering of and enthusiasm for the subject matter, a large number of teachers lack training in practical pedagogy. Changing how educators view their roles will not be easy. They have invested copious hours and energy in the current paradigm and may be resistant or blind to the need to change. Dominant paradigms are not easily changed. “Faculty members have been trained by example that they are to provide instruction and to grade students” (Boggs, 1998, p. 6).

To be able to implement this thinking-centered approach, it will be vital to recruit and train highly-interested faculty, with similar or different skills set as those of the investigator, to carry out the intervention not only in a developmental reading class, but across an array of disciplines. Students are unskilled in thinking deeply about what they read and write, and in making a connection with learning and life. Copying information directly from a passage does not work when using these tools, rather, students are required to think about and provide responses that demonstrate deep understanding about what they have read. Educators who infuse the TOOLBOX into their curriculum will notice how students take active roles in their learning when given tools to help them interact with text so they understand what they read.

Teaching and learning strategies are recommended as they serve to engage students in their learning, and assist the instructor with classroom management to create a learning environment that fosters thinking-centered education. Some of these strategies suggests that the teacher: Call on Students to share their answers as this keeps each student actively engaged and encourages them to be confident speakers; Circulate-to-Guide the students while they work on activities; Timed-Activities that will help students
focus on completing the specific activity; and, *Name Tents* together with *Randomly Assigned Seating* as this allows the teacher to call the student by name, as well as avoid formation of cliques when students are required to sit in different places every day.

Employing the teaching and learning strategies, together with the thinking-centered tools, students become engaged, elevating their thinking ability as they progress from lesson to lesson throughout the semester. Teaching and learning strategies appeal to a wide range of learning styles and preferences, equalizing learning opportunities that optimize what is relevant, valuable, and meaningful to all learners (UDL, 2011). In other words, the selection of activities should foster the use of the imagination to learn how to solve problems, or make sense of complex tasks. “Authentic interest is generated when students are given the opportunity to delve deeply into an interesting idea” (Gallagher, 2009, p. 10).

**Recommendation for Practice Three:** Faculty should consider designing curriculum using authentic, substantive and meaningful readings, together with a combination of tools from the TOOLBOX.

Recommendation three would be to focus the types of assignments to be used for practice and or grading on less “drill and skill” and more on “thinking and doing.” The literature revealed that most prevalent modes of reading instruction and related texts train students merely to choose from thoughts already provided for them based on answers not emanating from their own minds. The TOOLBOX contains a set of thought-provoking tools, which are used as a means to strengthen students’ thinking abilities and provide a sense of direction needed to explore and discover deeper learning. Educators can create flexible approaches to meet their students’ diverse skills, needs, and abilities.
“This power of concentrated logical thinking does not exist in the mind ready-made; it must be developed gradually” (Hendley, 1986, p. 84). With the use of the TOOLBOX, educators can equalize learning opportunities that optimize what is relevant, valuable, and meaningful to all learners (UDL, 2011). In other words, the selection of activities should encourage students to learn how to solve problems, or make sense of complex tasks. “Authentic interest is generated when students are given the opportunity to delve deeply into an interesting idea” (Gallagher, 2009, p. 10). Students read topics across an array of academic disciplines and by using a combination of tools and carefully chosen reading selections that spark readers’ interest; they are able to better understand what they read, despite the topic.

Recommendation for Practice Four: Community college developmental reading programs should consider recruiting students who have experience using the TOOLBOX to peer-tutor and to assist faculty with supplemental instruction that infuses the TOOLBOX.

Community college developmental education students face numerous obstacles as they begin and proceed through their years of higher education. Some of these students find themselves in an academic setting for the first time in many years, and those who have recently graduated from high school often had marginal educational experiences at best. (Willingham & Price, 2009, p. 92)

Variables that contribute to the disparity in educational attainment of students, who assess into developmental education, begin with less understanding and comprehension of the lessons and of the reading material assigned, threatening their ability to succeed in college-level courses. When students answer questions on multiple-
choice tests, their minds are likely to focus on the importance of finding the “correct” answers, meaning that what they selected was NOT the product of their own thinking. Rather, these answers have come from someone else’s thinking.

Copying information directly from a passage does not work when using the tools. Students develop the capacity to think for themselves as they read, through continuously applying the tools to what they read. Students welcome the challenge in their learning versus being told what to know because it is going to be on the test. “Students’ understanding of content, and even their memory of content, increases when they think through the concepts and information they are studying” (Ritchhart & Perkins, 2008).

Through peer-tutoring, students who previously acquired the TOOLBOX can continue to expand their skills by helping others elevate their comprehension skills through the use of the tools. It would be valuable to find out if students who learned how to apply the tools to what they read, have not become passive learners, memorizing information only to recite it back on an exam; but rather continue to apply the tools so as to think deeply about what they read and articulate their thoughts that demonstrate an understanding of what they have read.

