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Effects of an Online Skills Program on ELA Achievement Among GED Students

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COLLEGE OF EDUCATION

This is to certify that the doctoral study by

Gwendolyn Flowers

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2015

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BBA, LeMoyne-Owen College, 1995

Doctoral Study Submitted in Partial Fulfillment

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K–12 schools are more commonly using online learning to supplement traditional classroom learning. Previous online adult education researchers have found no significant differences between traditional and online learning. However, little research has been done with regard to online General Educational Development (GED)-level learning for adults. The purpose of this quantitative study was to explore the effect of the Skills Tutor program compared with traditional learning on GED student achievement in Reading/Language Arts. The Skills Tutor program was used as a means to address the low GED graduation rates at an adult education program through Memphis City Schools. This research was based on the constructivist learning theory. The research question examined the effect of an online skills program on English/Language Arts scores among GED students. Scores from the pretests and posttests of 40 adult education students were analyzed using analysis of covariance (ANCOVA) to determine statistical differences between 2 groups. One group (n = 20) received the intervention of the online skills program, Skills Tutor, along with traditional instruction, whereas the other group (n = 20) received traditional instruction delivered by the teacher only. The results indicated the traditional group's adjusted mean scores were significantly higher than the Skills Tutor group scores. Recommendations included additional research with larger samples of students, for a longer period, and focused on the fidelity of implementing of the Skills Tutor program at the local site. Implications for positive social change include providing research findings to the local administration on the current GED program and recommendations for continued research on the instruction that best supports adult learning.

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Dedication

My doctoral study is dedicated to the memory of my parents, Joshua and Thelma Avery Cowan; Minite Adams Solomon (one of my best friends from the seventh grade until 2013) and to the memory of my beautiful sister, Jennifer Cowan Carter. Without their love, support, and encouragement to strive on, I would never have been able to complete this task. Mama and Daddy, I miss you dearly. Jennifer, "Pinkie" as called by all of us, your sisters and brothers, I miss your long–distance phone calls of many funny jokes; keeping me full of laughter when I wanted to break down, cry and give up; and my driving to Texas just to go shopping with you. Mama, Daddy and Pinkie, you told me that I can achieve anything if I put God first. Thank you.

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Section 1: The Problem

Introduction

Research has established technology enhances student learning processes. In 1963, a computer code or language called (BASIC) was established, which allowed the computer to be used as an academic tool and for research (Hinkley, 2009). BASIC was not difficult to use because it could be easily adapted in various classrooms (McNamara, 2011). Therefore, software for many subjects, for students (of all ages) could be developed (Kemeny & Kurtz, 1968). With the computer, students were able to work independently, actively participate in the learning process, and master skills with practice and repetition (Molnar, 1997, p. 10). By the end of the 1970s, colleges, universities, and high schools used computer technology for instruction, and computers had become "as important as books and libraries" (Molnar, 1997, p.13).

Growth of technology in schools has helped students achieve high academic standards (Hinkley, 2009). In the late 70s, a computer revolution occurred: Computer use became common in laboratories, homes, libraries, and schools (Molnar, 1997). By 1975, "55% of the schools had access and 23% were using computers primarily for instruction" (Suppes, 1980, p. 13), representing a 54% increase, since the 1960s. During the 1980s, with the introduction of desktop/personal computers, computer technology was used as an instructional tool to augment education, training, and curricula development, with widespread usage for academics, government, and business (Jonassen, 2008). Subsequently, proliferation of instructional technology was designed to evaluate competency levels and outcomes related to student academic performance. Software and

other ancillary materials, designed for classroom use, emerged quickly from local and national levels (Clere, 2007).

Technology has changed, not only students' standards of achievement, but also the way society focuses on the learning environment of technology (Dukes, 2009). The Pew Research Center (2013), in focusing on technology-related research, conducted a survey on how technology affected student achievement scores in reading/writing at Troy High School in Fullerton, California. The Pew survey reported that approximately 75% of 2,462 teachers stated search engines had a mostly positive effect on student research skills (Pew Research Center, 2013, p. 78). Teachers stated such tools had made students more self-sufficient researchers and notice students' achievement scores had improved. Standards, criteria, and guidelines associated with technology in the classroom are often planned and implemented for education programs at each level, from kindergarten to 12th grade (K–12) (National Council of Accreditation of Teacher Education, 2011).

Early computers were used first for research purposes in the sciences and used later as a teaching tool. Subsequently, these purposes combined and helped solve problems in engineering, science, and mathematics (Levien, 1972). Early introduction of computers and other technology into K–12 curriculum came with challenges and barriers. Many teachers resisted the changes to implement computer technology into the classroom, forcing them to modify traditional teaching methods made them believe the changes would increase their work hours and instructional activities to implement computer technology in elementary and high schools. Issues for implementation were as follows:

- Teachers' limited knowledge of computers.
- Administrators and teachers failed to understand technology's value as an instructional tool (Becker, 1999; Becker & Anderson, 1998).
- Teachers' beliefs that computers would replace/displace teachers (Park & Ertmer, 2007).
- Limited amount of the software for areas, other than English and language arts (ELA).
- Frustration surrounding hardware that experienced many malfunctions (Diem, 2000; Harris, 2002).
- An infrastructure that did not support the purchase of hardware and software (Ertmer, 1999; Fabry & Higgs, 1997).
- Parents feared computers would cause physical harm to children.
- Computer anxiety among students.
- The digital divide (Alexiou-Ray, Wilson, Wright, & Peirano, 2003).
- Lack of professional development for teachers (Ansell & Park, 2003).
- Large financial investment needed to purchase computers and software. (Ansell & Park, 2003).

For all students, becoming fluent in using technology is becoming critical to ensure students job opportunities in today's world (Bates, 2007). On the other hand, the digital divide is a barrier and challenge. A digital divide highlights disparities in using technology (Pope & Golub, 2000). Factors that contribute to the digital divide are race, culture, social economic status, or region (Dodge, 2007). These factors present problems

to implementing technology in education, for students and teachers. A major problem caused by the digital divide for students that hindered introducing computer education, was access to computers for reinforcement, homework, and/or to reduce anxiety (Bates, 2007). On the other hand, teachers argue professional development is lacking and usually is not provided prior to using technology in the classroom (Pope & Golub, 2000).

According to Moursund (1999), more preparation and support was needed to assist beginning teachers with technology integration during the 1970s. In the late 1980s and early 1990s, colleges and universities began to include technology education courses in training paradigms for new teacher programs. However, the early courses, which were typically an introduction to computer science class, provided cursory overview that was not easily incorporated into existing curriculum. As a result, Moursund stated colleges and universities must not include technology use only in existing teacher training programs, but they should develop framework, models, and pedagogy to advance computer integration in classrooms. Shaltry, Henriksen, Wu, and Dickson (2013) contended undergraduate pre-service teachers lacked skills required to make effective and creative uses of technology in learning settings (p. 20). As a result, new teacher training programs should include experiences that model a functioning technology classroom. Shaltry et al. argued future teachers should not only "learn about technology, but should also learn with technology" (p. 20), exploring many kinds of software and using various media for instructions. Facebook, online portfolios, classroom websites, smart boards, and/or Internet, along with software, should be included in a model to trained new teachers to employ technology in instructional delivery (Kelly, 2009).

Information and software associates, Sivin-Kachala and Bialo (2008), researched and reviewed 311 studies involving how effective technology is on student achievement. A positive relationship was found regarding student engagement and technology enhanced classrooms. Notable gains across subject areas were noted among preschool, high school, and special education students. These gains improved the attitudes toward students learning and increased students' self-esteem (Sivin-Kachala & Bialo, 2008).

Definition of the Problem

Although the number of students entering programs to receive GEDs has increased over the years, the percentage of graduates from these programs has not increased (Memphis City Schools, 2012). Several factors may be contributing to this problem: a) GED students, at the study site, are unsuccessful in passing the Reading/English Language Arts (ELA) portion of the official practice test. Students must pass all subtests to successfully pass the GED; b) Students lack the technological readiness to be prepared for the workforce; and c) Teachers do not incorporate technology during instruction. This could be due to fear or lack of strategies and knowledge needed to implement technology effectively. Through addressing any or all of these problems, adult education programs may increase the number of students that complete the requirements necessary to pass the GED and be ready for the workforce.

The inability to pass the Reading/ELA subtest and the lack of technological readiness may be attributed to the fact that the current GED curriculum offers students skilled-based education preparation to rectify academic deficiencies. However, all instructions are delivered through traditional interactions between teachers and students.

The instructor and the textbooks, handouts, pen and paper exercises/drills, and oral discussions are the tools for this mode. As a result, students depend on teachers to augment academic performance, leading to the completion of the GED. Yet, this method is often not productive because students' skill levels remain unchanged, the academic levels are not enhanced, and additional time and practice are necessary for adult students to pass the GED test. At the end of a required unit and weeks of preparations, students taking an official practice test, which predicts the possibility that students could pass the GED test, are unsuccessful.

An average student completing the traditional instruction takes the official practice test three or more times before acquiring readiness skills to master the GED test. Kelly (2009) identified the problem: Adult learners, seeking to complete the GED requirements, need additional methods and experiences, other than traditional interactions, to develop skills needed to complete the equivalency test. The challenge is to find the most efficient means possible to reach adult students with an approach that is time and cost effective. The approach must also assist adult students at various academic levels. Kelly stated research is necessary to ascertain the value of using computer application and technology in adult learning programs (Kelly, 2009). With technology, adult learners use a computer-based skills software program that assesses competency levels and designs coursework for students to successfully pass the GED test or an adult equivalent diploma test (Memphis City Schools, 2012). Technology, such as the Skills Tutor program, has the possibility to revolutionize GED curriculum delivery. The introduction of the program is designed to enhance the learning experience for adults,

reduce the number of hours needed for instruction, reduce the number of hours needed for students to be in class, and result in a higher graduation rate, as well as increasing the number of high school graduates for employers (Memphis City Schools, 2012).

Although adult education is offered in high–school facilities in Memphis and Shelby County, the site for my study is the only school operated for adult learners. The site is funded by Memphis City Schools, which provided sites for various educational training programs and different activities (Memphis City Schools, 2012). Many classes were offered free of charge to adults who are at least 18 and are not credentialed (Memphis City Schools, 2012).

Adult Basic Education (ABE) and General Education Development (GED) for receiving degree completion are the same. Services are available for English as a Second Language (ESL) students in a graduation program located throughout the Shelby County areas. In addition, international students enrolled at the site were provided service without cost due to funds received from the school district (Memphis City Schools, 2012).

The study site that provided careers and technology education to the center failed to incorporate technology education and online education programs for enrolled GED students that would enhance their academic achievement (Memphis City Schools, 2012). The name and nature of the course suggests technology is included as an instructional tool. The site did not have technology to deliver online skill-based, e-learning technology that would enhance academic performance and increase progress towards program completion.

Using technology to complete GED coursework in less time would not only decrease classroom time, but would also increase graduation rates, social change, and the possibility for economic growth and potential for employment. Without online technology, the problem persisted for students and instructors, preventing students from receiving hands-on instruction and using a computer in the career and technology class (Ashburn, 2007).

Rationale

Evidence of the Problem at the Local Level

The adult education framework for this study was designed by a group called the Tennessee Adult Educators, which was based on reviews of adult education curricula and scores from standardized tests (Tennessee Adult Education Instructional Framework, 2011). The curriculum was based on the framework, which used ABE programs in a large urban education system in the south.

Instructions on basic remedial education consisted of courses in social studies, writing, language arts, reading, math, and science that enhanced students learning and reduced instructional time for instructors and students (Eastmond, 2006). Adult learners received instructions in areas needed to qualify for a diploma or a GED. The adult education framework is useful for adult education because it selects overall progression and develops an Individual Educational Plan (IEP) for each student.

A comprehensive plan, developed by the Skills Tutor program, provides structure for adult learners to complete the IEP requirements, moving from remediation to mastering the GED test, in less time, when compared with face-to-face instruction

(Houghton Mifflin Harcourt, 2012). Students are able to achieve personal goals in a predetermined amount of time as established by the plan. Adult students strengthen basic remedial needs and obtain skills that increase academic performance, thereby, acquire proficiencies and skills necessary for students, employees, and citizens.

The adult education framework presents teachers with a focused approach to deliver instructions that gives students the ability to progress quickly using computer-based instructions (Tennessee Department of Education, 2011). Computer–based instruction (CBI) was not designed to be an arranged course of study that maximized learning prospects to be at peril (U. S. Department of Education, 2010c). However, CBI was designed to provide clear instruction in the core academic areas which include: reading, mathematics, and language arts. In addition, the including of CBI allows educators to ensure learners focus on the specific skills necessary to obtain personal goals, progress through the national reporting standards and attain the GED as outlined in the IEP (U.S. Department Education, 2010c).

Computer applications also offer prepared instructional strategies, assessment protocols, and data interpretation of students' computer interaction while actively engaging student in the learning process (Cahoon, 2008). Not only does the computer application provide students and teachers with online registration, but the application also tracks attendance, aids retention, assesses pretests and posttest scores, records instructional gains, and reports final achievement scores. Therefore, technology enhanced the teaching/learning experience for instructors and adult students. For teachers, technology generated useful information for making informed instructional

decisions, with regard to pragmatic and instructional changes needed (Cahoon, 2008). At the same time, technology benefited students by providing more engaging and enriching learning opportunities, increasing motivation, and receiving higher test scores (Kelly, 2009).

The Skills Tutor program was introduced to the Memphis Adult Educational Program at a professional development workshop (Franklin High School, 2012). It was developed by Houghton Mifflin Harcourt (2012). The Franklin Professional Development workshop addressed strategies to assist struggling students and targeted skills in various subject areas to support and to improve students' learning and academic performance.

The Skills Tutor program promised to improve academic performance, reduce student deficiencies, and allow technology inclusion in the career and technology course (Houghton Mifflin Harcourt, 2012). Skills Tutor is a web-based product that could be used as a direct or indirect instructional tool in classrooms and in homes (Houghton Mifflin Harcourt, 2012). The software provided resources to supplement mathematics, sciences, social studies, reading, and ELA. The product was flexible and was designed to augment teachers and to provide directed instruction, could be used to provide indirect instructions, and report individualized tutoring. Skills Tutor is useful because the software was designed to diagnose skill levels, prescribe assignments, and generate reports for decision making. In addition, the Skills Tutor program was noted to increase students' listening, reading, and comprehensive academic skills (Houghton Mifflin Harcourt, 2012).

Evidence of the Problem from the Professional Literature

Whereas computers and software were available for use in elementary and high school curriculum in the early 1990s, technology was not extensively included in curricula or available for classroom incorporation until the 2000 education reform (Kinnanman, 2008). During that time, traditional modes of delivery of curriculum and instruction were primary, although it was not the best method. However, in the late 1990s, a major thrust of the 2000 education reform was to have at least one computer in each classroom by the year 2000. This reform dictated the removal of barriers and factors that hindered early acceptance of computer technology in classrooms for students as well as for teachers (Cowles, 2007). The reform leads the way for technology to be included within the classroom. Since 2000, "educational technology has become increasingly commonplace in classrooms, and Congress spent billions [of dollars] to give schools access to technology and online learning opportunities" (Campuzano, Dynarski, Agodini, & Rall, 2009, p. 1).

Although computer technology was present in K–12 curricula, research is not conclusive regarding the use of technology contributing to improvements in students' academic achievement beyond the K–12 levels. Because of the tremendous amount of money distributed to K–12 education, U.S. Congress investigated the feasibility of computer usage in the nations' classrooms. The findings from the empirical study were inconclusive. In 2007, the result of the congressional mandated study found that (a) technology did not change test scores, higher or lower, in a quantity that was statistically significant or greater than zero; (b) first grade reading scores improved but were related

to student/teacher ratio; (c) an increase in test scores for reading was directly related to the amount of time students were allowed to use technology, and (d) increased achievement in mathematics was not found with technology use. Nevertheless, Bates (2007) posited technology could strengthen and reinforce student outcomes across the curriculum in levels K–12. His study also supported this position.

To the contrary, Oliver and Herrington (2008) confirmed academic performance declined when technology was not used or was removed from the curriculum. However, in 2009 another congressional study found that the use of software did increase academic achievement, resulting in a change for the 50^{th} percentile to the 54^{th} percentile (Campuzano et al., 2009).

Investigating the phenomena, Walden University (2012) found technology in the classroom enhances and impacts critical skills essential for the twenty first century classroom. The finding was the result of data collected from 1,000 teachers and administrators (Walden University). In addition, the Walden investigation examined the value of technology education, specifically e-learning, as an enrichment tool to strengthen and advance skills in core subjects. Again, Walden researchers found favorable results indicating that students experienced an overall increase in academic performance, when technology was used. Moreover, students' skill levels improved, resulting in higher test scores, in ELA, as well as in mathematics, science, and social studies. The Walden research on e-learning underscored the emerging importance of integrating technology into educational programs for pre service teachers at Walden University (Walden University, 2012) and other education training programs. At the

same time, the Walden study ensured that future educators would receive e-learning instructions and would be prepared to teach 21st century skills in classrooms nationwide, using computer technology (Walden University, 2012).