**Recommendation for Practice Five:** More funding to community colleges needs to be in place to continue to support faculty who are interested in using the TOOLBOX and want to attend sessions to learn how to implement this approach more in-depth.

Recommendation for practice five is to provide more funding for community colleges so that these institutions are able to successfully implement this thinking-centered approach. The purpose of education is to teach students to “understand” and learn how to actively apply new learned knowledge and to cultivate this knowledge
beyond the classroom setting (Ritchhart & Perkins, 2008). Innovation, not antiquated learning strategies is the push made by Congress, and in which they are investing time and money to educate the nation’s future generation. The Developmental Education Initiative [DEI], (2009) served to identify and develop vital programs nationwide to increase access and success for academically-challenged community college students. This initiative focused on implementing strategies to prepare students enrolled in developmental education to succeed in college-level courses. In an attempt to improve the quality of education, some of the efforts proposed were to: modify policies and practices that supported positive student outcomes; accelerate students’ progress for those enrolled in basic skills courses; make academic support services more accessible to students; and most importantly, to revise the curricula and teaching methods used in developmental education so that students could attain an academic degree (ATD, 2009; DEI, 2009; Obama, 2010). If community colleges are expected to achieve this request, then more funding needs to be in place so that these institutions can provide the necessary resources to succeed.

Recommendations for Future Research

The following recommendations are offered for future research addressing both the use of the TOOLBOX itself and the use of evaluation strategies for reading interventions.

Recommendation for Future One: Research needs to be conducted to examine the effects of the TOOLBOX in a broad array of academic disciplines across community college campuses.
The achievement gap has not narrowed for learners in postsecondary education, not only hindering their success in college, but also limiting their opportunities to compete in the workforce at a local, national, and global scale. Rather than just implementing this approach in developmental reading courses, educators in various content-areas should infuse the TOOLBOX into their curriculum and measure the effects on students’ academic performance and perceptions of themselves as learners. Collecting data on the effectiveness of TOOLBOX when used in content area courses would be of great benefit to postsecondary education experts who are struggling with the issue of the achievement gap. Also, the continuity in using the TOOLBOX while reading text across an array of disciplines can help students achieve academic success as they better understand what they read, and also become better thinkers in school, and in life.

**Recommendation for Future Research Two**: Faculty and administrators need to evaluate the effects when using the TOOLBOX at different levels of education (elementary, high school, undergraduate, graduate level and special education).

A large number of institutions fail to design programs that enhance basic skills, or inspire and motivate students to discover through learning (Botstein, 2011). Implementing the TOOLBOX into the curriculum would level the playing field for students in the various levels of education, allowing them another opportunity to succeed academically, especially those who do not perform well on multiple-choice, Scantron-scorable tests, or who have been marginalized and labeled as learning disabled. Infusing the TOOLBOX along with teaching and learning strategies will not permit for traditional teaching practices and in turn will discourage student passivity, which stifles students’ creativity (Botstein, 2011).
**Recommendation for Future Research Three:** Educators in other parts of the nation need to implement the TOOLBOX within a broader spectrum of participants (demographics, including a different population).

Given the high percentage of students lacking basic skills, and many not accessing additional support to attain these skills, it is not surprising that approximately 50 percent of first-time college students drop out by the second semester (Bailey, 2009). In addition, most campuses do not have large remedial programs, hence limiting the number of students that can be served each semester (CSS, 2007). These statistics, along with a lack of consensus to agree on one structural model across institutions, are not likely to change without implementing innovative instructional strategies that can begin to build basic skills in reading, writing, and mathematics. Replicating the study using a larger number of participants at another institution with a different ethnic makeup could help improve academic preparedness and achievement for community college students, maximizing workforce opportunities. Implementing the TOOLBOX and collecting data could highlight how using traditional curriculum in community colleges may hinder students’ progress. Using the thinking-centered tools, students learn not just to read words, but rather they think about those words in specified ways. Each tool directs students to think about and express their own thoughts that demonstrate deep understanding about what they read.

**Recommendation for Future Research Four:** Researcher needs to interview focus groups composed of a different student population who are using the TOOLBOX, and compare their experience and perceptions with those from this study.
According to the data from the California Community Colleges Chancellor’s Office (2011), many students who enrolled in these basic skills classes did not pass. Retention was also an issue considering that about 50 percent of first-time students dropped out of college after their first semester while the other half continued with higher-level academic courses. These issues are not solely taking place in California. They are also a phenomena across the nation and in other parts of the world. The intent would be to interview students who have been exposed to the TOOLBOX and learn about their experience. What effects will using the TOOLBOX (translated if necessary) have on students’ academic performance and perceptions of themselves as learners when exposed to the TOOLBOX? What went well for them academically, and what would they have liked to change in this approach would be some things to consider. These interviews would also take place with students in this nation and a comparison could be made to gain insight on the benefits of using the TOOLBOX with other student populations.

Recommendation for Future Research Five: Researcher needs to study the effects of ‘Strategies for Teaching and Learning’ when used with the TOOLBOX as a viable way to bring the Thinking-Centered approach alive.

Researcher should evaluate which Teaching and Learning strategies mentioned in recommendations for practice work best with classroom activities and lesson. “Authentic interest is generated when students are given the opportunity to delve deeply into an interesting idea” (Gallagher, 2009, p. 10). Teaching and learning strategies serve to engage students in their learning and assist the instructor with classroom management to create a learning environment that fosters thinking-centered education. As stated under
Recommendations for Practice, some of these strategies suggests that the teacher: *Call on Students* to share their answers as this keeps the student actively engaged and encourages them to be confident speakers; *Circulate-to-Guide* the students while they work on activities; give *Timed-Activities* that will help students focus on completing the specific activity; and, *Name Tents* together with *Randomly Assigned Seating* as this allows the teacher to call the student by name, as well as avoid formation of cliques when students are required to sit in different places every day. Employing the teaching and learning strategies, together with a combination of the thinking-centered tools, students become engaged, elevating their thinking ability as they progress from lesson to lesson throughout the semester. Teaching and learning strategies appeal to a wide range of learning styles and preferences, equalizing learning opportunities that optimize what is relevant, valuable, and meaningful to all learners (UDL, 2011).

Evaluating the effectiveness of how these strategies benefit student learning would provide insight as to the extent they contribute to students’ perceptions of the classroom environment and of themselves as learners. To what extent does calling on someone to respond to a question enhance or impede his or her confidence and courage to speak? Anecdotal data also state that these teaching and learning strategies help with classroom management. It would be beneficial to find out which of the strategies is most effective and why.

**Recommendation for Future Research Six:** A further recommendation is to pilot the TOOLBOX, in combination with the “teaching and learning strategies,” in two sequential levels of accelerated reading courses, for example a cohort of approximately 25 students enrolled in two consecutive levels of reading courses taught by the same instructor.
This recommendation addresses the issue of students not being able to enroll in pre-collegial courses. Variables that contribute to the disparity in educational attainment of students who assess into developmental education begin with less understanding and comprehension of the lessons and of the reading material assigned, threatening their ability to succeed in college-level courses. In addition, when students learn that their academic goals need to be put on hold because they need to take pre-collegial courses, they become discouraged and drop out of college or they end up enrolling in a private institution where they are not required to take these courses. This recommended cohort model may serve to reduce the number of students becoming discouraged and dropping out of college within the first semester. It is an initial start to begin to address the issue that deals with the length of time it would take for students to enroll in and complete a series of developmental education courses.

The researcher will be able to compare data on the effects the TOOLBOX had on students’ academic performance and perceptions of themselves as learners when they experience the tools daily for 16 weeks. This model would allow the instructor to introduce the tool the first half of the semester, until all the tools are learned. During the second half of the semester, students would have the opportunity to select their own readings and then practice applying the tools of their choice to the selected texts. At the end of the semester, focus groups would participate in interviews. The purpose of these interviews would be to capture the students’ perceptions of their abilities and attitudes concerning the use of the TOOLBOX. As was done with this study, course assignments and exams will also be used as data to learn if there is a dramatic change in students’
academic performance, as well as in the quality of thinking after being exposed to the TOOLBOX for 16 weeks.

**Recommendation for Future Research Seven:** Researchers should consider evaluating the effects on students’ academic performance when enrolled in a developmental course using Content-Based Instruction (CBI), or as part of a learning community, along with their experience using the TOOLBOX.

The purpose of developmental education is to provide academic opportunities for students enrolled in postsecondary institutions needing to acquire competencies such as reading, writing, and math, to succeed in mainstream college courses. These students’ skills are considered to be at least one or more levels below what a particular institution deems college-entry level. Innovation, not antiquated learning strategies is the push Congress is making by investing time and money to educate the nation’s future generation. “Students are often surprised to learn that they still have hurdles to clear before they can begin college-level work” (Foderaro, 2011, p. 2). CBI experts assert that students can improve processes in reading or writing when they have extensive content knowledge, as this will enhance their ability to understand and learn through text. Content is used as a tool to help students achieve their learning objectives as it allows them to delve deeper versus “sprinting” through the materials. Using the reading-thinking intervention, students learn how to think while they read which is applicable throughout their academic experiences.

**Recommendation for Future Research Eight:** The Student Survey Questionnaire Instrument should be evaluated and modified to ensure it provides clearly defined responses for each of the three sub-scales.
The purpose of the Student Survey Questionnaire instrument was to gain insight into students’ perceptions of the classroom environment and course activities, the art of reading, and of themselves as learners in a community college developmental reading course, such as information concerning students’ attitudes, their sense of involvement and participation, their motivation and interest, and their sense of purpose in daily lessons and activities in class and outside of class.