Sage (2008a) stated implementing the Skills Tutor Program along with integrating technology in the adult center, curricula would be critical for the improvement of the social dynamics learning experiences. Educational researchers and practitioners argued against technology and its usefulness to help students succeed and increase overall academic performance of students in elementary and high schools.

Additionally, computers were instrumental in meeting goals of the No Child Left Behind school reform of 2001 (Ginsburg, 2008). Ginsburg implied that without reform, little value will be added to education by using technology and substantial reform that lacks technology would be difficult. Researchers further indicated how the process of understanding technology with education reform in instructional delivery would (a) improve the provision of services, enrollment and advance academic performance for students; (b) increase the levels for improvement in self-directed learner's scores; and (c) improve the align of existing diffusion with innovation theories and processes (Ginsburg, 2008). Essentially, technology will be a better delivery method over face-to-face instructional modality. This discourse is the foundation and basic for this research study.

Definitions

For this study, the following definitions were used:

Adult Basic Education (ABE): involves adult basic education that "provides curriculum materials used to prepare students for a high school diploma or equivalent certificate such as a GED" (Merriam & Caffarella, 1999, p. 47).

Adult learner: an older person that is at least 25 or older that is pursuing a postsecondary degree (Conaway, 2009).

Andragogy: Andragogy is a method or techniques used to teach adults (Knowles, 1980).

Direct instruction: "direct instruction by a teacher employing objectives and lesson plans related to an overall curriculum guide in order to teach specific content, customarily using the lecture method" (Young, 2006, p.3).

Distance learning: distance learning is a method of learning in which the student and instructor are in different locations and therefore, can be performed synchronously or asynchronously; which lessens face-to-face classroom scheduling through student participation via the Internet, through pre-recorded television or via audio and live television or audio (U.S. Department of Education, 2010c).

E-learning: technology that "enables people to learn anytime and anywhere which can include training the delivery of just-in-time information and guidance from experts." (Schiffman, Vignare, & Geith, 2007, p. 61).

Face-to-face instruction: traditional teaching method in which the teacher and the student are in the same place (Memphis City Schools website, 2012, www.mcs.com).

General Education Development (GED): a test of high school level knowledge and skills. The tests are widely used in the United States, Canada, and the insular areas (Tennessee Department of Education, (2011).

Independent learning: independent learning is "the ability of the adult learner to take the initiative, with or without the help of others, in diagnosing their learning needs, identifying resources, choosing and implementing learning strategies and evaluating his or her learning outcomes" (Knowles, 1975, p. 174).

Instructional technology: instructional technology uses technological processes and resources to enhance performance (Richey, 2008).

Technology infrastructure: a set of organizational service-based systems budgeted by management and comprise both human and technical capacities which include computer hardware, applications, telecommunications, database, IT education services, and IT research, and development (Gleick, 2011).

Web 2.0: Web 2.0 describes the concept of the next generation Internet to the sizeable group of users. The original principle characterizes the collaboration and interactive nature of this generation of web use. It relies on user produced content and two-way interaction as much as the initial generation static driven websites or top-down content provider model (O'Reilly, 2009).

White papers: white papers is a report or guide helping readers to understand how to solve a problem, make a decision, or understand an issue (Stelzner, 2007).

Significance of the Problem

The significance of this study was limited to students using the Skills Tutor online program at one adult education school in Tennessee, and does not necessarily reflect the success of online students at other institutions in adult education. This study was limited to just one online learning class for one subject. However, the outcome of this study may not apply to all subjects and situations.

Due to an evolving society, changes in environment, changes in the global economy, and changes in technology, "a theory of effective computer-based instruction for adults, will have a major impact on the delivery of training and education for older learners in the society." Technology use will increase as computer skills are translated and related to the global market (McCrea, 2009, p. 170). A focused study exploring technology's ability to enhance ELA academic performance could offer additional insight to instructors towards guiding instruction to assist adult learners in acquiring skills to master the GED. In addition, the investigation provided knowledge regarding the positive accomplishments of students using technology. The results of this study provided a direction for future curriculum development, relating to the combination of technology, and ELA student relating to mastery of materials essential for the GED completion. The potential GED students received course development benefits from the study such that Skills Tutor meets Tennessee's state standards and is aligned with state and national education curriculums (Houghton Mifflin Harcourt, 2012).

Skills Tutor features a resource library that includes videos, news, webinars and research articles. Skills Tutor program results might make an original contribution in the

field of GED education by encouraging adult learners shift their paradigm from receivers of information to seekers of information in adult education classrooms using technology as a guide (Houghton Mifflin Harcourt, 2012). GED learners are "empowered to obtain a depth of knowledge while teachers are empowered to design learning environments that value critical thinking and application" (Jonassen, 2008, p. 36). Technology is a tool that allows for flexible communication, differentiated instruction, and collaboration among educators that assist in meeting the individual needs of students (Houghton Mifflin Harcourt, Skills Tutor, 2012).

The primary significance of this study was to increase the body of literature regarding e-learning specifically relating to adult basic education. In addition, the study examined the Skills Tutor program and its ability to strengthen, enhance, and increase academic performance of the adult learner. Knowledge and skills gained through integrated computer usage could be transferred to others with experience beyond the classroom. Information regarding technology could create learning opportunities for pupils and educators as they face difficulties in society. Technology could also help to connect adult learners with other learners by helping them develop strong social and leadership skills in a global environment.

Technology is just one of the tools that can be used as a problem-solving tool to address an ever-changing society. "The concept of the 'triple helix' described the closer interrelationships among universities, industry, and government" (Ranga & Etzkowitz, 2013, p. 250), and it is related to the expectation that universities could contribute to innovation through research and knowledge and technology transfer. This quantitative

study contributes to positive social change by looking at Skills Tutor online learning as an alternative choice for learning by adult students. Innovation in advancing the technological work skills of students is crucial in remaining competitive on the regional and national levels and for the advancement of social change (Ranga & Etzkowitz, 2013).

Research Question

The question guiding this research was:

What is the effect of an online skills program on ELA achievement of GED students?

The hypotheses that were used to investigate the research question were:

- H_0: There is no significant difference in the mean achievement scores for students who did and did not use an online skills program in the GED class.
- H_1: There is a significant difference in the mean achievement score for students who did and did not use an online skills program in the GED class.

Review of the Literature

The reason for this literature review was to examine existing research on technology integration in adult education. I reviewed and further explored the research on educational technology and expounded the effect of technology on students' academic achievement. Additionally, the review provided a discourse on the need for professional development for teaching and learning and andragogy. The learning theories under investigation were learning through transformation processes. Certain characteristics of

an adult learner have a major impact on adult learners and on the design of an online learning environment (Jackson, Guadet, & Brammer, 2009).

Herrington and Kevin (2007) argued that, when feedback was provided immediately along with instructions, adult learners had the most profound gains using various technology software programs. Knowles (1980), a noted researcher of adult learning, was often called the grandfather of the andragogy theory. Andragogy is the theory that develops procedures and processes for assisting and improving learning outcome of adults (Merriam, 1998a). Specifically, according to this theory, teachers and administrators must propose and adopt a curriculum that concentrates on explicit student requirements (Easton, 2008). Subsequently, in order to adequately meet adult learners' needs, curricula should subscribe to the underlying assumption that there are differences that exist in learning amongst the learners (Klien, Knupfer, & Crooks, 2006).

In their study, Klien et al. (2006) found that "technology is no longer viewed as the domain for young school age children but it has implications for the adult learner as well." Computer usage should become mainstreamed within classrooms. This provides a capacity to be more easily trained and guarantee achievement in the workforce. The understanding of integrating an online Skills program for the adult learner should not hinder the learner's goal.

Further research content dealt with the achievement of merging technology in a curriculum increasing odds and the prospect that knowledge would be used with adult learners (Klien et al., 2006). Theory of teachers' and students' engagement was relevant to literature regarding online learning that indicated how students provided a better

method of understanding knowledge. Cavanagh (2006) recommended that students who are shy or socially uncomfortable often excel online when they are removed from the constraints of the traditional classroom. Online students who struggle with in-class group discussions flourish when they produce written work online. Levels for online learning becomes the playground for students because everybody is equal online.

Theoretical Framework

This literature review provided a framework for technology applications that enhance adult learners by using an online e-learning program. Milone's (2006) philosophy emphasized how technology should not be used in the classroom in a manner that Bubules, Callister, and Taaffe (2006) called "rejectionism" (p. 272). Milone (2006) proposed that technology usage offers a definite benefit. The ideal for computer technology can be found somewhere between rejectionism and boosterism. A position of balance between these two dichotomous positions would be essential for adult learning to occur. The goal use of computers is to enhance positives aspects with various technologies in the classroom (Baack & Brown, 2005). Some technologies presented in the market today are available for instruction and are not beneficial for merit investment.

Ryba and Brown (2010) stated that "technology has evolved and became more centralized to teaching and learning" (p. 462). Sivin-Kachala and Bialo (2008) illustrated technology was used across disciplines, included in K–12 classrooms and in adult learning classrooms as well. The relevance of various technologies was supported by the continued allocation of resources that support the needs of the global market (Ryba & Brown, 2010).

Technology was also pertinent because there was no existing agreement governing its usage (Ryba & Brown, 2010). Ryba and Brown valued technology use because it helped the students. Roberts (2005) postulated that the nation's global economy could be forged together through advances in information technology and communication.

Moisio and Smeds (2006) agreed with the viewpoint adding globalization as one of the "two overarching conditions [that] were transforming the structures and practices of higher education" (p. 27). Cahoon (2008) defined "current developments with technology and social software were significantly altering: a) how learners access information and knowledge; and b) how learners dialog with the instructor and with each other." O'Reilly (2009) described the on-going impact the use of web will have on the creation and distribution of information. Waxman, Connell, and Gray (2002) stated that in the 21st century students and schools will experience different kinds of demands than other centuries due to the need for computers skills.

Students now attending schools are known as the digital generation. The digital generation has begun to replace Generation X, and education has to reflect on these changes (Belanger & Jordan, 2009). In this digital age, schools are charged with the challenge of assisting students with living, learning, and working in this data-based milieu. Technology has drastically changed corporate, commercial, and home communications (Waxman & Huang, 2007). Roberts (2005) maintained it was crucial that technology be integrated into the curriculum, thereby helping students to communicate, problem-solve and seek information more effectively. In addition,

computer technology would assist teachers to direct learners to become computer literate and to think critically and collaborate more effectively (Sage, 2008b).

Through using technology, students can gain the ability to think logically and critically. "The importance of all students having equitable access and use of technology should include females, special-needs students, minority students, disadvantaged students, students at risk of educational failure, rural and inner-city students" (Waxman et al., 2007, p. 45). Sage (2008a) added that there has been an increase in computer and other technology availability, causing concerns educators and leaders about how computers will change learning. Many teachers continued to explore integrating technology to increase achievement (Vannatta & Fordham, 2006). Another concern related to technology is that it should support curriculum standards, engage students, and improve academic performance, as well as solve problems, develop reasoning skills, help them learn to communicate, and understand connections within curriculum (Vannatta & Fordham, 2006).

Effective Teaching Practices

Gillard and Bailey (2007) found that teacher effectiveness was defined by student achievement, while other researchers focused on other relevant stakeholder ratings (Parr & Ward, 2007). Herrington and Kevin (2007) concentrated on the pedagogy and processes employed by effective teachers who successfully assisted students in excelling academically.

Hinkley (2009) affirmed that instructional strategies would provide a good guide for educators, leading to successful outcomes for all students. The researchers compiled

research-based strategies that were used as an effective tool to guide instruction and possibly increase student achievement. A few of these strategies are provided in Table 1.

The researchers gave many recommendations from some of the nation's exemplary classrooms (Zemelman, Daniels, & Hyde, 2006). The findings indicated there were several common strategies shared amongst superior teachers such as organization, time and classroom management, use of materials and space that created environments that were conducive to learning. Additionally, few subjects of interest were identified by teachers which built extended units around certain topics. Teachers concurred that students working in groups, without constant supervision of an instructional leader, allowed students to complete activities using critical thinking skills found within the groups. The size of the group was not important. Students groups were composed of pairs, groups of three, and/or short-learning needs, while accomplishing goals and gaining knowledge (Sage, 2008a).

Table 1

Instructional Strategies for Enhancing Student Achievement

Instructional strategy	Reference
Providing recognition of gains made	Gillard & Bailey, 2007
Practice through repetition	Herrington & Kevin, 2007
Homework	McCroy, Putnam, & Jasen, 2008
Test questions	Gillard & Bailey, 2007
Assisted learning using cues	McCroy, et al, 2008
Means to test and generate hypotheses	Gillard & Bailey, 2007
Organization skills	Ohlsson, 2011
Immediate feedback	Ohlsson, 2011
Reinforcement	Ohlsson, 2011
Nonlinguistic representations	Herrington & Kevin, 2007
Cooperative learning	McCroy, et al, 2008

Workshops in an ELA classroom allowed students to have some autonomy in selecting writing and reading choices. It also offered creative scheduling within the class to maximize the time allotted for students to complete various assignments (Stelzner, 2007). Students collaborated with classmates, keeping records of the progress, and completed self-evaluations (Stelzner, 2007). The teachers' role was to monitor the reading and writing processes. Students reported receiving appropriate, relevant and practical experiences (Allen, 2006). Schools purposefully targeted the use of quality

assessments that reflected how well students were using problem-solving, higher order thinking, and research in reading, writing, and mathematics (Tharp, 2009).

Adult Learning Theories

Several of today's classrooms are not student-centered. The focus is more on the pedagogical delivery of information by instructors. These pedagogical strategies consisted of the lecture to students, who rarely provided feedback due to the "sage on the stage" precept (Tweedell, 2010). This model was most often used for instructing students in elementary and secondary schools. This model is also continued with adult learners as well (Barnes, Marateo, & Ferris, 2007). Convenience and busy external schedules are often cited by adults as the rationale for choosing online learning environments. However, using online learning was not sometimes available for delivery of adult education with the use of e-technology. Previous histories and experiences with online learning influenced the perceptions and expectations of adult learners (Tweedell, 2010). Ausburn (2007) reported that "learners with varied characteristics not only preferred but benefited from differentiated instructional methodologies, instructional features and goals" (p. 329). Schools must consider the various characteristics of adult learners when developing online learning programs (Bannon & Packett, 2007).

The adult learning theories that inform teaching and learning have their foundations in philosophy and psychology (Merriam & Caffarella, 1999). According to Parry (2009), learning is about change in supporting faculty in gaining a level of understanding regarding adult students and a more meaningful learning experiences for their students. Parry (2009) suggested that there was not one singular adult learning

theory that could be applied successfully to all adult learning environments. Several theories were developed to explain or describe the best practice of learning environments (Wang, Haertel, & Walberg, 2009). However, few theories are available that explain how GED students learn (Merriam & Caffarella, 1999).

There are several theories that offer insight into the process of learning for adults. "Existing theories provided frameworks or models, each of which contributed something to understand adults as learners" (Merriam & Caffarella, 1999, p. 271). They also examined how the educational process progressed over time. Theories provided information regarding the process of learning and the kind of attention that should be given by teachers to students. Theories should be sources of learning and not the product of learning. Many instructors focused on the product, which was the end result of learning, and not the foundation of learning. The primary focus of theory was the outcome, which focuses on the changes in behavior and attitude. Results of the outcome led to measurable benchmarks and proof that learning had occurred (William & Thompson, 2008).

Pre service teachers were trained to deliver instruction using multiple forms of technology. As a result, 21st century classrooms include teachers equipped with knowledge to provide instructions with technology, such as computers, smart boards, I Pads, and clickers. Curricula were included in college and university studies that provided instruction computer usage and integration. Therefore, teachers were prepared to incorporate technology to support learning opportunities that would enhance and increase academic performance (ISTE, 2006). This training aligned with the

Constructionist theory. Traditionally, methods of instructional delivery had been the lecture format. Consequently, the only stimulus provided in the classroom was from teachers who used blackboards, overhead projectors, or other means of delivery to engage students in the learning process.

In some contemporary classrooms, students work with little or no instructional tools that motivate, encourage, and/or interest students to acquire and/or retain knowledge. Therefore, the teachers' responsibility was to communicate knowledge to students (Rice, 2011). One major flaw of this approach was the assumption that students learn at the same pace and had the same learning style. Constructivist learning theory indicated that teachers should relinquish the role "as sage on the stage and instead become a director on the side that acts as a facilitator of the learning process" (Zimmerman, 2009, p. 330). Technology would engage students to become active learners in the classroom, as teachers allowed students to participate in student directed learning activities. Discovery learning, hands-on learning, task-based learning, and experiential learning were activities that permit students to be directly involved in the learning process, which could be said of computer technology as well (Fidishun, 2007).

The behavioral approach to learning encouraged teachers to develop the primary responsibility of providing instructions and techniques for students. However, students seemed bored when students lacked the opportunity to collaborate and receive supports from other students and were not provided with the opportunity to utilize other tools such as computers and calculators (ISTE, 2012). When there is a large demand for graduates

that are proficient in reading, writing, basic computation, and following directives of employers, certain approaches to education thrive (Kozma & Schank, 2008).

While pedagogy is a concept to the teaching of children, where the teacher is the focal point, andragogy shifts the focus from the teacher to the learner (Tweedell, 2010). Andragogy, introduced by Malcolm Knowles (1975), is a learner–focused concept that has its foundation in humanistic learning theory (Merriam & Caffarella, 1999). Knowles and associates (1984) noted that andragogy is "the art and science of how adults learn." In order to understand andragogy, one must understand what being an adult entails and the "activating or enabling environment that best supports self-directed learning" (Clardy, 2005, p. 5). Knowles (1975, 1980) posited that an assumed idea regarding the adult students was the fact that the learners were self-directed. Teachers identify the level of potential, aptitude, of the adult learners and develop an on-line curriculum tailored for the needs of the adult learner. Therefore, students should be able to maintain behaviors that aligned with the beliefs supported by the andragogy theory. Knowles et al (1984) continued to expand this theory using the andragogical model with adult learners.

A major assumption driving andragogy is the concept that adult learners were self-motivated, responsible for personal learning experiences, and was self-directed. The goal was to explain adults' relationships with education. Fidishun (2007) suggested that learners should be free to direct themselves or become self–directed since most of their previous educational experiences have been directed or driven by the instructor. As a result, educators encouraged students to become self-directed learners. A limited number of learners are self-directed enough to master online learning (Fidishun, 2007). Online

learning can give more students a chance to succeed and become motivated while becoming self-employed learners (Dukes, 2009).

Some students could require motivation or procedures that would propel adult learners to become self-employed learners. "This action caused some students to express negative opinions, especially students who would rather remain passive participants in the learning process, rather than becoming actively involved in the learning process" (Dukes, 2009, p. 197). Allowing students short, directed, concrete online tasks that provided the most learning for the experience, thereby presenting a need for adults to envision the relevancy of online learning (Fidishun, 2007). Many learners, as adults, have experienced differences in instructional delivery methods. Comparing previous experiences acquired in earlier learning environment as a youth (K–8), an adult accumulated a growing reservoir of experiences, which was a rich resource for learning (Merriam & Caffarella, 1999).

An assumption held by teachers and administrators was that adult learners, seeking a GED, came to the academy motivated and ready to learn. According to Merriam and Caffarella (1999), who stated that "the readiness of an adult to learn, often relates to the developmental tasks of his or her social role" (p. 272). Furthermore, the researchers argued that ever-changing social roles within a society are closely linked to students' learning needs. Merriam and Caffarella (1999) believed that "adults were motivated to learn by internal factors, rather than external ones" (p. 272).

Improved "quality of life, self-esteem and job satisfaction are all factors identified as motivators by adults" (Burge, 2007, p. 11). Fidishun (2007) offered that

several factors could be included in online environments that would address the motivators of adult learners. Sage (2008a) stated that regardless of age, respect should be extended to all students. Instructors should provide spaces for on-line learners to reflect, to be guided, and to be encouraged about the personal performance and the ability to learn new competencies (2008a).

Characteristics of Adult Learning Styles

Eighty percent of students in higher education settings make online learning available. The U.S. National Council of Education Statistics (2010) reported (a) that almost two thirds of all brick and mortar colleges, offering traditional courses and online courses as well; and (b) the increased number of adults participating during the years 2010 and 2011 was 3.5 million. The largest increase in online students was during these years, representing larger percentages of increase in online enrollment (Allen & Seaman, 2011). Dischler (2010) showed that the more access to computers a student has, the less likely they are to drop out of school. Students who have chosen to dropout due to the structure of traditional learning may find new opportunities with online learning to succeed in school (Cahoon, 2008).

Adult learners' personal responsibilities like "families, jobs, transportation problems, and income needs could disrupt and cause barriers in the learning process (Allen & Seaman, 2011). Each of these life experiences distinguishes adult learners from traditional college students. Many adult students enter the GED programs and manage to complete course assignments, while balancing the responsibilities of family and work. Adult students have high levels of motivation and focus on the tasks assigned to them

(Merriam & Caffarella, 1999). The ability to excel was important for students, specifically the adult learners to succeed (Clark, 2009). The accommodations necessary to make online learning environments conducive for adult learners is found in Table 2.

Researchers noted that learning styles research is a field that has experienced a significant increase of models and assessment inventories and tools (Coffield, Moseley, Hall, & Ecclestone, 2006). Coffield et al. (2006) advanced the following as problems of learning styles inventories:

- A lack of a unified or common learning style,
- Weakness in reliability and validity research,
- The classification or grouping of individuals using categories or dichotomies, and
- The commercial gain that authors sought through the sale of the instruments.

Palloff and Pratt (2007) noted, "underlying learning style research was the belief that students learned best when they approached knowledge in ways they trust. A one size fits all approach would not work" (p. 31) with adult learners. Recommendations for online learning environments to include student learning styles are included in Tables 2, 3, and 4.

Table 2

Adaptations to the Online Learning Environment

Adaptations learning environment	Performance Improvement
Adults may have some limitations and these should be considered in the design of the online environment.	Maintain large, easy to read fonts and bold colors. Use variety of graphics, images, and tables. Ensure compliance with Americans with Disabilities Act and Federal 508 guidelines. Use a clear menu structure. Use a search and find function. Provide practice with feedback and self tests. Provide record keeping among session. Provide frequent entry and exit points. Be consistent if using a metaphor. Ensure there is no cultural bias.

Note. Adapted from "Building Expertise Cognitive Methods for Training and Performance Improvement," by R. Clark, 2009. Washington, *D.C: International Society for Performance Improvement, 13*, p. 276.

Educational Technology in Adult Basic Education

Innovations in technology "brought increasingly diverse and more powerful technological tools into schools in the 1970s and 1980s" (Barron, Kemker, Harmes, &

Kalaydjian, 2003, p. 492). However, within past decades, the advancements in innovative technology in classrooms has been quickly developed and dramatically accelerated to create software conducive for instruction. The "research is beginning to show that success requires understanding the complex interactions in classrooms between teachers, students and technology" (Honey, Culp, & Carrigg, 2000, p. 11). Whittier (2007) stated to have proper technology integration within a lesson, teachers need time without students present to thoroughly review technology applications and decide how best to used them to address the particular needs of their students and curriculum. Whittier (2007) noted that besides the inability of schools to be able to provide the needed planning time, there were additional barriers such as lack of tech support and in-service training that focused more on the use than the proper integration of a particular technology application.

Kinnaman (2008), believed that computers within the curriculum was insufficient; it should included the incorporation of computer technology, suitable for online learning and involved providing teachers and administrators with sufficient levels of training on the usage of both the hardware and the software. Incorporation of these steps could lead to enhanced student learning. The infusion of technology was to be used to reinforce learning. Sheehan and Nillas (2010) examined added technology integration to mathematics classrooms and found that students were more motivated, attentive, and reached deeper understandings of the concepts through visual representations. When successful implementation occurs, the rewards may be great in improved teacher practices and student achievement (2010).

Preparing teacher education programs to equip pre-service teachers with effective strategies is one strategy to close the digital gap. Novice teachers can learn to utilize technology in the areas of reading, mathematics, science, and social studies in order to have their students use technology to investigate concepts and solve meaningful problems in the content areas (Rohaan, Taconis, & Jochems, 2009). Technology required teachers to select strategies for integration. Abbott and Faris, (2011) stated that integration in education is the ability to make pedagogical changes in curriculum which included technology.

Problem–based strategies for learning have become one of the most popular methods of instructing adults in the 21st century. This strategy included allowing students the opportunity to examine problems and to provide solutions based upon authentic problems. Caudron (2010) described the utilization of teaching and inquiry critically think through problems as problem-based learning. Integrating appropriate technology was critical to not only problem solving, but discovery learning, presenting problems which the student must solve (Ausburn, 2007). Students would be able to incorporate technology at each learning stage (Krathwohl, Bloom, & Masia, 1973). "Thinkers, problem solvers, collaborative colleagues, and technology-literate citizens, adult students could use problem-based learning and technology as the means to that end" (Sage, 2008b, p. 12).

Table 3

Houghton Mifflin Harcourt Modules

Modules	Descriptions
Reading comprehension	Consist of a variety of instructional strategies that support students with before-reading, during-reading, and after-reading interactions.
Reading vocabulary	Builds essential vocabulary with more than 1,000 key vocabulary words and 2,000 or more related words from research-based compilations. Activities cover synonyms, antonyms, prefixes, suffixes, root words, and reading strategies.
Language arts	Covers essential skills found on major standardized tests in lessons that are presented within a variety of literature types-fiction, nonfiction, essays, and poetry.
Reading	Strengthens strategies while reinforcing reading fundamentals of vocabulary, word knowledge, and reading comprehension.
Writing	Improves writing skills and teaches students to communicate with clarity by focusing on language mechanics, language usage, sentence structure, clear writing, and paragraphs.
Language	Develop effective written communication skills by teaching the proper mechanics of capitalization, grammar and usage, punctuation, and spelling.
Science I	Covers key concepts in life science, physical science, and earth science.
Science II	Expands on the basic and builds practical knowledge in biology, chemistry, and physics.
Math	Covers basic mathematics related to number concepts, computation, word problems, and measurement and geometry.

Modules	Descriptions
Intermediate mathematics	Advanced concepts that sharpen students' skills in proportion and percent, introduction to algebra, geometry, and statistics and probability.
Algebra	Develops algebraic understanding and competencies in equations, inequalities and polynomials, factoring and rational expressions, functions, graphing/equations.

Note. List compiled from Houghton Mifflin Harcourt Skills Tutor

Table 4

Information and Workforce Readiness of Skills Tutor

Skills Tutor	Results
Information skills	Teaches students to focus on accessing information through comprehensive lessons and real-life examples using dictionaries and books, using references, computer information, maps, charts, and graphic.
Workforce readiness skills	Develops the skills necessary to find, obtain, and maintain employment, job search skills, employability, and life skills.

Note. List compiled from Houghton Mifflin Harcourt Skills Tutor

Dockstader (2007) noted that successful programs integrate technology and instruction for various learners. Results on the investigation of computer technology within the classroom have been beneficial in the identification of an optimistic level to increase learning, aptitudes, and attitudes of adult students, leading to students' personal concept of self and ability to gain knowledge (Burke, 2009). Special preparation to train, schedule, and design was critical for the implementation of an integrated approach to

learning, using technology (Eisenberg & Johnson, 2006). In addition, vital to the successful integration of technology was the initial assessment in which students would learn the amount of individual skill deficiencies. A computer based learning program was developed to identify deficiencies in skills, establish goals and timelines for completion of the GED, and process to overcome learning deficiencies. Therefore, students, along with teachers, would have a plan and a guide available for the use of the computer that was also innovative and dedicated to each student's personal needs or deficiencies (Fidishun, 2007).

In the 20th century, changes in technology greatly impacted society and the economy. Each entry of innovative technology required adjustments and modifications on the part of adult learners. Educators struggled with how to incorporate technology in the classroom without diminishing or disrupting the learning process (Field, 2008).

The study site has not yet prepared for the 21st Century technological era (Memphis City Schools, 2012). Several teachers at the study site have no online experience. Since introduction of personal computers, individuals have the opportunity to use computers as a tool in the home and office, using one machine (the computer and its various software programs) to accomplish tasks that in past years would have required many other instruments. The computer, because of its utility has made equipment such as the typewriter, 10–key calculator, data punch machine, telephone, and mailrooms obsolete (Godbey & Richter, 2007). Today computer technology, because of the many search engines and the enormous kinds of information found therein, has fundamentally changed the ways instruction and learning occur.

The primary value of the computer is that it has provided skills for students that were critical to thrive in the home and in the work force (Tennessee Department of Education data, 2011). According to the Tennessee Department of Education data, (2011), today computer literacy skills and attainment of at least a level of proficient is required for adults. Technology was essential for improving learning, increasing productivity, as well as increasing overall performance of tasks, particularly, those tasks that were repetitive. Technology skills are basic skills that adults must master to be a value to society (Fidishun, 2007). The provision of computer instruction to students is as critical as traditional teaching methods (Kinnanman, 2008). In the 21st century, computer technology is a major part of life (Tennessee Department of Education, 2011).

Tennessee Department of Education data (2011) stated technology can enrich education, students with access to computers, along with trained teachers, learn much faster and better. Usage of computers in the curriculum, according to the Tennessee Department of Education data (2011), elevated basic skills scores of adult students on standardized tests increased by 10% to 15% judged against scores taught by traditional instructional methods. Students learned skills at a personally established pace and used the computer as needed. For students with disabilities, technology such as a word processing and speech recognition programs, provided a tool that addressed challenging courses (Tennessee Department of Education, 2011). Computers provide virtual visual aid to view, for example the human skeleton system rather than reading a text book. Thus, students increased their knowledge of the skeletal system, using each of the

learning style skills–visual, oral, and psychomotor (Tennessee Department of Education, 2011).

Sivin-Kachala and Bialo's (2008) study that examined computer integration's effect on learning, revealed environments considered to be enriched by technology reported significant student achievement and academic gains in most subject areas. An increase in academic achievement scores were found in students enrolled in pre-K, elementary, high school, and adult education; as well as students with physical and mental challenges. In addition, curricula enhanced by technology improved various student-specific factors such as self-esteem and attitudes toward learning (Koreniowski, 2007).

E-learning

The examination of various teaching methods on student achievement has become more relevant due to the increase in e-learning's popularity (Allen & Seaman, 2007). E-learning's popularity has gained momentum amongst adult learners. E-learning has the capability to reach students outside of the realms of the traditional system of delivery, the classroom. Brick and mortar campuses, with traditional classrooms, are often inaccessible, due to geographical distances, busy lives of working adults with families, professional duties and/or other responsibilities (Allen & Seaman, 2007). Evidence suggests that myriad teaching strategies may lead to success in the classroom.

According to Moisio and Smeds (2006), with the establishment of electronic learning, teachers and administrators have reconsidered the process of providing education to students. As a result, distant learning programs have become the norm,

because of the unlimited possibilities granted due to the combination of computer technology and learning. According to Goodridge (2009), researchers' observation from customers' perspectives, focused on the development of activities that held the greatest value for the customers through e-learning. Moisio and Smeds (2006) noted that computer technology offered opportunities for instructional methods to produce a higher proficiency in economic operations and enhance the utilization of web-based skills and knowledge of students. However, other noted researchers (Bates, 2007; Becker, 2009; Campuzano, Dynarski, Agodini, & Rall, 2009; Koreniowski, 2007; Walden, 2012) found that technology did increase the academic performance of students.

Skills Tutor Program

The Skills Tutor program provides integrated, online instruction that targets students' deficits to improve student achievement (Houghton Mifflin Harcourt, 2012). This tutoring program is aligned with standards required by Tennessee (2013), while addressing the learning requirements, monitoring skill mastery, improving proficiency, motiving engagement, extending learning, and supporting diverse learning styles. The Skills Tutor program fosters skills at level, K–12. Skills Tutor's management system has a built in accountability system that tracks individual student progress (See Table 4). The progress reports that are system generated reduce the amount of time teachers use to create reports by documenting and monitoring results. It streamlines the process for teachers and assists administrators in a comprehensive monitoring of the students and the program (Houghton Mifflin Harcourt, 2012).

Online Education

In 1970, Walden University was organized by Bernie and Rita Turner, teachers in New York, to provide distance learning for adults. The Turners' goal was for adult learners to impact social change positively with a degree in education (Keller, 2009). The curricula at Walden University offer online degrees for school administrators, teachers, and students (Walden University website, 2012). In 1995, Walden University expanded its online degrees to offer the nation's first online master's degree in education, and a master's degree in educational change and technology innovation. Walden and the network of online-based, for-profit universities is owned by Laureate Education Inc., (Walden University website, 2012). Walden was a partnership created among colleges and universities that delivered corporate educational training on-line. Because of these kinds of partnerships, community colleges suffered; early introduction of electronic training for businesses and corporations was delivered at community colleges, prior to this time. Colleges and universities viewed business and education as conjoined entities. As a result, academic institutions sought ways to increase enrollment, while examining how to develop positive unions with corporations to educate employees and provide training (Kasper, 2008).

Providing education to consumers is a recent idea. Retail businesses, such as Hancock Fabric, Home Depot, and grocery stores each provided learning opportunities for customers. The interactions between retailers and consumers allowed retail businesses to provide instruction and education, online and at a distance, while highlighting store products. Hancock Fabric taught how to knit and encouraged

consumers to purchase yarn and patterns online. The ability to download and upload instructional materials, video, and music has advanced the use of personal computers. More than 652 million homes, within the U.S., have access to the Internet. Computer companies offer free courses to consumers. The goal was to encourage learners to return for other classes and to tell others about the site as well (Goodridge, 2009).

The Public Broadcasting Station (PBS), a private not for profit business entity, has 348 television stations within the United States, accessed by 99% of homes in America. Programs were designed to educate children, youth, and adults, while providing a service to the public. PBS has approximately100 million individuals watching each week (Pack, 2010). As a result, PBS classes are not delivered in a web-based format; its mission is the provision of education and training via telecommunication media. Pack (2010) suggests that PBS has led the way in developing and increasing the use of innovative technologies.