An item analysis was conducted for each of the three sub-scales. Results of these three analyses revealed acceptable levels of internal consistency reliability. An exploratory factor analysis was conducted to assess the level of orthogonality among the three sub-scales. Results of this analysis suggest that further work might be in order in terms of the instruments refinement. In other words, the sub-scale measures did not remain within the designated matrix, but rather intersected into the other two matrices due to the interpretation given to each question asked on the questionnaire. Re-wording unclear questions can resolve this issue.

**Recommendation for Future Research nine:** There is a need to develop evaluation designs that incorporate the approaches used in this study as the basis to determine how well a variety of other developmental reading interventions are actually working in promoting high-quality student learning.

Research revealed that some current educational practices unintentionally discouraged students from thinking critically (Nosich, 2009). Skill development courses remain the tool most commonly used by developmental educators (Brothen & Wambach, 2004). Nosich (2009) implied that teachers made students recipients of the teacher’s
knowledge; students were expected to memorize the information only to recite it back on an exam, making them passive learners.

“Rather than helping students, many of the reading practices found in today’s classrooms are actually contributing to the death of reading” (Gallagher, 2009, p. 2). These practices which are supposed to instill the love of reading are destroying students’ possibilities of becoming lifelong readers, and in turn are contributing to the achievement gap. “If so much of our subject matter is recondite, inert, overly abstract, and disconnected, is it any wonder that we face so many problems with student motivation and discipline?” (Hendley, 1986, p. 85). The field of developmental education would benefit from completing a program evaluation as the basis for determining how well a variety of other developmental reading interventions are actually working in promoting high-quality student learning.

Recommendation for Future Research Ten: Community colleges should collect and use data from the TOOLBOX to begin building a culture of evidence as a means to address the achievement gap in developmental reading.

Educators have worked diligently for over three decades on educational reform to close the achievement gap for schools facing detrimental issues with low levels of academic performance and severe reading deficiencies. As the number of students placing into remedial education continues to grow, community colleges are being encouraged to evaluate and assess the learning paradigm, in other words, the how and what they teach, keeping in mind the impact of the depleted budget (Boggs, 2010). This implies educators would need to redesign programs to help students complete their academic goals. Collecting data from instructors using the TOOLBOX, institutions can
begin to build a culture of evidence to demonstrate the effectiveness of an intervention that is contributing to closing the achievement gap in the area of developmental reading.

Summary of Study

If we want instructors to teach in such a way that students learn to think their way through content rather than memorize bits and pieces of information for tests; if we want students to embody traits of mind such as intellectual empathy, fair-mindedness and confidence in reason, we must explicitly place critical thinking at the heart of the curriculum. (Elder, 2010, p.1)

The purpose of education is to teach students to “understand” and learn how to actively apply new learned knowledge and to cultivate this knowledge beyond the classroom setting (Ritchhart & Perkins, 2008). Instead of students wasting their time absorbing someone else’s thinking, students need to be trained to think and ask questions, which would in turn make them think about their thinking. Using the thinking-centered tools, students do not just read words, but rather they think about those words in specified ways. Students are required to think about the reading, and express their own thoughts about that reading that demonstrated deep understanding.

The TOOLBOX was designed to help students develop thinking skills by utilizing a set of tools that bring the “thinking-centered approach” to life by becoming a functional part of students’ learning processes. The positive outcomes can be attributed to the fact that the intervention was delivered in a learning environment that was encouraging, stimulating, and rewarding. Students felt empowered by taking ownership of their learning. Using OUR READING TOOLBOX, the reading-thinking intervention, students learned how to think while they read, acquiring a skill which is applicable
throughout their academic experiences. Acquisition of the TOOLBOX contributed to the creation of a *culture of thinking* beyond the classroom, optimizing opportunities for success.
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APPENDIX A - PRE/POST-ASSESSMENT FORM A

Name: __________________________________________

Directions:
♦ Read the article on the following pages
♦ Create a “Headline” for this article
♦ Respond to the prompts below using clear and complete sentences

1. The author’s purpose for writing this article was …

______________________________________________________________________________

______________________________________________________________________________


2. Identify the main problem/issue raised in the reading.

______________________________________________________________________________

______________________________________________________________________________

3. Select and HIGHLIGHT (or underline) the one sentence that you think is most significant in this reading.

Paraphrase (put it into your own words) the sentence you selected above.

______________________________________________________________________________

______________________________________________________________________________

State why you think this sentence is the most significant one in the reading.

______________________________________________________________________________

______________________________________________________________________________

4. One assumption the author makes in the reading is …

______________________________________________________________________________

______________________________________________________________________________

5. State one recommendation for the consumer(s) about what you think should be done to begin to deal with the problem or issue presented in the reading.

______________________________________________________________________________

because…
6. If the consumer(s) *does not follow* the solution/recommendation you made above, one implication or consequence will be …

because...

7. Ask a vital question to the representative from Food and Drug Administration (FDA) based on something significant that you have just read in this article.

Respond to the question above in a clear, complete and thoughtful sentence as if you were the FDA representative.