Public Broadcasting Stations across the United States offered educational programs for most all subjects, cooking to cleaning, psychology to Spanish, and reading to mathematics. The variety of subjects could be found in the video medium as well as on the web-based user/learner. Most of the information displayed on the television could be found on the Internet. The Internet allowed the serious learner to study at a personal pace, review the lesson at will, and return to the site as many times as needed in order to gain the knowledge and capture the materials. A significant aspect of the web-based format was the opportunity for interactive educational enhancement (Enli, 2008).

A review of the search engine for PBS identified more than 95,000 pages detailing quality, easily accessible information. The creators of the televised programs worked with colleges and universities, parents, teachers, researchers, and experts to develop web-based instructional programs that used central principles of curriculum development to design and to produce each program (Enli, 2008). Pack (2010) noted educational advisors were a major part of the PBS organization, and the advisors monitor each program, along with the producers, to ensure that programmatic designs and delivery aligned with acceptable plans for curriculum and instructional delivery. PBS offered plans, advice, and links to institutions online. Enli (2008) noted it is an ideal website for learners to gain readiness for learning, other than traditional classrooms.

Distance learning was one of the most successful introductions of technological innovations in adult education. Distance learning is useful to deliver education to students, separated from the college by actual physical distance (Shelton & Saltsman, 2006). However, today, e–learning delivery methods have grown to include email, mail, television, videoconferencing, and the Internet (Berg, 2002). Early value to e–learning is the ability to extend individuals' learning opportunities to college or university beyond geographic; students are enrolling in distance learning classes because of the preference to learn with technology, to control personal learning times, and to avoid major disruptions in personal lives (Belanger & Jordan, 2009). E-learning presented challenges for higher education and adult education administrators. Additionally directors of e–learning programs had to change curricula, policies, instructor training, technology infrastructure and overall online offerings in order to maintain quality programs (Parry,

2009; Robinson, 2009; Shelton & Saltsman, 2006). Moreover, colleges and universities having a physical campus had to continue providing quality education opportunities to traditional students as well. Despite these obstacles, e–learning programs were quickly growing to meet the needs of students (Belanger & Jordan, 2009).

Free Agent Learners

Employees within the workforce have become independent, self-learners, seeking educational opportunities beyond those delivered by employers. Highly motivated or over achieving individuals were becoming responsible for personal learning needs (Caudron, 2010). In addition, these individuals were often adult learners interested in learning a new task (designing a web page), learning how to manage a life challenge (conflict resolution management), and/or enhancing personal self (enrolling in a telecommunication class) (Ausburn, 2007). Motivated learners would be willing to take a few minutes to discover online potential and personal proficiency levels. In addition, adult learners would benefit from the ratings and the opportunity to address online skill deficiencies (Caudron, 2010).

Adults age 16 years and older took advantage of adult learning at a higher rate. In fact, in 2007, a National Household Education survey (2007) reported that approximately 90 million individuals were enrolled in some form of online classes, an increase of 25% over previous years, representing a total U.S. population of 40%. Adults reported to have completed online education classes included executives, technicians, teachers, or other professionals (50%), a college degree (66%), and one half of all adult learners were women. A primary reason that adult learners desired to increase levels of education was

a need to survive in the job market. Technological changes and other advancements in business and industry, created a need for continuing education/training for approximately 80 million workers. Companies could not remain competitive if workers were not trained to use present day technology. Therefore, a computer and computer access was essential for effective online learning as adults became free-agent learners. Moreover, adult learners were inundated with enormous amounts of opportunities for online learning, with the large number of accredited universities that continued to be established to provide only online education (2010).

Computer Anxiety

Bannon and Packett (2007) noted, computer anxiety is an unpleasant and vague sense of discomfort and apprehension when confronted by computer technology or people who talk about computers. Students experiencing computer anxiety, would attempt to stall entering the computer center, remain in the center for a limited amount of time, exhibit signs of anxiousness, and/or make negative remarks about computers (Maurer & Simonson, 2008). Survey instruments were developed to measure apprehension levels for using computers (Dukes, 2009), such as, Computer Attitude Scale (CAS) (Gressard & Loyd, 2007), Attitudes Towards Computers (ATC) (Buzan & Buzan, 2011), Computer Bloomberg-Erickson-Erickson-Lowery Computer Attitude Task (BELCAT) (Erickson, 2008), and Anxiety Index (CAIN) (Maurer & Simonson, 2008). Studies employing these instruments in research have returned somewhat conflicting results, because there was not consistency in investigation of variables, conditions, and participants (Ary, Jacobs, Razavieh, & Sorensen, 2006).

Considering change in attitudes toward computers, the findings did support a difference in genders' attitudes; females reported a lower attitude regarding technology than males (Arnez & Lee, 2010). Similarly, researchers, comparing gender and negative reactions to computers, found that females reported negative reactions toward computers that were much higher than negative reactions reported by males (Ogozalek, 2007; Popovich, Hide & Zakrajsck, 2007; Rosen, Sears, & Weil, 2004).

Many studies indicated gender did not play a role as much as other variables in computer anxiety (Dyck & Smither, 1994; Gressard & Loyd, 2007). Household income did not influence gender attitudes; however, the level of education was a variable that predicted levels of computer anxiety. Martin, Stewart, and Hillison (2008), found no significance in the variance of anxiety levels among computer users, based on educational levels. However, this finding regarding education was contradicted by Dyck and Smither (1994). While there were consistencies in the results, such as, downloading electronic resources, and fear of using a computer, it was seen that a consensus in the literature supported an existence of negative computer attitudes as a problem regarding computer usage and a need for addressing the problem.

Teachers and Technology

Although the growth of technology has been rapid, teachers knowledge about the use of computers progressed much slower (U.S. Department of Education, 2010c). Teachers failed to embrace and utilize the computer as an alternative teaching method and even less industrious and/or fruitful in securing the knowledge beneficial to make personal academic gains and results, with computer related tools and software (Gratton,

2009). Clere (2007) and Twigg (2010) found that when analyzing the acceptance of computers, age and teaching experience were related. Several other studies reviewed revealed no definitive conclusions about the correlation between teachers' attitudes and past experiences. Other studies found no correlation between age or length of experience and a receptive attitude towards learning about computers (Arnez & Lee, 2010). An examination of influence of gender revealed that male teachers' attitudes about computers were more positive than female teachers (Burke, 2009). Researchers found that the amount of previous computer knowledge (i.e. personal or formal training) contributed favorably towards attitudes concerning computer use (Burke, 2009; Clere, 2007).

Learning Objects

Online courses and online components could serve as powerful learning objects (Buzzeto-More & Pinhey, 2006). Gallenson, Heins, and Heins (2007) described learning objects as being units of instructional content that facilitates content mastery and links to learning outcomes. Akpinar and Simsek (2006) stated that "in developing learning objects; types of information might be created by using traditional tools such as reading software, spreadsheets, word processing, HTML editors, painting tools, and graphics. In learning object terms, pictures, animation, simulation, hyperlink, games, video, sound, and downloadable files were considered assets" (Akpinar & Simsek, 2006, p. 32). "Forty learning objects were analyzed by researchers that studied learning objects to identify patterns of online learning" (Akpinar & Simsek, 2006, p. 35). "These learning objects identified patterns and counted elements that included (a) number of assets–pictures,

animation, simulation, sound files, game video, hyperlinks, downloadable files, (b) text density–small amount, moderate amount and large amount of text on each learning object, (c) number of screen orientations-sub-topics and main topic, and (d) number of instructional elements-advance organizers, questions, and didactical directions" (Akpinar & Simsek, 2006, p. 35).

Student Achievement

Test scores are used regularly as the measuring standard for student achievement (Grift, 2008). For this reason, efforts to integrate the Skills Tutor online learning program into the GED classroom need to prove that online learning could assist in meeting issues of accountability as well as demands of Common Core Standards (Allen, 2006). Higher scores were reported among students that took tests on the computer compared to those that took the same test using paper and pencil (Derouza & Fleming, 2009). Grabe and Grabe (2007) conducted a study that provided students with online Reading/Language Arts study tools, short answer practice test items, and multiple choice practice test items. Students, using online tests, performed academically higher than students who did not take the test online.

Implications

Adult Education students continue to struggle in the GED classroom and online learning opens new opportunities to help students gain their diploma and graduate. Therefore, the benefit of using the online Skills Tutor program learning strategies will redefine how educational technology will be used to help assist struggling GED students (Konard, 2010). Online learning is always expanding access and opportunities to adult

education students (Kinnanman, 2008); therefore, GED students' online Skills Tutor learning readiness is important if they want to be successful in online environments. Identifying significant factors that will relate with successful online learning readiness will be dominant. Also, determining how age and grade level significantly relate with overall online Skills Tutor readiness is also significant to understanding GED students' ability to succeed in online learning environments (Walbert, 2009).

The results of the study suggest the importance of identifying factors associated with success in the online Skills Tutor program (McCrea, 2009). The study hoped to find whether or not the Skills Tutor program had an impact on ELA achievement of GED students. In addition, "broadening access to resources in reading strategies and experiences, engaging in active learning, individualizing and differentiating instructions, personalizing learning and maximizing teacher and student time, all will correlate with overall Skills Tutor online readiness" (U.S. Department of Education, 2012, p.10) Afterwards, helping GED students build ELA achievement with the Skills Tutor program in these areas will help engage these students, increase their online readiness and help prepare them for graduation (Allen & Seaman, 2011).

The Skills Tutor online learning program will expand GED allow more students to access courses taught by experienced teachers at the site, having skills in both pedagogy and technology. Often teachers are hired for technology skills without credentials in teaching. The result of having teachers trained in technology and pedagogy may broaden productivity for educational opportunities for a larger pool of GED students (U.S. Department of Education, 2012). Conceded by occurrence of online learning in

society and given the need to enhance GED student achievement, adult education should continue to look at online learning as a possible option for their students.

In addition, the Skills Tutor may have a major impact on increasing student achievement. Students have increased opportunities to gain knowledge and to enhance skills through active engagement in the learning process (Rees, 2009). Effective utilization of the Skills Tutor program allows for one-on-one support from the program, an online teacher, and/or by the hands-on interaction with teachers (Houghton Mifflin Harcourt, 2012).

The program also supports students who need remediation with the English language and students with disabilities, and allows students to progress through the individual educational plan and other materials to enhance or reinforce designed assessment and to advance at a different pace (Moe, 2011). The Skills Tutor program promotes personal interest of students, directing learning and content knowledge through an instinctive curiosity of using technology and online learning (Cavanaugh, 2009a). Finally, maximizing teacher and student time, using the online Skills Tutor program, improves learning management and visualization, reduces the teacher's workload. The Skill Tutor program provides an assessment targeted to the lesson planning, while addressing individual needs (Cavanaugh, 2009b).

The site will benefit by offering online technology, using strategies that will build the skills GED students will need to become ready for online learning in this changing world. Finally, according to this study, it will be crucial for GED students to develop a solid computer skills foundation to better ensure successful completion towards achieving

their goals and degree, preparing them for the workforce and society, and lastly, giving them options of learning in a different way than traditional learning offers them. Students who struggled to complete the GED, using technology, will be able to transfer to knowledge, gains, and accomplishments into the real world. Upon completion of the GED, students will realize that success can follow difficult tasks and that perseverance is the key factor in overcoming fears of the computer usage. They will be prepared to compete in the global world when faced with similar challenges and opportunities.

Summary

In summary, Creswell (2009) stated that, in many experiments, only a convenience sample, rather than a random sample, is possible. This is due to the investigation's use of purely formed groups such as families, organizations, classrooms, or voluntary participants. In order to enrich current knowledge, important results that are described from participants' outcomes of interactions from the Skills Tutor software, may permit the cooperation of technology into the GED program. E-learning opens up communication of how to explore the world and gives an opportunity for all stakeholders to measure Skills Tutor's effectiveness on the academic performance of K–12 learners and those returning to school as adults.

Three sections remain in the study. Section 1 reviews the introduction, the definition of the problem, rationale, evidence of the problem at the local level, evidence of the problem from the professional literature, definitions, significance, research question, and review of the literature. Section 2 expounds on the research methodology

introduction and the conclusion, which obtained the quantitative data that guided the creation of the project.

Section 2: The Methodology

Introduction

In this study used a quantitative, ex post facto design was used to analyze pretest and posttest scores in an ELA course using the Skills Tutor program, and traditional ELA teaching. An approach using a qualitative design or a mixed methods design was considered but was rejected. Lodico, Spaulding, and Voegtle (2010) stated, "The over-arching purpose of experimental research is to determine whether a particular approach or way of doing something is better than the older or more traditional approach that has served as the standard practice" (p. 12). Quantitative research has been well recognized. A quantitative study was used to answer the research question because the format provided a better method of communicating information to stakeholders related to implementing the Skills Tutor program. A more thorough analysis of the project allowed the differentiation between participants in Skills Tutor program and non participants. The data collection was numerical and therefore further supported using a measurable methodology.

Research Design and Approach

The project proposed to report the issues of low test scores in an ELA course and the lack of an online Skills Tutor program at the study site by using an ex post facto design. Administrators and other stakeholders are better able to make decisions concerning current faculty–led programs through analyzing the effect of the Skills Tutor program, pretest and posttest scores, and student success in ELA courses compared with traditional learners. The following research question was addressed in this study:

What is the effect of an online skills program on ELA achievement among GED students?

The hypotheses used to investigate the research question were:

- H_0: There is no significant difference in the mean achievement scores for students who did and did not use an online skills program in the GED class.
- H_1: There is a significant difference in the mean achievement scores for students who did and did not use an online skills program in the GED class.

According to Glesne (2011), the research question guides the research methodology. A quantitative measure is most appropriate when testing a hypothesis or when a quantitative answer or numerical change is sought. Creswell (2009) proposed benchmarks for evaluating appropriateness of selecting a measurable revision that incorporated: "(a) the identification of factors that influence an outcome, (b) the utility of an intervention, or (c) understanding the best predictors of outcomes" (Creswell, 2009, p. 18). The same pretest and posttest instruments were used during the data collection and an ANCOVA analysis was conducted.

Setting and Sample

The participating adult center serves one school district, and satellite centers are established yearly throughout the city. The main campus houses the population that is the focus of the study. The most recent, ethnicity data from 2013 show the overall composition of the student body as 80% African-American, 10% Hispanic, 8% White,

1% Asian, and 1% listed as other (Memphis City Schools, 2012). The data used in the study were collected from the pretest/posttest scores of 40 adult students. The adult students were residents of Tennessee, 18 years or older, and had been out of school for at least 60 consecutive school days. The students enrolled in the GED, ELA class program are typically between the ages of 23 and 55 years old.

Instrumentation

This section is dedicated to providing the background for the Skills Tutor program used in creating the data set. The Skills Tutor reading intervention was the variable introduced and implemented by the teacher that differed between the administration of the pretest and posttest.

The Skills Tutor program (see Table 3 and Table 4) was designed to measure the extent of strategies used to assist with passing the GED test (Houghton Mifflin, 2012). Computers can aid in increasing teacher and student interaction.

> Unlike pen and pencil responsibilities, the computer can make use of the two-way interchange of feedback. Not only does the user have feedback from the computer concerning his/her inputs, but the computer is "learning" about the user from his/her responses and can vary the program accordingly. The ability to capture process differences in learners has been cited as one of the major uses of computer-based assessment. (Noyes & Garland, 2008, p.1361)

Although equivalence seems impossible, during comparisons differences seems to interact with the assignment and vital conclusions. The scores for the pretests and posttests were automatically calculated by the Skills Tutor program.

Creswell (2009) defined reliability of an instrument as having the appearances of being unchanging and dependable for results. Reliable instruments enhanced the control of studies to determine whether significant differences in relationships occurred in the population studied (Burns & Grove, 2008). Skills Tutor program handbook monitors student use, assignments, and scores (Houghton Mifflin Harcourt, 2012). Burns and Grove (2008) proposed instruments reliability remains intact if the individual's responses remain unchanged. According to Lodico, Spaulding, and Voegtle (2010), reliability and validity are the two criteria used to judge the quality of all pre-established quantitative measures. Reliability refers to the consistency of scores, and validity focuses on ensuring what the instrument "claims" to measure was truly what was measured (Lodico et al., 2010).

Validity refers to the degree of a test that measures the value it was designed to measure.

> There are four types of validity associated with the form: (a) content, (b) construct, (c) predictive, and (d) concurrent validity. Of these four types of validity, only content and construct validity were applicable and addressed in this study. Primary criteria of evaluation in this measurement are validity to see if these test scores measured accurately what they were designed to. Content validity examines to what extent does the item (or questionnaire) adequately represents all that is required of the test. (Creswell, 2009)

"It can be determined through evidence obtained through agreement by experts in the area of content" (Schutt, 2007, p. 236).

Primary criteria for evaluation in measurement are validity to see if these test scores measured what they were supposed to measure and reliability. Reliability was estimated by examining the consistency of the responses between the two tests. An ANCOVA compared experimental group to control group with regard to the posttest scores while controlling pretest (baseline) scores. Validity and reliability are each important factors, when considering the success, achievement, and attainment of classroom as well as computer based learning. Validity is critical to understand the possible attainment of measurement of scores to support the accuracy and the effectiveness of the Skills Tutor Program for E-Learning. Researchers (Issac & Michael, 2007; Pearn & Down, 2009) have indicated that positive outcomes in GED were the result of the Skill Tutor program.