8. What is the overall conclusion the author came to in the reading?

S-E-E-:
Complete the “E” for Elaborate and “E” for the Exemplify exercises below

CONCEPT # 1: ______ Burgeoning

"The proposal survived filibuster threats in the Senate, constitutional confusion and tensions between big agricultural companies and the burgeoning local food movement."

S: State the appropriate dictionary definition in a complete sentence (Use www.dictionary.com)

Burgeon means to grow, flourish or develop quickly.

E: Elaborate by writing the definition into your own words.

E: Exemplify--In other words, give an example from your own personal experience.
A rash of food recalls, from peanuts to eggs, led to several deaths and new calls for a comprehensive food-safety bill, but it has become stalled in Congress. The recalls have also led many food growers and processors to hire private inspectors to protect themselves from lawsuits, but experts say the inspections are rife with flaws and often do not make products safer.

The House passed a measure to overhaul the nation's food-safety laws by a vote of 215 to 144 Tuesday afternoon, and President Obama is expected to sign it into law as soon as Wednesday.

The vote marked the final hurdle for a bill that cleared an unusual number of obstacles, despite enjoying bipartisan support and backing from a wide array of groups across the political spectrum, from the Consumers Union to the Chamber of Commerce.

"This is a big victory for consumers that finally brings food-safety laws into the 21st century," said Jean Halloran of Consumers Union. "This win is a powerful testament to the people across the country who came to Washington to tell their lawmakers how contaminated food had killed their loved ones or left them horribly sick. This win is for them and all Americans."

But some critics said the new legislation will expand the reach of the federal government without making food safer. "The federal food bureaucracy needs to get smarter and better coordinated, not more omnipotent," said Rep. Tom Price (R-Ga.).

The proposal survived filibuster threats in the Senate, constitutional confusion and tensions between big agricultural companies and the burgeoning local food movement.

The setbacks repeatedly sent the bill back to both chambers, where new challenges arose. In the end, the House voted on it three times and the Senate twice.

The legislation will affect all whole and processed foods except meat, poultry and some egg products, which are regulated by the U.S. Department of Agriculture.

It is the first major change to the nation's food safety laws since 1938, and comes after a series of national outbreaks of food-borne illnesses linked to a wide variety of foods, including spinach, peanuts and eggs.

"I beg you, the safety of your constituents is at stake," Rep. John D. Dingell (D-Mich.) said during debate on the House floor.

Unlike the current system, which relies on federal officials to trace the source of an outbreak to its origin after consumers have become ill, the new requirements are designed
to create a system in which manufacturers and farmers come up with strategies to prevent contamination, then continually test to make sure they work.

The bill includes an exemption for small farmers and food processors, and those who sell directly to the public at farmers markets and farm stands. That exemption was pushed by advocates for local food, who argued that small producers would not be able to afford the testing and record-keeping required by the legislation. But it drew objections from major agricultural producers, which argued that no one should be exempt from producing safe food.

The exemptions "will limit the ability of the [Food and Drug Administration] to assure consumers that all foods they purchase, whether at grocery stores, restaurants, farm markets or elsewhere, have met the same food-safety standards," said Robert Guenther of United Fresh Produce Association, which represents the major fruit and vegetable growers.

"We remain fearful that this profound error will come back to haunt Congress, public health agencies and even those who thought they would benefit from food safety exemptions, but more importantly, we are fearful of what may slip through the food safety loopholes . . . and adversely affect consumers."

The measure also gives the FDA the authority to recall food; now, it must rely on food companies to voluntarily pull products off the shelves. And the bill would give the FDA access to internal records at farms and food-production facilities.

The bill would for the first time require importers to verify that their products from overseas meet U.S. safety standards.

One in six Americans becomes ill from tainted food each year, and 3,000 die, according to government estimates. Businesses spend billions of dollars as a result of lost sales, recalls and legal expenses triggered by the problem.

The measure is expected to cost $1.4 billion over the next four years, including the expense of hiring 2,000 new FDA inspectors.
APPENDIX B - PRE/POST-ASSESSMENT FORM B

Name: ________________________________

Directions:
♦ Read the article on the following pages
♦ Create a “Headline” for this article
♦ Respond to the prompts below using clear and complete sentences

1. The author’s **purpose** for writing this article was …

2. Identify the **main problem/issue** raised in the reading.

3. Select and HIGHLIGHT (or underline) the one sentence that you think is **most significant** in this reading.

   **Paraphrase** (put it into your own words) the sentence you selected above.

   State **why** you think this sentence is the most significant one in the reading.

4. One **assumption** the author makes in the reading is …

5. State one **recommendation** for the consumer(s) about what you think should be done to begin to deal with the problem or issue presented in the reading.

   ________________________________

   **because**...
6. If the consumer(s) does not follow the solution/recommendation you made above, one implication or consequence will be …

   because…

7. Ask a vital question to the representative from Food and Drug Administration (FDA) based on something significant that you have just read in this article.

   Respond to the question above in a clear, complete and thoughtful sentence as if you were the FDA representative.

8. What is the overall conclusion the author came to in the reading?

S-E-E-: Complete the “E” for Elaborate and “E” for the Exemplify exercises below

**CONCEPT # 1: Hydrolyzed**

"FDA started the year looking more in command with the way it handled the discovery of hydrolyzed vegetable protein (HVP) contaminated with Salmonella Tennessee at a food processing plant in North Las Vegas.”

S: State the appropriate dictionary definition in a complete sentence (Use www.dictionary.com)

*Hydrolyzed comes from the word hydrolysis, meaning a chemical reaction in which a compound reacts with water to produce other compounds.*

E: Elaborate by writing the definition into your own words.

E: Exemplify--In other words, give an example from your own personal experience.
In a year when it had pepper up its nose and egg on its face, the U.S. Food and Drug Administration (FDA) still did a tidy little business managing the so-called "voluntary" recalls of America's food industry.

More than 235 FDA market recalls and withdrawals are in the book for 2010, a year that has not been the agency's finest hour. It blew the chance for smooth implementation of an egg rule that was years in the making and held the promise of bringing Salmonella Enteritidis, which lives inside eggs, under control.

Instead FDA faced headlines about the "government's failure to act" in major newspapers when two egg producers were forced to recall 550 million shell eggs after their operations were linked to a Salmonella E. outbreak that last spring infected at least 1,900 people.

It was the largest recall of table eggs in U.S. history.

Under the new egg rule, which went into effect on July 9, 2010, egg producers for the first time faced some specific requirements from FDA. It was because it did not earlier have such specific rules or standards that FDA rarely inspected egg farms.

Although inspections were hardly the centerpiece of the many plans the agency had for implementing the new egg rule, inspections of the two Iowa farms--after they were linked to the outbreak--revealed them to be breeding grounds for SE.

FDA started the year looking more in command with the way it handled the discovery of hydrolyzed vegetable protein (HVP) contaminated with Salmonella Tennessee at a food processing plant in North Las Vegas.

HVP is a common flavoring ingredient in processed foods, including soups, sauces, dips, dressings and stews. Nevada's Basic Food Flavors supplies the flavoring ingredient to hundreds of other food companies.

FDA credited its new Food Registry for the early warning. It told food companies to recall any product that used HVP and did not involve a "kill step" to eliminate the Salmonella. That led to 177 products being recalled in the HVP dragnet.

"Our investigators were able to identify this problem before any illnesses occurred," said FDA Commissioner Margaret Hamburg.

For a moment, FDA was the proactive food safety agency it wants to be, not the reactive one it is most of the time.

Also early in the year, FDA was confronted with an outbreak of Salmonella Montevideo that eventually infected 245 people in 44 states and the District of Columbia.

The investigation led to Rhode Island-based Daniele International Inc., which recalled ready-to-eat, Italian-style meats. While that would ordinarily be USDA's problem, it was the pepper coating on the meat that put the investigation into FDA's hands.
FDA found that pepper from two of Daniele's suppliers, Mincing Overseas Spice Co., and Wholesome Spice Co., were contaminated with the outbreak strain and those products were also recalled. The pepper was imported, probably from Vietnam.

Among the reasons for recalls are all sorts of health risks from undeclared allergens to bacterial contamination. When it is bacteria, most FDA recalls are for Salmonella and Listeria, but also E. coli.

In May, FDA found that romaine lettuce distributed by Freshway Foods matched an outbreak of E. coli O145 with confirmed cases in Michigan, Ohio and New York.

Both Ohio-based Freshway and Vaughan Foods, an Oklahoma supplier, recalled the bagged lettuce product that was grown outside of Yuma, AZ.

Last summer, at least nine people in California and Nevada came down with typhoid fever, caused by Salmonella Typhi. Typhoid fever is not common in the U.S., although it is common in many developing countries.

When that outbreak investigation found that only one of the victims had ever traveled outside the country, it fell to FDA to find the product that brought the Typhi here. It turned out that a mamey fruit pulp used in smoothies was responsible, and brought about the recalls of the La Nuestra and Goya brands.

A handful of dog and pet food recalls are included in 237 FDA recalls for 2010. Handling contaminated pet food can transmit Salmonella to humans.
APPENDIX C-STUDENT SURVEY QUESTIONNAIRE

DIRECTIONS: Please respond to each item below by placing an X in appropriate box.

Part I – Items #1 – #6 relate to your thoughts about ‘the classroom environment and course activities’ that you have experienced this semester in this class.