According to Houghton Mifflin and Harcourt (2012) the validity score for the Skill Tutor program was 0.85; the validity score for the program was 0.80. Variables should vary in this, as well as other computer programs, because without the variance, there would be no statistical association. In addition, biased questions are suggested when low variability scores are observed, resulting in a lack of variance in behavior of students as well as test questions. With regard to the analysis of reliability, this concept identifies whether or not the different question (e.g., pretest, practice test, drills, and posttest) are measuring difference of the same principles or concepts. Gains have been reported in each area (Mathematics, Writing, and Language and Language Arts) by users of the Skills Tutor Program (Fort Myers Schools, 2009; Franklin High School, 2012; &

Hillsborough County Schools, 2012). However, the most significant gains were recorded in the category of Language and Language Arts.

The school system in Franklin, Tennessee reported high gains were consistently found in this area of 8 to 13%; Hillsborough County School reported a gain of 10% in the same area; and Fort Myers reported an overall gain of 15%. The gains were measured with differences between the pretest and the posttest scores. Moreover, instructors at Memphis City Schools, using the Skills Tutor program, have reported a gain of approximately 20%. These scores can be accepted as accurate, as reported, due to the high validity and the high reliability scores of the Skill Tutor program. The computer based program was used as was designed to gather individual information regarding students achievement level, create a program of instruction at that level, and at the end of the instructions, the Skills Tutor program tested the student, measuring results of the pretest and posttest. For the pen and pencil group, the same instruction was provided; however, students interfaced with the instructor rather than the computer. Reading assessments provided by the teacher/Skills Tutor program to develop appropriate lessons/curriculum, improve instruction for all GED students, including students with disabilities, were needed for completion of instruments. Raw data were available at the study site.

Data Collection and Analysis

The collection of data took place during the 2014–2015 school years. Data in the study were collected by a form of pretest and posttest scores of the Reading assessment given by the teacher. Data analysis began with an examination of a teacher's pretest and

posttest data. Pretest can serve several purposes: knowledge of the current status of a group provided guidance for future activities as well as the basis of comparison for a posttest result, use data to improve and develop the program. The pretest was base line data used to examine, measure, and compare report findings in the posttest.

Data collected at the end, posttest of adult training were used to compare results and to test for statistical significance. The Skills Tutor ELA program was used to monitor students' achievement. The posttest allowed the researcher to examine whether gain in knowledge was related to use of the Skills Tutor program. The comparison of posttest scores of students' permitted a discussion on the success of the Skills Tutor program. It was hypothesized that total gain, between pretest and posttest, would be greater among class receiving the intervention, the Skill Tutor program in comparison to those who did not. The test included the lesson and unit plans for both treatment and control groups involved in the study.

The data analysis was collected in formation of test scores (pre and post) of ELA calculation. Students were provided an opportunity to demonstrate levels of competence in the subject through completion of the Reading assessment. Scores were analyzed and presented in a Table. The scores examined the impact of Skills Tutor on student achievement. Overall data were analyzed to compare the pre and post assessment scores. The data analyzed posttest scores of students using Skills Tutor program and students not using the program. The results provided implications on the impact of Skills Tutor on program efficacy.

The hypotheses that were used to investigate the research question were:

H_0: There is no significant difference in the mean achievement scores for students who did and did not use an online skills program in the GED class.

H_1: There is a significant difference in the mean achievement score for students who did and did not use an online skills program in a GED class.

The project took place over a one-month timeframe of the 2014–2015 school years. The data collection procedures included the following steps:

1. Meeting with teacher and supervisor.
2. Collection of students' pretest scores.
3. Collection of students' posttest scores.

The meeting with the teacher and supervisor and the first collection of pretest scores were at the end of the first week. Pretest scores remained recorded on an Excel spreadsheet and filed securely in the locked file cabin. The collection of the students' posttest scores completed the one month data collection time frame. Recordings of both pretest and posttest scores on the same Microsoft Excel spreadsheet were secured in the locked filing cabinet in my office.

The ANCOVA is used to adjust for differences between groups based upon each other (Field, 2009). The ANCOVA evaluates whether population means on the dependent variable are the same across levels of an independent variable. Thus, assessing whether the adjusted group means differ significantly from each other. This study's research question, "What is the effect of an online skills program on ELA achievement among GED students?" supports using the ANCOVA analysis method.

A one way analysis of covariance was conducted for this study. The independent

variable, the participants' group assignment, included two levels: the control group and the treatment group. The dependent variable was the participants' ELA adjusted posttest scores and the covariate was the students' score on the ELA pretest scores. Using SPSS 18, the scores from the pretest and posttest were calculated for a univariate analysis of covariance that included between subjects factors, descriptive statistics, Levene's Test of Equality of Error Variances, tests of between subjects effects, and an estimated marginal means for the method of treatment. The tables that follow show the results for the research question, What is the effect of an online skills program on ELA achievement among GED students? The hypotheses used to investigate the research question were:

- H_0: There is no significant difference in the mean achievement scores for students who did and did not use an online skills program in the GED class.
- H_1: There is a significant difference in the mean achievement scores for students who did and did not use an online skills program in the GED class.

Collected data scores were obtained from 40 GED students. The Skills Tutor program supplemented traditional teaching strategies and activities for the intervention group. The data from the pretests and posttests were collected from the TABE test at the adult education center.

Table 5

Descriptive Statistics Adjusted Posttest Mean Standard

1 = control, 2 = treatment	M	SD	*n*
1	374.50	44.919	20
2	314.90	60.979	20
Total	344.70	60.872	40

Note: M refers to adjusted mean. The dependent variable is the ELA posttest

One class (n= 20), received the treatment of the online skills program, Skills Tutor, along with traditional instruction, while the other class (n= 20), received traditional instruction delivered by the teacher only. The Skills Tutor mean was 314.90, and the non-Skills Tutor mean was 374.50.

Table 6

Levene's Test of Equality of Error Variances

Dependent Variable: ELA posttest

F	*df(1)*	*df(2)*	*p*
2.587	1	38	.116

Note: Levene's Test of Equality of Error Variances

The output from the posttest data details the assumption of homogeneity of variance for the ANCOVA. The $F(1, 38) = .058$, $p = .116$ indicates that the assumption of homogeneity of variance is met.

An ANCOVA tests whether certain factors have an effect on the outcome by removing some of the variance caused by the covariates. An ANCOVA analysis is used because it can increase the statistical power of research by accounting for some data variability. An ANCOVA was selected for this study because it is the analysis often used

to analyze pretest-posttest with a control group design to see if there is a difference in the posttest scores, when controlling for the pretest scores. Table 7 displays the ANCOVA analysis.

Table 7

Results from the Tests of Between- Subjects Effects

Dependent Variable: ELA posttest

Source	Type III Sum of Squares	*Df*	Mean Square	*F*	Sig.	Partial Eta Squared
Corrected Model	105320.700a	2	52660.350	49.721	.000	.729
Intercept	57993.995	1	57993.995	54.756	.000	.597
Group	28119.116	1	28119.116	26.549	.000	.418
Pretest	69799.100	1	69799.100	65.902	.000	.640
Error	39187.7000	37	1059.127			
Total	4897232.000	40				
Corrected Total	144508.400	39				

a. R Squared=.729 (Adjusted R Squared=.714)

The data display evaluates the null hypothesis for the method of treatment. The results of the analysis indicate $F(1, 37) = 26.55$, $p = .000$, partial eta squared =.418. Thus, the null hypothesis is rejected. It appears that the group using traditional instruction scored higher than the Skills Tutor group.

Analysis of Findings

The purpose of this quantitative study was to evaluate the effects of an online skills program, Skills Tutor, and its effect on ELA achievement. Data were collected systematically and analyzed utilizing SPSS 18.0. An ANCOVA was completed for the pretest and posttest data to answer the research question and hypotheses. The data results

shows there is a significant difference between the two groups' adjusted posttest scores after completing the Skills Tutor intervention. Therefore, the null hypothesis was rejected, and it was concluded that the traditional group's scores were significantly greater than the Skills Tutor group. These results could be due to the students' and teachers' lack of familiarity with computer usage. Another factor that may have influenced the results could have been the length of time that Skills Tutor was utilized during the study period. A longer time period may have yielded different results between the groups. Further study would be needed to determine if the fidelity of implementation of the program could result in higher scores amongst the Skills Tutor group.

Assumptions, Limitations, Scope, and Delimitations

The project was based on the assumption that obtained data met the requirements for the appropriate data analysis. Lodico et al. (2010) reported that violations to the assumptions were acceptable but cautioned that severe violations would require the application of additional tests. Limitations of the study embrace local setting, as well as, a relatively small sample size. Capability to simplify findings outside the study were partial because only one course at the GED adult school was sampled and the students' characteristics, course content, course design, and pedagogy used by the teacher in this setting may not be representative by other GED classroom settings. Another limitation was students may have received additional help outside of the site that may affect the outcome of the study (Joseph & Brooks, 2008).

Protection of Information

All assurances were made that information remained confidential. Written approval to conduct the study and gain access with the district was obtained through the principal and the Program Evaluation Specialist for District Programs.

The following safeguards were implemented in the following manner as suggested by Creswell (2008): (a) Research objectives were clearly articulated so that the site supervisor understood the study and how the data would be used, and (b) no reference of identification was made in relation to the data. Before research for this study was collected, a letter of cooperation was obtained from the site conducting the course and consent was obtained from Walden University's Institutional Review Board (IRB), approval number 01-27-15-0175989.

Data will be stored in electronic format for at least five years and afterwards destroyed. Data were kept confidential and as an added measure of protection, no identifiable information was used.

Conclusion

Online Skills Tutor offers student the chance to learn in and out of the classroom (Houghton Mifflin Harcourt, 2012). In addition, Skills Tutor online learning offers students the chance to work at their own pace. Provided by these many benefits, skills Tutor online learning allows GED students the opportunity to gain academic achievement when a more traditional setting may have left them behind (Houghton Mifflin Harcourt, 2012). The protection of participants' information gathered from the site was discussed.

Section 3 provides an overview of the goals, rationale, literature, implementation, project evaluation, social change, and conclusion.

Section 3: The Project

Introduction

Section 3 outlines the proposed project detailing the goals, rationale, and significance of a professional development training model of teaching that supplies instructors with strategies to assist GED students in gaining readiness to learn. Readiness to learn is a conceptual framework designed to examine computer integration's effectiveness on student academic achievement. The study revealed positive benefits of an online technology Skills Tutor program in increasing student achievement. The ongoing and increased integration of this program in adult GED classrooms would be useful in improving student engagement and retention.

The Skills Tutor program is a unique approach to the learners at the study site in Memphis. It enhances e–learning skills and is designed to supplement classroom instruction with online practice. Because the Skills Tutor program is individualized, the adult learner can proceed at his or her own pace and target specific skills. Skills Tutor's lessons are detailed, specific, and have colorful graphics that provide opportunities for the learner to practice TABE skills (Houghton Mifflin Harcourt, 2012). Because the lessons take place online, Skills Tutor could be effective for the learner if he or she is a visual learner. The potential benefit/benefactors from the study are that Skills Tutor is aligned with standards required by Tennessee Department of Education (2014-2015) while addressing the learning requirements, monitoring skill mastery, improving proficiency, motivating engagement, extending learning, and supporting diverse learning styles. The premise behind Skills Tutor is to empower adult learners in becoming intelligent

researchers, using the power of the Internet and exploring technology in ways traditional GED classroom have not granted (Houghton Mifflin Harcourt, 2012).

Description and Goals

A three–day professional development in–service project was created to provide teachers and administrators with professional development that will support teachers and help them become comfortable and proficient with technology use. Professional development in-service will assist teachers in devising ways to use technology in their classrooms (Stronge, 2007). The proposed project is an interactive training that allows opportunities for teachers to work in teams to design technology–supported projects, create lesson plans that incorporate authentic use of technology, and use technology to review and refine the lacking requisite skills of adult learners in the GED classroom. The training will be divided into three sessions: Session 1 introduces teachers to the theory/theorist, as well as the relevance and significance of the self–directed learning and critical thinking approach. Session 2 introduces teachers to the theory behind technology integration and its benefits. Session 3 is the interactive portion of the training that teaches hands–on strategies teachers can use in creating learner–centered classrooms.

Adult learning seeks to involve students in learning. In this world of ever–changing technology, increasing involvement and growing interdependence are essential. Critical thinking is becoming a necessity of financial and community survival (Brookfield, 2005). The goals of this project, then, are to build awareness among GED teachers in the areas of self–directed learning, adult theory, and critical rational.

Research suggests that inclusion of these elements is conducive to creating classrooms that promote student engagement in online learning (Brookfield, 1986; Knowles, 1980).

The study used a quantitative approach to examine the effect of the online Skills Tutor program on student achievement in Reading/Language Arts to determine whether the program influenced students' success in their test scores.

The research investigated the Skills Tutor program's effect on students' performance. The Skills Tutor computer program is a computer program for grades K–12 designed to target instructions in core skills to improve student achievement (Houghton Mifflin Harcourt, 2012).

The teacher, not the researcher, served as a facilitator throughout the learning process in answering questions and providing feedback when necessary. Data of pretest and posttest scores were used. The posttest showed achievement in reading comprehension after strategic instructional activities had been implemented. Analysis included comparison of scores in the test performance of students in two separate groups. This study may be significant for ABE students, educators, policymakers, and others interested in ensuring the online Skills Tutor program is successful for all at the adult education school.

Rationale

Scholarly Rationale of Project Genre

Moursund (1999) reported in–service teachers lacked the requisite skills needed to adequately incorporate technology during the 1970s. It still holds true in current society. Not only should colleges and universities include technology integration courses in their

training paradigm, but practicing teachers should be exposed to ongoing, quality professional development opportunities that do the same (Harwell, 2013). This project is designed to offer opportunities for teachers and administrators to develop lessons that adequately reflect the scope and sequence of student goals and task and develop guidelines for effective technology integration to increase the academic achievement of adult learners in a GED setting.

This project genre of a three–day interactive training program provides a means to address the needs for adult GED learners because it focuses on adult learning and critical thinking theories with a focus on increasing computer integration amongst educators (Andrews & Haythronthwaite, 2009). Data suggest an increase in achievement in the GED program once an online skills program was added to traditional instruction.

Research focuses progress toward the affirmative effects of the use of the online Skills Tutor program instruction; however, these online instructions are found in a few schools across the United States (Houghton Mifflin Harcourt, 2012). This particular research study project was chosen to address the need for Skills Tutor and technology for GED students at the study site. Not only could GED students learn content technology, but also about its benefits in the learning environment (Merriam & Brockett, 1997). Finding the effectiveness of an online Skills Tutor program in helping GED adult learners to become self–directed learners will enhance literacy skills necessary to graduate. The project details data analysis to quantitatively compare assessment scores showing if the Skills Tutor program should be implemented to enhance learning outcomes and academic achievements. The project genre was chosen because there is the urgent need to

incorporate technology and the Skills Tutor program in GED classrooms to assist students in adapting to online texts. The Skills Tutor program will assist in the individual instruction to assist each student with his or her particular learning style. The project is a possible solution to the problem and could be utilized to bring about social change by ensuring that all GED students have a solid foundation for academic success and achievements in their lives.

Centered on the analysis of the project, strategies associated with Skills Tutor program encourages learners to think critically, be creative, research and explore, self-assess, and collaboratively work together for a common goal (Moe, 2011). Engaged e-learning has always been an integral part of a successful classroom (Massoud, 2008).

Scholarly Rationale of Content of the Project

The three–day training project educates teachers and administrators on the adult learning and critical thinking theory and assists in developing practical applications within the adult, GED classroom, that will increase student engagement in the learning. During Session 1, educators will be presented with a presentation, explaining particular theorists and theories behind the importance and relevance of adult learning and critical thinking (see Appendix A) pertaining to GED students.

The two theorists introduced in the training are Malcolm Knowles and Stephen Brookfield. The initial session starts with the presentation accessing teacher and administrator knowledge of andragogy and critical thinking as related to adult education.

Both theorists offer a unique perspective on learning and the need to create classrooms that allow learners to become more self-directed.

Brookfield's Critical Thinking Processes (2005) include six key principals to facilitate adult learning:

1. Participation in learning is voluntary.
2. Effective practice is characterized by a respect among participants for each other's self–worth.
3. Facilitation is collaborative.
4. Praxis is placed at the heart of effective facilitation.
5. Facilitation aims to foster in adults a spirit of critical reflection.
6. The aim of facilitation is the nurturing of self-directed, empowered adults.

Knowles (1984) model of andragogy assists instructors in the development of strategies and methods that echo the sixth tenant of Brookfield's theory, facilitating self-directed, empowered adults.

Purpose

The purpose of the proposed professional development workshop is to deliver GED teachers with an in-service training to be a factor in adult basic education of students' achievement in reading, test scores, and of the use of the Skills Tutor program. Furthermore, the implementation of this project will provide an understanding of Skills Tutor and how it can be used as a teacher tool for students' achievement and success of GED ELA learners. When implemented at the study site where the research was conducted, throughout the course of one school year, this professional development

workshop will address the implementation of operational Skills Tutor in adult education schools as a form of ongoing professional growth for the GED teachers of English learners.