1. I found myself involved and engaged in the class work and assignments in this course.
   - Strongly Agree
   - Agree
   - Undecided
   - Disagree
   - Strongly Disagree
2. I found the activities in class assignments to be meaningful and interesting.
   - Strongly Agree
   - Agree
   - Undecided
   - Disagree
   - Strongly Disagree
3. I received regular and useful feedback on my work in this class.
   - Strongly Agree
   - Agree
   - Undecided
   - Disagree
   - Strongly Disagree
4. Whenever we got into collaborative group activities, each group member needed to do their own independent thinking first as the basis for the group’s work.
   - Strongly Agree
   - Agree
   - Undecided
   - Disagree
   - Strongly Disagree
5. I found the homework assignments to be meaningful and interesting.
   - Strongly Agree
   - Agree
   - Undecided
   - Disagree
   - Strongly Disagree
6. Because of the way this class was conducted, my voice and ideas were heard.
   - Strongly Agree
   - Agree
   - Undecided
   - Disagree
   - Strongly Disagree
Part II – Items #7 – #12 relate to your thoughts about ‘the art of reading’ that you have experienced this semester in this class.

7. As a result of taking this class, I am now more interested in reading.
   ✗ Strongly Agree
   ✓ Agree
   ☐ Undecided
   ☐ Disagree
   ☐ Strongly Disagree

8. This course has given me a better understanding of the value of reading.
   ✗ Strongly Agree
   ✓ Agree
   ☐ Undecided
   ☐ Disagree
   ☐ Strongly Disagree

9. As a result of taking this class, I now look more forward to reading than I did before.
   ✗ Strongly Agree
   ✓ Agree
   ☐ Undecided
   ☐ Disagree
   ☐ Strongly Disagree

10. The Tools I have learned to use in this class will be helpful to me as a reader in any class and in life.
    ✗ Strongly Agree
    ✓ Agree
    ☐ Undecided
    ☐ Disagree
    ☐ Strongly Disagree

11. I now have an appreciation of what it means when they say “the art of reading.”
    ✗ Strongly Agree
    ✓ Agree
    ☐ Undecided
    ☐ Disagree
    ☐ Strongly Disagree

12. I feel reading has become an essential part of my life inside and outside of school.
    ✗ Strongly Agree
    ✓ Agree
    ☐ Undecided
    ☐ Disagree
    ☐ Strongly Disagree
Part III – Items #13 – #18 relate to your thoughts about ‘yourself as learner’ that you have experienced this semester.

13. As a result of taking this class, I now realize I have the ability to think well about what I read.
   - Strongly Agree
   - Agree
   - Undecided
   - Disagree
   - Strongly Disagree

14. My confidence in my ability to understand what I read has increased by taking this course.
   - Strongly Agree
   - Agree
   - Undecided
   - Disagree
   - Strongly Disagree

15. I took initiative to seek help when I needed clarification with assignments.
   - Strongly Agree
   - Agree
   - Undecided
   - Disagree
   - Strongly Disagree

16. As a result of this class, I now feel more motivated to learn.
   - Strongly Agree
   - Agree
   - Undecided
   - Disagree
   - Strongly Disagree

17. I realize that my thoughts about what I read are valuable and worth sharing.
   - Strongly Agree
   - Agree
   - Undecided
   - Disagree
   - Strongly Disagree

18. Because of this course, I now feel more responsible and able to complete my work on time.
   - Strongly Agree
   - Agree
   - Undecided
   - Disagree
   - Strongly Disagree
## Graded TOOLBOX Reading Assignments (homework)

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## Other Graded Assignments

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Dissertation Title: THE EFFECTS OF USING OUR READING TOOLBOX: THE READING-THINKING CONNECTION IN A COMMUNITY COLLEGE DEVELOPMENTAL READING CLASS

Dear Student, this is a request asking you to participate in a study being conducted by Sylvia Garcia-Navarrete, a doctoral candidate in the Educational Leadership program at San Diego State University. Before you give your consent to volunteer in this study, it is important that you read and understand the following information. Please ask as many questions as you need to about anything you may be unclear on concerning what you are being asked to do. A signed consent is generally not required for exempt research; however, the researcher will provide adequate information about the research to potential subjects so that an informed decision can be made.

Purpose of the Study
The purpose of this study is to gain insights in two key areas: (1) students’ academic performance in terms class grades and retention and (2) students’ perceptions of classroom environment and course activities, the art of reading, and of themselves as learners when exposed to OUR READING TOOLBOX intervention in a developmental reading course. You were selected to participate in this study because you are enrolled in a reading class that she is teaching, and in which she has implemented OUR READING TOOLBOX as an innovative approach.

Description of the Study
This study will examine the effects on students’ academic performance and their perceptions when using the TOOLBOX as an intervention in a community college developmental reading class. All students enrolled in two sections of the practitioner-researcher’s developmental reading classes are potential participants of this study because OUR READING TOOLBOX will be used as the instructional approach to teach developmental reading.

Only existing data will be used for the study, including results from the course pre-test, post-test, 25 regular course lessons, 4 exams, a mid-term, a final, and other activities ordinarily encountered in regular class sessions. Only information attained from this course during this Spring 2011 semester will be used for the study. Each class meets for 75 minutes and there are 32 class meetings in one semester. As a routine part of the course, you will be asked to complete a student information sheet, a survey, and an open-ended questionnaire where you describe your learning experience while enrolled in this course. The survey includes questions about your perception of the classroom environment and course activities, the art of reading, and of yourself as a learner. To respect your personal and academic privacy, all your personal and academic information will be self-reported and no information will be attained from official school records. There will be no violation of confidentiality since all information will be coded so that any individual identifiers will be removed, shredded and discarded by the researcher to ensure data collected remains anonymous. All data will remain in a secured drawer located in the researcher’s office of employment.
The results will be reported in a dissertation that she will complete as a requirement of her graduate program.

**Risks or Discomforts**
There will be no risks or discomforts to you for participating in this study, as the activities performed are those ordinarily encountered in a regular class session. If you decide that you do not want your course materials and assignments used in the study, you may do so simply by asking to rescind your signed consent form or by putting your request in writing. Remember, having your materials used is voluntary and your choice to remove your materials from the study will have no consequences regarding your grade or your student/teacher relationship.

**Confidentiality**
The researcher understands the importance of maintaining confidentiality; thereby ensuring that your personal information gathered for this project will not be published or presented in a way that would allow anyone to identify you or the institution. The information collected for this study will be ONLY from this course and will be gathered from regular course lessons and activities, which you ordinarily encounter in class on a daily basis, or during course exams during the course of the semester. I will not be requesting any of your personal or academic information from the school records. All your personal and academic information that I will acquire will be self-reported on the surveys and questionnaires you will complete for this course. There will be no violation of confidentiality since all information identifying you will be removed, shredded and discarded. Your personal identity will be coded to ensure data collected remains anonymous. All records will be in the possession of the researcher, will be kept in a secured drawer at all times, and destroyed after the dissertation is complete.

**Incentives to Participants**
There is no incentive of any kind for participating in this study.

**Your participation in this study is voluntary**
Participation in this study is voluntary. If you decide that you do not want your course materials and assignments used in the study, you may do so simply by asking to rescind your signed consent form or by putting your request in writing. Remember, having your materials used is voluntary and your choice to remove your materials from the study will have no consequences regarding your grade or your student/teacher relationship.

**Rights**
You have the right to ask questions about this research before you sign this form and at any time during the study. If you have any questions regarding this letter, please contact the researcher at (619) 421-6700 x 5826 or sgarcia@swccd.edu. You may also contact the dissertation chair, Dr. Caren Sax at (619)594-7183, or the Institutional Review Board at SDSU (619-594-6622) to report problems or concerns related to this study.

Thank you in advance for your time and willingness to assist in this study.
Outcome Rubric – The Outcome Rubric described below is to be used for determining students’ understanding and attainment as they read using the specially designed Thinking-Centered Tools. It can be used to assess the quality of a single response to a specific prompt concerning what they are reading, their work on an in-class or homework assignment, their work on a quiz or exam, and their level of accomplishment for an entire course. The Outcome Rubric contains a scale describing the characteristics denoting quality of understanding and attainment and number of points to be given at each level of the scale.

Work using one or more of the specially designed tools from OUR READING TOOLBOX demonstrates THOROUGH UNDERSTANDING of what has been read (10-9 points) (grade = A)

Work using one or more of the specially designed tools from OUR READING TOOLBOX demonstrates GOOD UNDERSTANDING of what has been read (8-7 points) (grade = B)

Work using one or more of the specially designed tools from OUR READING TOOLBOX demonstrates ADEQUATE UNDERSTANDING of what has been read (6-5 points) (grade = C)

Work using one or more of the specially designed tools from OUR READING TOOLBOX demonstrates LIMITED UNDERSTANDING of what has been read (4-3 points) (grade = D)

Work using one or more of the specially designed tools from OUR READING TOOLBOX demonstrates NEGLIGIBLE UNDERSTANDING of what has been read (2-0 points) (grade = F)
APPENDIX G - STUDENT OPEN-ENDED QUESTIONNAIRE

Please read the following questions and then respond in clear and complete sentences. Your name will be removed from the questionnaire. Be assured that your responses are strictly confidential.

1. How has your experience using the TOOLBOX affected your perception of yourself as a reader?

2. Describe how using the TOOLBOX affected your reading ability.

3. How has your experience using TOOLBOX affected your attitude towards reading?

Thank you for your participation.
APPENDIX H - STUDENT INFORMATION SHEET

SPRING 2011

Name: ________________________________ Student ID#: ______
Course: ________________________________ Hour: ______

Directions: Please respond to the following questionnaire by placing an X in appropriate box for each item below

My Gender is … (Check one)
☐ Male
☐ Female

My Age is… ______

My Ethnicity is… (Check the ones that apply)
☐ African-American
☐ Asian
☐ Caucasian
☐ Hispanic
☐ Other ________________

English is my first or primary language. (Check one)
☐ Yes
☐ No If No, what is your first or primary language? ________________

This is my ________ semester at this college.
☐ First
☐ Second
☐ Third
☐ Fourth
☐ Other ____________________________