The project study indicated that Skills Tutor had an important impact on learner success. For the Skills Tutor program to be implemented with rigor and fidelity, there must be willingness on the part of instructors (Sage, 2008b). The most effective way to solicit buy in is through training and education. This literature review focuses on three main elements of an effective training module for adult educators seeking to utilize Skills Tutor to increase achievement through: (a) understanding adult education and theories, (b) theories and best practices through professional development training, and (c) benefits of technology in instruction (Jaber & Moore, 2009).

Review of the Literature

It is necessary to include adult education theories because the training is designed to teach adults how to best teach adults. Learning should be relevant; Therefore, "Adults need to know why they are learning something and effective teachers need to explain their reasons for teaching specific skills" (U.S. Department of Education, 2012, p. 19). Performance-based instruction rather than memorization is a more effective means of educating adults. In order to maximize learning for adults, lessons should involve problem-solving activities that are authentic and relevant. Involving learners in solving real-life problems is necessary for effective instruction (U.S Department of Education, 2012). According to the U.S. Department of Education (2012), "Literature of the past century produced a variety of models, sets of assumptions and principles, theories, and

explanations that make up the adult learning knowledge base. The more adult educators are familiar with knowledge base, the more effective their practice can be, and the more responsive their practice can be to the needs of adult learners" (p. 19). Though widely accepted, andragogy does have its flaws.

> Andragogy is not without criticism according to Brookfield (2003), who called the theory 'culture blind' stating that the concept of self-directed learning and the concept of the student are establishing a non–threatening relationship; with the teacher as facilitator of learning may neglect races and cultures that value the teacher as the primary source of knowledge and direction. (U.S. Department of Education, 2012, p. 19)

Many factors affect adult learners' ability to incorporate knowledge including learning styles and life experiences (Knowles, 1980).

According to Ohlsson (2011), sometimes, if people hope to learn deeply, they need to take a step back from their existing conceptions to open up a space within which they can develop alternative ways of thinking about things. According to cognitive scientists, learning is a power that is possessed by individual cognitive agents (humans and other animals) that results from the capacity of the various and interconnected parts of their neurological systems to change in response to experience (Ohlsson, 2011). Human learning takes place as a result of an especially wide variety of experiences, some of them as a result of our engagements with the natural and social world, and some of them, importantly, as a result of our own thinking, including our own internal conversations (Archer, 2012).

Educators increase their knowledge and skills through on-going professional development. The development of these skills improves the outcomes for students (U.S. Department of Education, 2012). Furthermore, professional development hours are mandated each year. Many states, including Tennessee, have adopted teacher certification standards or competencies as a way of improving quality of involvement amongst teachers (U.S. Department of Education, 1997).

> While there are growing concerns about the effectiveness of adult education and literacy services, and increasing completion for resources, evaluations of professional development are needed to assess changes in instructors' knowledge, skill levels, and behavior, as well as to document changes in program practices and student outcomes. (U.S. Department of Education, 1997, p. 6)

Evaluation is an important factor in continuous quality improvement in professional development programs (U.S. Department of Education, 1997). Professional development evaluations are integrated into the planning process of any effective professional development training program (Trautmann & MaKinster, 2010). Quality professional development meets the needs of its participants through constant evaluation, monitoring, adjusting, assessment, and communications (U.S. Department of Education, 1997, p. 4).

According to the National Educational Association (2008), to improve student outcomes, the impact of programs structure, teacher preparation background, and other influences on instructors must be assessed prior to developing professional development programs. The apparent value and relevance of professional development must be made

clear to educators who choose to participate in trainings that will influence their teaching practices (Sparks & Hirsh, 2011). Overall changes in instructional programs must take place if true changes are to occur in instructional practices. "Data must be collected regarding the context in which instruction takes place; the extent administrative and other support structures reinforce practices that are promoted through professional development, and the professional development activities, themselves. Professional development activities can only result in improved instruction and better instructional practices if adult education programs encourage and support instructors, allow instructors access to special knowledge, provide instructors the time to focus on the requirements of a new task, and provide time to experiment and to observe others" (U.S. Department of Education, 1997, p. 6).

Without strong content, professional development cannot succeed. Programs focused on staff development with an adult education focus can have long-term benefits (Harwell, 2013). Professional development should be purposeful. "Professional development should be based on curricular and instructional strategies that have high probability of affecting student learning and students' ability to learn new concepts" (Harwell, 2013, p. 4). Harwell (2013) stated,

> Professional development contributes to (a) deepen teachers' knowledge of the subjects being taught, (b) sharpen teaching skills in the classroom, (c) keep up with developments in the individual fields, (d) generate and contribute new knowledge to the profession, and (e) increase the ability to monitor students'

work, in order to provide constructive feedback to students and appropriately redirect teaching. (p. 4)

According to Joyce and Showers (2012), professional development should seek to develop research-based programs that can be easily integrated into the classroom. Professional development should consist of research-based, educational premises (Joyce & Showers, 2012). According to Harwell (2013), "Contextual teaching presents information in familiar contexts and in contexts in which information is useful. It is successful because it takes lead of the fact that learning occurs best when learners process new information or knowledge in such a way that it makes sense to them in their own frames of reference" (p. 5). Caine (2004) presented the twelve principles of brain-based learning that include the following:

- The brain is a living system-a collection of parts that function as a whole.
- The brain/mind is social.
- The search for meaning is innate.
- The search for meaning occurs through patterning.
- Emotions are critical for patterning.
- Every brain simultaneously perceives and creates wholes and parts.
- Learning involves both focused attention and peripheral perception.
- Learning always involves conscious and unconscious processes.
- We have two ways of organizing memory-static memory and dynamic memory.
- Learning is developmental.

- Complex learning enhanced by challenge and inhibited by threat associated with a sense of helplessness or fatigue.
- Every brain is uniquely organized (p. 3)

According to Wappel (2010), it is incumbent upon adult educators to explore ways to incorporate technology in the learning process. Wappel (2010) stated that there are myriad choices of technological aids for instructors to utilize to assist students in more ways than just traditional teaching. Wappel (2010) proposes that improvements in technology have made great gains in student achievement. Using technological aids allows learners to utilize more than just traditional teacher lecture methods and requires students' concentration on the task (Wlodkowski, 2010).

Wlodkowski (2010), proposed that "to acquire the highest quality and effectiveness from technology, adult education programs should follow four implantation points:

- Planning: having a blueprint or plan is critical in using technology in adult education.
- Training: because technology is complicated, adult educators need training to achieve the maximum benefit from using it.
- Technical support to maintain and get maximum use.
- Leadership: successful implementation of a technology requires the endorsement of program administrators" (p. 304).

According to Frazier (2011), triumphant technology integration is the key to increasing student learning. A study conducted by Kinnanman (2008) examined the

impact of instructional technology integration and student learning. The study proposes that the integration of laptops definitely impacts student academic performance and learning offering a need for technology application (Kinnanman, 2008). The study exposed a need for educators to implement suitable computing practices to increase student learning (Moe, 2011). Triumphant execution is strongly needed in education.

Students today have all sorts of technology at their fingertips. It is difficult to imagine or remember a world before technology was so readily accessible (Schmidt & Cohen, 2013). The gap between student technological literacy and teacher pedagogical practice will continue to widen without effective intervention to change the current curriculum (Schmidt & Cohen, 2013). Successful technology integration is a key component in increasing student achievement. Educators must be armed with the tools to help implement technology as often as possible (Potter & Rockinson-Szapkiw, 2012).

Technology has the ability to increase student achievement if implemented effectively. Technology also has the unique ability to transcend the boundaries of the classroom and cross over into the work setting for many students (Hew & Brush, 2007). Several studies have shown that there is a need for more opportunity for professional development, practice, and integration in the classroom (Kopcha, 2010). These studies concluded that teachers not only needed an opportunity to experiment with technology but also needed plenty of examples of what effective integration looks like. (Ertmer and Ottenbreit-Leftwich, 2014; Trautmann & Makinster, 2010).

This review of the literature also discusses important subject matter dealing with Skills Tutor strategies. This review was achieved through various database searches

granted through the Walden University library, the LeMoyne Owen College Library, e–library, and numerous Internet searches. According to Milone (2006), there are five indicators that promote meaningful engaged learning using technology: (a) Vision is exactly what engaged learning looks like in the classroom. Learners are accountable for their own education and continuously self–evaluating to determine what their goals are and what direction they will take, (b) Tasks that are challenging and meaningful to students. These tasks contain components, which require students to effectively to collaborate with one another and with others in the learning community; (c) Assessment, which involves presenting students with tasks, which generate a project or completed product that will explain the concept they are studying. Performance–based assessment is essential in the lessons so that students may perform, evaluate, and report what they are accomplishing; (d) Teacher roles for engaged learning are also important. The teacher is most effective as the facilitator rather than just the primary instructor, and (e) Student roles, which promote appropriate interaction with other individuals are an integral part of the engaged e–learning classroom. This ensures that students take on roles, which require them to become producers and discover that they are instructors and teachers themselves (Parr & Ward, 2007). The Skills Tutor program provides learning experiences, which require intensive student involvement, which can result in the retention of context for longer periods of time (Houghton Mifflin Harcourt, 2012).

Project Description

While the study site evolves to meet increasing needs for the Skills Tutor program and e–learning practices, significant change requires educators move from being trained

or developed to becoming active learners (Ertmer & Ottenbreit-Leftwich, 2014). This project was designed as a vehicle to facilitate this movement through the development of a three–day, professional development training module. The term professional development may better be stated as professional learning. As development implies growth and training, in professional learning, educators go beyond and become self–developing; they acquire knowledge and wisdom in order to change (Easton, 2008). Upon completion and approval of this doctoral project study, the next step is professional development to ensure effective leadership which could make a major difference in e–learning and technology implementation and improve student outcomes (Kopcha, 2010).

Potential Resources and Existing Supports

The evaluation of this project is characterized by a continuous cycle of improvement and the effectiveness is assessed by analysis of results. Studies are needed that examine research–based teaching strategies that an adult GED school may incorporate in its classroom with technology (Chien, Wu, & Hsu, 2014). The goal of action research or research by teachers using computers during instruction is to better GED students' and teachers by implementing positive educational change (American Federation of Teachers, 2010). The completion of this project requires support and resources from the site supervisor and the participating teacher at the study site. The support of these individuals was evident in their cooperation and willingness to share the data necessary to complete the study**.**

Potential Barriers

Throughout this project study, numerous potential barriers could have presented problems towards finishing this project which include, but were not limited to teacher/participant sickness, teacher/participant failure to complete tasks, and an uncooperative administration. However, these barriers were not present during this study. An additional potential barrier of this study was teacher consciousness of diverse teaching performances (Burke, 2009). Teacher in-service workshop opportunities would help to decrease this barrier. Many teachers are unaware of the impact of diverse teaching performances have on student achievement. Teachers may be more willing to try new performances with more training and support (National Educational Association, 2008). As a final point, a potential barrier to this study could have been class size. With GED class size increasing every year, many teachers lack the resourcefulness to try different teaching performances (NEA, 2008).

Implementation

Implementation of this project requires strategic planning and on–going training on a continuous basis. Teachers need training in how to address students' needs in e–learning and effective leadership is needed to create a culture of active participation with technology for appropriate implementation that will lead to positive social change at the local level (Schmidit & Cohen, 2013). Prior to the first training session, the following steps will be necessary in order to provide for a smooth transition:

1. Reserve training site and identify technology needs at the site (May 2015).
2. Obtain an e–mail list from the site of all participants and send them reminders of GED professional development in-service training (May 2015).
3. Print the workshop PowerPoint handouts for each session of the professional development (June 2015).
4. Provide the professional development workshop through the school year. Each workshop will take place from 8 a.m. until 3 p.m.
5. The final professional development workshop session, the partakers will be given a survey on if any improvements and suggestions needed to improve the next workshops. This survey will be used to evaluate the effectiveness of workshops in the future (June 2015).

Proposal for Timetable

The proposed training consists of a consecutive three–day training session. Each day will last from approximately seven hours. The first day will be an introduction and overview of adult education. The second day will be an overview of classroom management and materials. The materials necessary to support this professional development model are:

- One copy per staff member attending the workshop of Readiness to Learn: Skills Tutor (Houghton Mifflin Harcourt, 2012), and Tennessee Adult Education Framework Handbook (Tennessee Department of Education, 2012).
- Thought for the Day: Theme for the three-day Workshop–*The pathway to educational excellence is a* **Team Effort** *between learner and facilitator*.

- Readiness to Learn handout: “Taking Responsibility”.
- Handout: “What is Skills Tutor and How to Use Skills Tutor?”
- Handout: “Review of test material”
- Handout: “Facts about the test, Number of Questions and Time Limits.”
- Handouts and Worksheets: “What to Expect on the Reading Competency Tests.”
- Computer Lab: Day 2 and Day 3, Skills Tutor (ELA).
- Computer Game: “Can You Identify Me?”
- Printed PowerPoint presentations from each training module
- Chart Paper, markers, pens, pencils, and worksheets.
- Handouts: “How to read the TABE test pretest and posttest scores.”
- Readiness To Read survey, “Professional Development Evaluation Survey” Teacher (given after the final professional development session).

On the final day, participants will set goals for future classroom implementation and hands–on strategies for the classroom.

Roles and Responsibilities of Students and Others

Students were not involved with this project study and held no roles or responsibilities. However, students’ reading/language arts achievement scores were collected for the purpose of supporting the quantitative findings. A letter of approval was signed by the participating schools’ administration prior to the data collection. This letter asked for the collection and analysis of data involving the reading teacher from their site. The complete confidentiality of the participants’ information was ensured within the letter. Additionally, the supervisor of Adult Education at the site signed a data use

agreement form. Students were responsible for their own learning and continuously self-evaluating to determine what their goals were and what direction they would take. The teacher's role was to assist students' with online activities, at students' request, to give face-to-face instructions to participants, and to ensure that the students followed protocol. It was imperative for the control and treatment group to follow protocol, to reduce the possibility that data could be contaminated. The role of the researcher was to ensure that there was no bias introduced in the nonrandom study and to monitor the number of participants that were assigned to each treatment group remained the same. Staff members gave the researcher permission to conduct the research at the site. Approval from Walden's research committee, including the URR, Committee Chair, Committee Members, and IRB 01-27-15-0175989 was obtained. The researcher was not employed at this site.

Project Evaluation

The evaluation plan of this project study includes summative data. Lodico et al (2010) expounded how "data for summative evaluation are collected to measure outcomes and to determine how those outcomes relate to the overall judgment of the program" (p. 320). This type of data includes the quantitative data gathered through students' posttest scores. Lodico et al. explained how summative evaluation "focuses on assembling specific kinds of outcome data, such as test scores and final results, to determine whether the project met its overall goals" (p. 327).

This research study used an outcomes–based evaluation plan by collecting summative data giving a deeper understanding of the Skills Tutor program perspectives

on the use of e–learning instruction and how Skills Tutor methods affect GED students' performance on standards based assessments. The performance measures include analysis of students' test scores and comparisons of instructional methods on students' achievement that used the Skills Tutor program. Other stakeholders include the students and any other community member interested in the direction of the GED educational system. Due to the limited participants and the use of only one site and one teacher, the study is not generalizable.

Implications Including Social Change

This implication for positive change could provide equitable academic opportunities for GED students and support changes in professional development to better serve future teachers in GED Schools. The implication for technology in the GED classroom setting is needed for future growth, competency, and workforce opportunities for the adult student. Teachers need training in how to address students' needs in e-learning and effective leadership is needed to create a culture of active participation with technology for social change at the local level (McAnear, 2010).

On implementation, this project will impact all school stakeholders. GED students and community members will be able to feel a sense of pride knowing that technology will offer for addressing the need to be competitive with today's global world in using technology. This project will have the potential for immediate and extended social change due to behavioral changes of GED students, which may continue in a positive manner as students grow and become productive members of society. The study site can serve as a pilot school of implementing this Skills Tutor program, which could

have positive implications for other adult GED schools. Implications for possible future research include the collection of data from a larger population of participants that represent a more diverse and varied background. It may also be expanded to explore how other factors such as socio-economic status, attendance and prior knowledge and perception of technology affect student achievement (Frazier, 2011).

Local Community

Results from this study are a factor to positive social change by visualizing the impact that reading teachers have with diverse teaching performances. Educators evaluating this research are reinforced in their quest to understand the effects of the learning environment on student achievement. GED students and community members reviewing this research will become aware of teachers' reasoning and beliefs of these diverse teaching practices.

The global community has varied technological needs. "There is a need for changing learning expectations to prepare learners for rapidly changing roles and responsibilities in work, family, and community for the 21st century" (Burge, 2007, p. 37). The Skills Tutor program's effectiveness is assessed by analyses of results, which will lead to a new vision of professional development that according to Burke (2009); Clark (2009); and Kinnanman (2008) is grounded in the realities and needs of all relevant stakeholders.

Far-Reaching

Technology and instruction should work together to make successful programs for all students (Dockstader, 2007). Results on the investigation of computer technology

within the classroom have been beneficial in the identification of an optimistic, effective way to increase learning, aptitudes, and attitudes of adult students, leading to students' personal concept of self and ability to teach (Burke, 2009). Where as changing the practice of teaching requires initiative and responsibility, helping teachers acquire the skills in technology to meet high standards for student achievement requires commitment by all stakeholders in the adult education school system (Kopcha, 2010). A successful, research-based, model leading to effective inclusion of the Skills Tutor program is the outcome of formation of professional learning communities, based on constructivist theories of teaching and learning (McAnear, 2010). A professional learning community is a process, not a program, to develop and maximize teachers' capacities to work in collaborative teams and collective inquiry for school improvement (Ausburn, 2007). If a school system is to change, it is necessary to address the ways its constituents interact together. For a systemic change to take place, a support system is required to facilitate the transformation. The inclusion of the Skills Tutor program, e–learning, and technology of this project study has the potential to enhance the GED program in the school system.

Developing new programs and motivating adult students to learn are the keys to improvement of achievement and success in the classroom (Sheehan & Nillas, 2010). Educators must explore a variety of instructional methods and strategies to improve overall classroom experiences on a continuous basis. Teachers have to continuously change their instructional methods to reflect the needs of their students (Sheehan & Nillas, 2010). The Skills Tutor program involves students having an opportunity to

control their learning environments with the teacher as a facilitator in the learning process (Houghton Mifflin Harcourt, Skills Tutor, 2012). The Skills Tutor program experiences are interesting, innovative, and relevant to GED students to spend more time finding conclusions (Skills Tutor). The skills that are being developed will assist students as they begin to enter the real world later in life (Houghton Mifflin Harcourt, 2012). These skills will assist them in working well with other individuals and help them to make better decisions in the future?

Conclusion

Consistent education framework across GED Tennessee classrooms suggests challenges in e-learning through failures to accommodate learners motivation to infused technology in the classroom, will be a lost to the adult learner (Tennessee Adult Education Instructional Framework, 2011). When educational programs assess their e-learning programs, they can gain valuable insights in how to adapt programming for adult learners. Cashman, Gunter, and Gunter (1999) recommended programs should consider how user–friendly and accessible the technology is for their learners prior to implementation. Quantitative data such as, students' pretest and posttest scores, were collected and analyzed. An in–depth analysis on the impact of an online skills program on ELA achievement of GED students was inclusive within this study.

Section 4: Reflections and Conclusions

Introduction

Section 4 contains reflections and conclusions of the project. Through previous interactions with adult education teachers and students, it became clear the need to develop a training module that can assist educators with integrating technology for the Skills Tutor program became clear. The impetus to develop this project resulted from the experiences with adult educators and students as well as the results from the project study demonstrating the Skills Tutor program intervention had a positive effect on students' scores in ELA classrooms (Houghton Mifflin Harcourt, 2012).

To make a positive change on our students' educational growth and development, educators must not be afraid of change in bringing new ideas to the classroom. Incorporating new thinking in teaching is critical to the self–reflection and self–evaluation of professional growth (Rees, 2009). Therefore, self-reflections and self-evaluation are both significant factors to all project studies.

Project Strengths

The main project strength was the knowledge gained on how adult educators used technology integration in their instruction of adult students in the GED classroom. First, the project was data driven, so it was created to meet the specific needs of adult educators. All stakeholders were considered in the educational component of the project, establishing consistency and ownership in program implementation (Schmidt & Cohen, 2013). The project included methods of evaluation that allow for transformation and improvements in the program. In the training, information was offered on adult learning

theory, technology integration and its benefits, and an introduction to a hands-on lab for the Skills Tutor program. The professional development courses will allow adult education instructors to collaborate with peers and develop innovative ways to implement technology in the classroom (Burbules, Callister, & Taaffe, 2006). The professional development training will be divided into three workshops. The first workshop will include instruction of adult education theory and teaching adults students. The second will focus on technology integration and effective strategies for implementation. The third workshop will consist of an introduction to the Skills Tutor program as well as a hands–on workshop that will allow teachers to develop lesson plans while familiarizing themselves with the program. Finally, there will be an opportunity for reflection and evaluation.

Overall, the project suggests that a school–wide approach would be beneficial to produce a positive social culture that could be created and nourished.

Project Limitations

This project had several limitations. The first limitation is the amount of time required to fully complete the training. The training module consists of three full days of training. This is a large investment of time for teachers that could detract from actual instructional time. Another limitation was motivation of teachers to sign up and attend the training. There could potentially have been a lack of interest and participation among teachers. Finally, budget constraints for the adult education center could present limitations to the training. Ways to overcome these limitations include positive promotion and incentives from district–level administrators and leaders, possible teacher

training credit that might include compensatory time off from another training or event, and ample advertising and promotion well in advance of the training so teachers have adequate time to prepare for the lengthy absences (Park & Ertmer 2007).

Recommendations for Alternate Approaches

As a former GED instructor, I am aware that school districts have a tendency to be reactive rather than proactive. After completing the study and the project, it is my contention that an alternate approach must come from the district-wide, top-down approach (Sage, 2008a). This means district leaders must take the reins and lead the charge in obtaining cooperation from instructors, principals, and community stakeholders. As it stands, building principals are responsible for their staff's professional development choices. Each school has decision making that could vary greatly from site to site (Parry, 2009).

This site–based decision making allows for a lack of consistency as students transition from school to school. An alternate approach should consist of a district–wide mandate for training and technology integration for all teachers on the secondary and adult education levels. District leaders are responsible for the schools' curricula and program implementation (Parry, 2009). A top–down approach would aid in a building momentum for any initiative that would involve increased accountability for teachers to incorporate technology in their classrooms (N.C.A.T.E., 2011).

District leaders set the tone by which principals and instructors implement programs with rigor and fidelity (Rees, 2009). District leaders must lead by allowing for clear and consistent information as related to goal setting and standards for technology in

the classroom. There should be a clear set of standards and training modules that exist for new and veteran teachers. All stakeholders must work together to achieve district goals that will increase achievement for not only adult students, but all students alike (Rees, 2009).

Scholarship Analysis

The evaluation of literature findings from the study helped inform the development of this project. Through the implementation of the training module, instructional leaders can use technology to teacher competency and integration in adult education classrooms (Agodini, Dynarski, & Honey, 2010). This professional development's impact could have a far–reaching and long–lasting effect among GED student achievement.

Scholarship was also learning an expansive amount of knowledge on the subject of the Skills Tutor program, adult education, and technology in the GED classroom (Baker & Mayer, 2009). I learned how important the Skills Tutor program and technology was to the adult learner seeking his/her high school diploma because the Skills Tutor program software was designed to diagnose skill levels, prescribe assignments, and generate reports for decision making. The research that provided this scholarship taught me to objectively view how the Skills Tutor program increased students' listening, reading, and comprehensive academic skills which transpire from the excitement of learning from the GED adult behaviors.

During this project journey, scholarship, and the Walden University experience took on a different meaning of experiencing research. Scholarship was not merely

learning; it was also learning self, dealing with everyday life situations, and learning how to learn. Thinking about topics, sources, references, and data was an obvious requirement from the beginning; however, scholarship became using meta-cognition to reveal undiscovered knowledge pathways that appeared by reflecting on the way I think about topics, sources, references, and data. The task of this project was sometimes overwhelming which required new skill sets which run the scope of description, analysis, synthesis, and judgment. Reading a vast quantity of material was a necessity; however, scholarship was reading for identification of pertinent content and supportive literature. Writing mechanics was compulsory; however, scholarship was writing for the reader to gain new perspective, new insight, or at the utmost–new knowledge (Ginsburg, 2008).

Project Development and Evaluation

A review of the literature guided my directions in developing components of the project. It also increased my knowledge of the necessity of increasing student's reading skills. In evaluating the training, my awareness of the watchfulness needed to not make assumptions and to consider both the deliverers and recipients definitely increased. As a former teacher in an adult education setting, the idea of addressing the problem of increasing GED student achievement through continued professional development seemed quite appropriate. Technology is becoming increasingly more demanding and prevalent in society; therefore, it is necessary for instructors to develop a vehicle to incorporate its use in classroom instruction (Becker, 2008).

Leadership and Change

Several phases of what I have learned as an educator through my 15 years as a teacher has tested my leadership role needed to develop this project study. As the developer of this project, my organizational skills were enriched and my critical thinking ability was challenged and expanded. I felt the true sense of trying to improve the working atmosphere for the teachers and the learning environment for the GED students. Educators need to be adaptable to new ideas (Herrington & Kevin, 2007). Although human nature appears to resist change, incentives can only be obtained through change (Rees, 2009). Technology is vital in the preparation of students for the ever-changing global market. GED instructors must be encouraged to continually update their pedagogy and continue professional development to maximize the effectiveness for their students' achievement (Scheuerman & Bjornsson, 2009). I leave this project with a new found imperative to lead the charge in increasing students' and teachers' incorporation of technology in GED classrooms.

Analysis of Self as Scholar

During this project, my scholarship and knowledge base increased in all areas. My knowledge of concepts and theories around adult development has dramatically increased. Adult education seeks a change in the classroom from a teacher to learner-centered process by creating ownership amongst students. My ability to think critically, problem-solve, and move beyond the surface has added in my development as a scholar.

Analysis of Self as Practitioner

Analysis of self as a practitioner is somewhat challenging, but a necessity in this project. I believe that the completion of this project has allowed me to be measured as a practitioner. Gathering my mistakes and maturing an attitude of determination were requirements for the completion of this project. Through my process, my ability to take ownership and become self-directed was not only challenged but became well developed. I now recognize my capacity to draw parallels from theory into practice. Praxis truly exists in my professional life and in my interactions with adult learners and practitioners. Trust in the significance of combined coaching also played a major factor in my becoming a better practitioner.

Analysis of Self as Project Developer

Analysis of self as a project developer, putting all the pieces together was difficult, but now that it is over, I am proud to have accomplished this goal of crossing the finish line. I hope many benefits in adult GED student achievement through the development of this project continue to impact others. Project development was not easy and was time consuming, but it did get easier. There were several times when I was uncertain about the right procedure or order of the process. I have learned to be patient, and just when you think you have it, you find out that you have to change it again. I believe that the project was significant to the needs of GED programs.

Reflections on the Importance of the Work

This project is important because it has the potential to effect social change by increasing student motivation, understanding, and interest in the Reading/Language Arts

curriculum. Potential effect on social change includes increasing GED student comprehension of Reading/Language Arts' concepts as well as student motivation. At the local level, there is already an increase test scores which increases the passing rate for grade level on the TABE test. This has been the GED's goal, and with new graphics to enhance reading, it will improve students' reading literacy as they think through the questions on the Skills Tutor ptogram or TABE test. As students improve achievement and gain confidence from higher test scores, GED graduation rates may increase as well (Zimmerman, 2009). This in turn may help to produce positive results for the community as a whole. Students who graduate from the GED program may contribute to the community as they have greater access to higher earning occupations and may play a positive role in their local community as consumers, citizens and lifelong learners. There also may be an increase in reading literate citizens.

The greater body of knowledge is expanded by the results of this project study. The project sought to explore the use of technology, current knowledge of adult education theory and current knowledge of the Skills Tutor program. Adult educators have a great impetus to prepare their students for the workforce as quickly, efficiently, and effectively as possible (Alessi & Trollip, 2011). Through continued professional development and collaboration, instructors can hone their skills and continue to increase students' achievement through technology integration (Curry, 1992).

Implications, Applications, and Directions for Future Research

The results of this project contain educational implications of a Skills Tutor program in a GED ELA classroom. Good practices encourage active learning when

technology is incorporated into instructional scaffolding which assists the learner to move from what they know to what they need to know (McAnear, 2010). Technology cannot make much of an impact on learning unless teachers help find creative ways to exploit its power and make the new tools an integral part of their teaching (McAnear, 2010). GED will be lost in the learning process if there is not an open integration of computer usage amongst educators (2010).

Another implication of the study is on ways adult learners to become leaders of their own acquisition of knowledge. Students can engage actively with the material being taught and if they do they are more likely to have relevant and significant gains in achievement (Merriam, 2001).

Applications of this project show positive gains using technology/Skills Tutor in the GED classroom. Many applications emerged during the completion of this project that could inform the educational practices surrounding instructional pedagogy and teacher support. Teaching can be a demanding field that requires that practitioners be supported and infused with strategies and tools that will create gains on student achievement (Pearn & Down, 2009). It is imperative that administrators, teachers and all stakeholders work together to continuously pursue all avenues that will assist learners, especially adult learners that have a greater chance on non-completion due to the usual life stressors (Clark, 2009).

Applications of this project further show that technology assists students with better connections to the materials and instructions provided in the classroom that are usually delivered through traditional methods (Page, 2002). Finally, applications of this

project suggest that teachers could benefit greatly from creative learning environments that were both challenging and supportive for adult students. Students should be encouraged to explore new avenues of learning and interact with unfamiliar information in unique and non–traditional ways (Wlodkowski, 2010).

Future projects that explore other factors that affect students' achievements may contribute to the existing body of research and assist in continuing momentum in technology incorporation. Future projects may also benefit from the inclusion of sites that contain larger populations and participants from diverse economic, ethnic, and other demographic backgrounds. Future projects may also benefit from the inclusion of more qualitative data that highlights teachers' perceptions using technology and its impact on learning environment.

Conclusion

Professional development is an ever–changing process that has far–reaching effects and implications on instructors, students, and education programs as a whole (Clark, 2009). Providing instructors with necessary information to inform while changing current practices, it is necessary to ensure accountability and support throughout the implementation of professional development training to include planning, implementation, and evaluation. It is imperative that a sufficient amount of time be allowed for instructors to take advantage of the trainings that may be offered. The ultimate desired outcome of professional development is to empower instructors and enhance student achievement (Harwell, 2013). For professional development to be successful, there must be adequate planning, resources and time. Instructors are the

primary beneficiaries of professional development; therefore, it is imperative that the importance and impact of the training be clearly conveyed if the benefit has any hope of trickling down to students (Conaway, 2009).

Knowles's (1989) assumptions about adult learners, encourages instructors to continuously think of themselves as facilitators of learning rather than transmitters and controllers of content. Through education on adult learning theories, GED instructors can be afforded the tools necessary to assist students in academic achievement.

The process in completing this research has strengthened my resolve in identifying methods that will assist my future students in these efforts and in obtaining the greatest gains through technology integration. I sincerely believe that through support, collaboration, and a shift in pedagogical paradigm, teachers can be effective in preparing students to be successful members of our global society.

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Appendix A: Readiness to Learn-Adult Basic Education Training

Purpose

The purpose of this Readiness to Learn-Adult Basic Education Training is to acquaint adult basic educators, staff, and participants with services and activities available to assist GED students with achieving their goals of graduation. Materials included were selected to provide each participant an opportunity to plan their curriculum using Skills Tutor more effectively. Through this training, each participant is encouraged to remain focused at all times on how students' in the GED program correlates to success in life.

Goals

The goal of the Readiness to Learn training is to provide a challenging and rewarding enrichment program though the use of Skills Tutor and other technology that motivates students to graduate, achieve their educational goals, and become successful citizens.

Learning Outcomes

- Deepen teachers' knowledge of the subject being taught (i.e. adult education theory, technology integration, and the Skills Tutor program)
- Sharpen teaching skills through the integration of technology in the classroom
- Stay abreast of developments in strategies that increase adult learners' achievement
- Increase the ability of teachers to better assess student work and progress

Timeline

The proposed training consists of a consecutive three-day training session. Each day will last approximately three hours. The last day will be approximately four hours due to the additional evaluation component. The first day will be an introduction and overview of adult education. The second day will be an overview of classroom management and materials.

Activities

- Introduction and Ice Breaker
- Review of handouts-"Taking Responsibility"
- Computer Game-"Can You Identify Me?
- Overview of Adult learning theories
- Skills Tutor introduction and lab activities
- Survey-Evaluation

Trainer Notes

Trainer materials and talking points will be maintained by the individual presenter.

PowerPoint

Powerpoint presentation is included starting on page 135.

Implementation

Prior to the first training session, the following steps will be necessary in order to provide for a smooth transition:

1. Reserve training site and identify technology needs at the site. (May 2015)

2. Obtain an email list from the site of all participants and send them reminders of GED Professional Development In-Service Training (May 2015).
3. Print the workshop PowerPoint handouts for each session of the professional development (June 2015).
4. Provide the professional development workshop through the school year. Each workshop will take place from 8 AM until 3 PM
5. The final professional development workshop session, the partakers will be given a survey on if any improvements and suggestions needed to improve the next workshops. This survey will be used to evaluate the effectiveness of workshops in the future (June 2015).

Evaluation

The evaluation plan of this training includes participant surveys and evaluations. It additionally includes summative data that will be collected following the training by educators and leaders.

Hour Agenda

Day 1

Time	Activity	Staff	Bldg	Room
8:00–9:15	Sign In	All	Bldg C	210
9:20–9:35	Snack Break	All	Bldg C	210
9:35–10:35	Why Are We Here?	All	Bldg C	210
10:40–11:55	What is Adult Education?	All	Bldg C	210
12:00–1:00	Lunch	All	Cafeteria	Cafeteria
1:05–2:00	Taking Responsibility	All	Bldg C	210
2:00–2:10	Break	All	Bldg C	210
2:10–3:00	TN Adult Ed. Framework	All	Bldg C	210

Day 2

Time	Activity	Staff	Bldg	Room
8:00–9:15	Sign In	All	Bldg C	210
9:20–9:35	Snack Break	All	Bldg C	210
9:35–10:35	Classroom Management	All	Bldg C	210
10:40–11:55	Teacher Resources	All	Bldg C	210
12:00–1:00	Lunch	All	Cafeteria	Cafeteria
1:05–2:00	Introduction-Skills Tutor	All	Bldg C	215-Comp. Lab
2:00–2:10	Break	All	Bldg C	210
2:10–3:00	Policies for Adult Ed	All	Bldg C	210

Day 3

Time	Activity	Staff	Bldg	Room
8:00–9:15	Sign In	All	Bldg C	210
9:20–9:35	Snack Break	All	Bldg C	210
9:35–10:35	Setting Goals	All	Bldg C	210
10:40–11:55	Skills Tutor	All	Bldg C	215-Comp. Lab
12:00–1:00	Lunch	All	Cafeteria	Cafeteria
1:05–2:00	Computer Activities	All	Bldg C	215-Comp. Lab
2:00–2:10	Break	All	Bldg C	210
2:10–3:00	Q&A/Evaluation	All	Bldg C	210

Agenda (Participant Copy)

Day 1

Why are you here?

What is Adult Education? (Knowles & Brookfield)

Lunch

Taking Responsibility

Tennessee Adult Education Framework

Day 2

Classroom Management

Teacher's Resources

Lunch

Introduction of Skills Tutor

Policies for Adult Education

Day 3

Setting Goals

Introduction to Skills Tutor Continued

Lunch

Computer Lab Activities

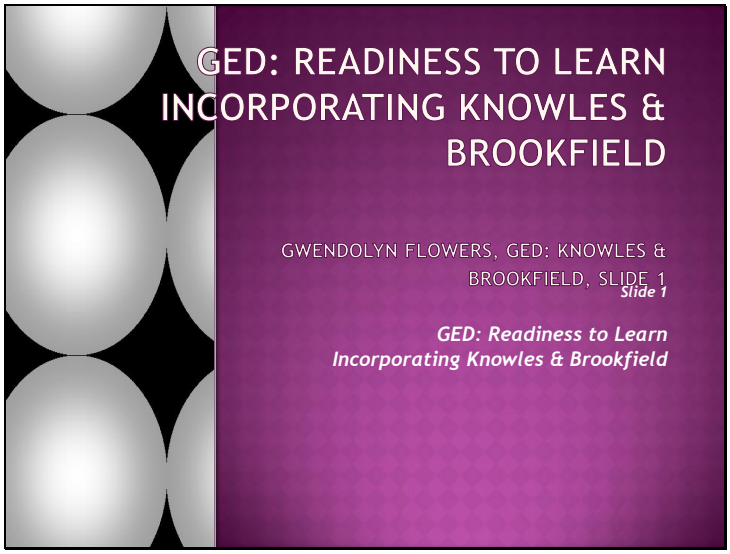
Understanding Assessments-Pre and Posttests

How to Interpret Level Games

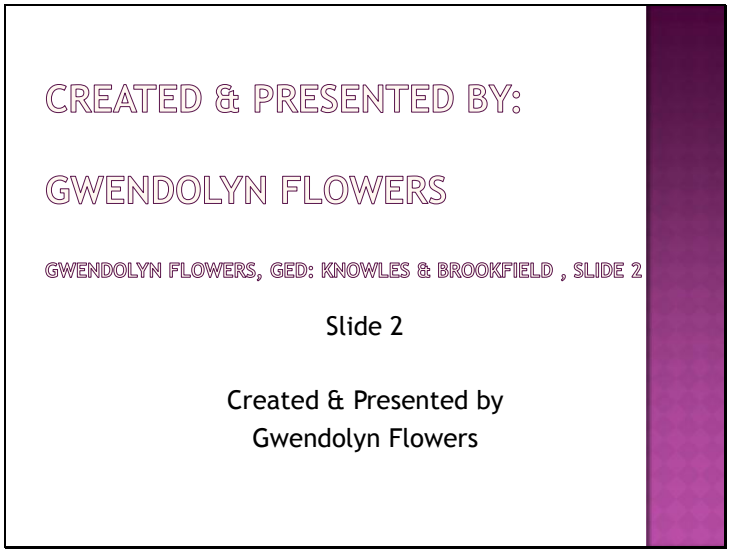
Question and Answer

Evaluation

Slide 1



Slide 2



Slide 3

GED: Readiness to Learn

As an adult learner, as a person matures, his readiness to learn becomes focused on the developmental tasks of his social roles. Knowles (1980) explained, Adult education must create a culture that considers this in their programming.
Programs, therefore, should be organized around "life Application" categories and sequenced according to learners

Knowles + Brookfield

Adult Learning Life Applications

Gwendolyn Flowers, GED: Knowles & Brookfield, Slide 3

This section will discuss the most relevant adult learning theories and theorists. The theories will be presented along with strategies teachers can use to develop learner-centered classrooms. Self-Directed Learning and Critical Thinking Approaches will be the theories discussed.

Slide 4

GED: READINESS TO LEARN

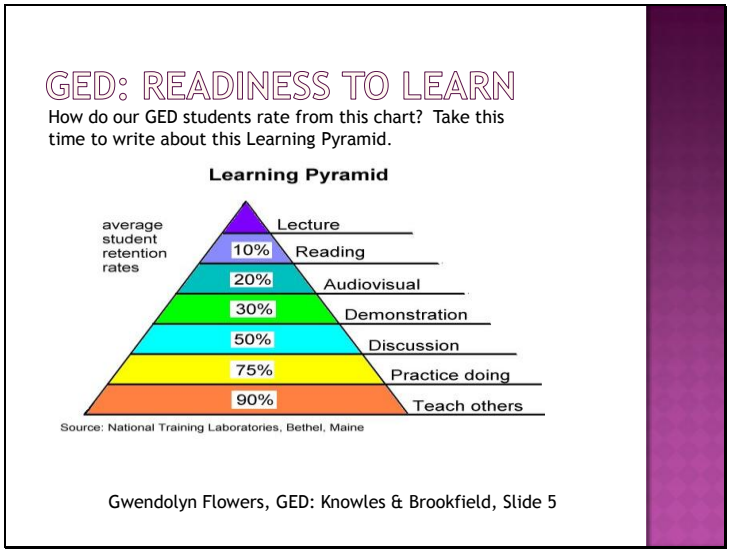
- **Malcolm Knowles** (1913-1997) –was know as the central figure in US adult education in the second half of the twentieth century.
- **Constructivism**
- From educating people to helping them learn
- Framework as an adult learner
- **Self Directed Learner**
- Experiential techniques such as problem-solving
- Judgements in practice
- **Online learning for GED Readiness to Learn**

Peer-tutoring Higher Order Thinking Experiential Application

According to Malcolm Knowles (1990), ""Experience is the richest resources for adults" learning; therefore the core methodology of adult education is the analysis of experience" (p. 40).

Gwendolyn Flowers, GED: Knowles & Brookfield, Slide 4

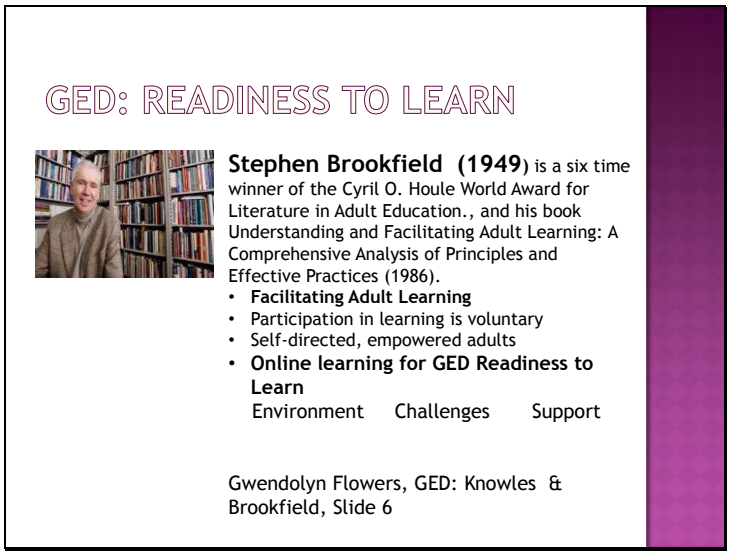
Slide 5



How do our GED students rate this chart? Take this time to write about this Learning Pyramid. Participants will break into groups of 4 to 6 in each groups and discuss. They will outline on chart paper and each group will have one representative present its findings to the entire group.

Lunch will be provided

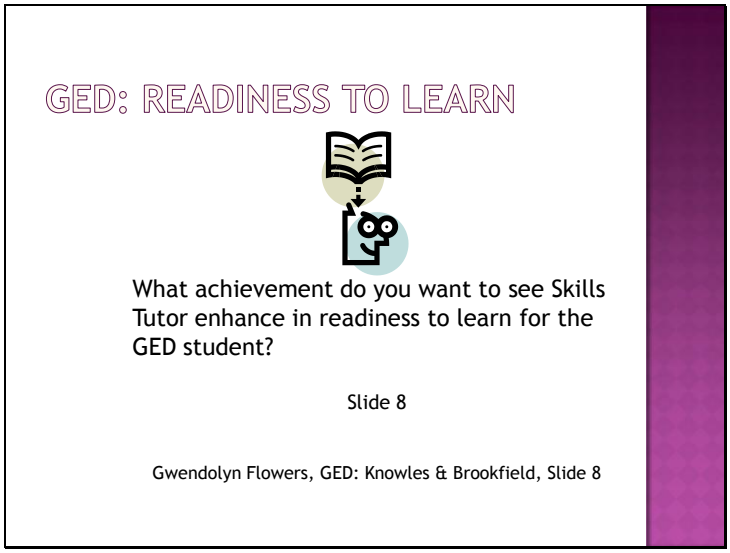
Slide 6



Slide 7

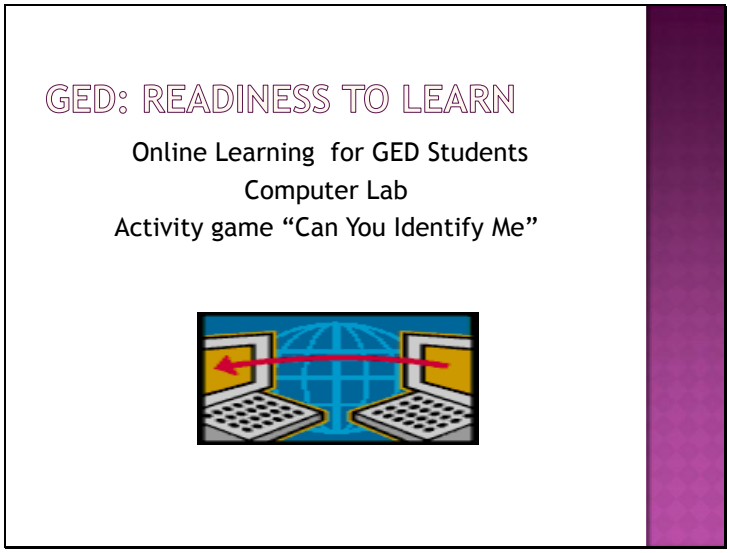
Are colleagues instrumental in the learning process of the GED? Participants will work in groups to discuss findings. They will discuss currently utilized resources that have been effective. They will brainstorm to discuss other resources that might be beneficial. Participants will share which classroom management techniques have been most effective. Each group will present their findings.

Slide 8



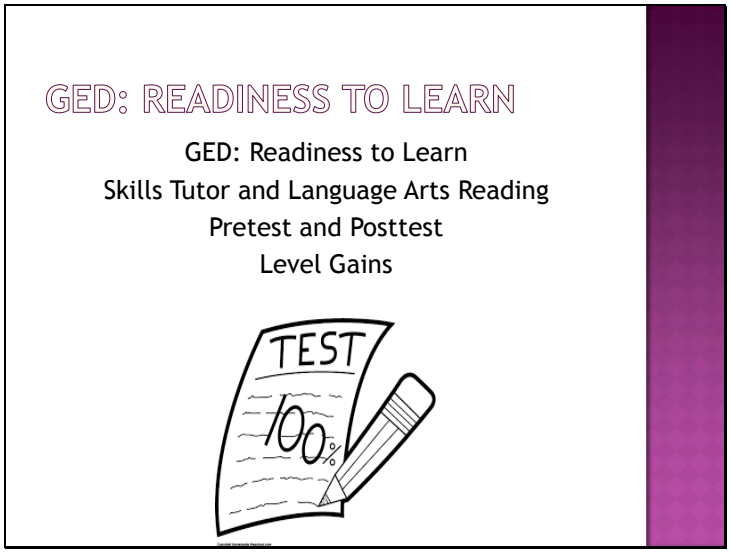
Introduction of Skills Tutor. What achievement do you want to see the Skills Tutor program enhance in readiness to learn for GED students? Participants will be introduced to the Skills.

Slide 9



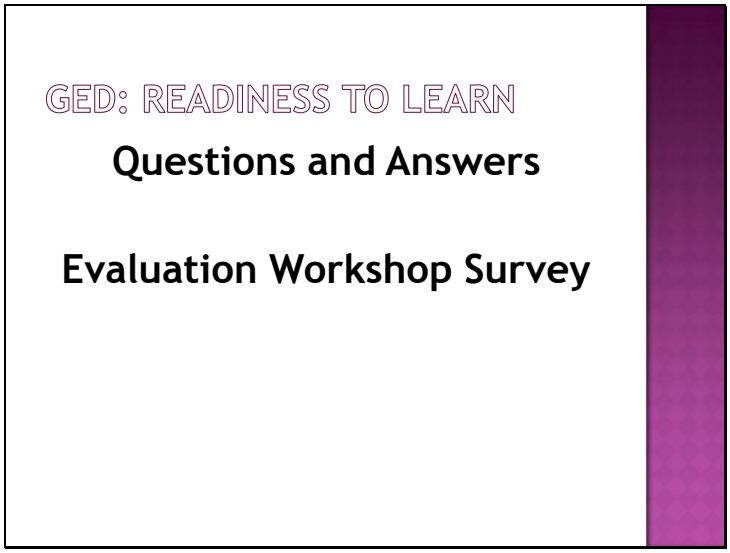
Can you identify me is a vocabulary and comprehension activity using context clues and decoding skills to learn unknown words and usage in Language Arts. It is a learning activity for beginners, moderate, and advanced readers to identify and utilize unknown words. The main focus of the game is the integration of computer usage skills as both a research aid and as a presentation aid to promote active learning of students own knowledge skills, rather than absorbing information offered by the teacher.

Slide 10



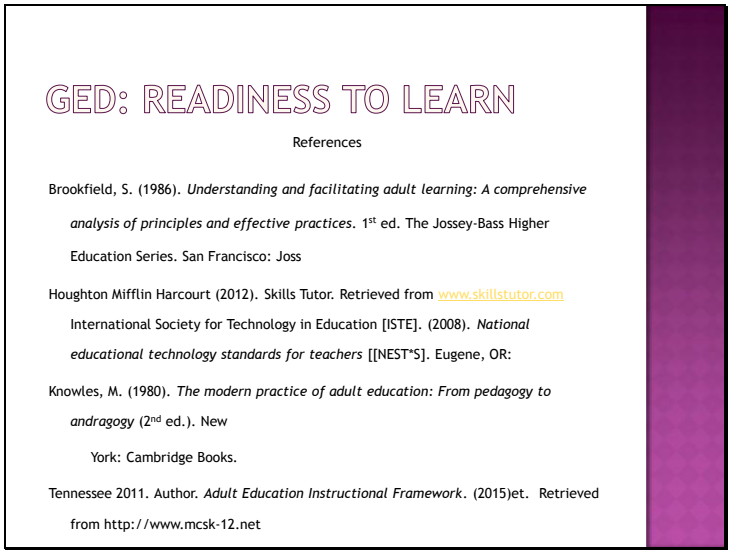
The Official GED Practice Test is designed to evaluate readiness to take the full-length GED Test. The test and methods on how to interpret the data from the tests will be reviewed with the participants. Participants will be provided with samples from the research findings that demonstrate that the Skills Tutor program can increase the ELA achievement of adult learners. Pre and Post test scores will be reviewed. Participants will utilize interactive strategies to discuss implementation in the classroom setting.

Slide 11



Participants will be provided with an opportunity to have and large group question and answer session. During this session, any lingering questions will be explored. Participants will also complete a brief survey in effort to assess the effectiveness of the workshop and to determine future professional development needs.

Slide 12



Appendix B: Educational Training Program

Sites	Adult Basic Education (ABE)	General Education Development (GED)	English as a Second Language (ESL)
B. T. Washington			X
Carver High			X
Cordova High	X	X	X
Craigmont High	X	X	X
Fairley High			X
Hamilton High		X	
Hillcrest High	X		X
Kirby High	X	X	X
Manassas High		X	
Melrose High	X		
The Study Site	X	X	X
Mitchell High			X
Overton High			X
Raleigh-Egypt High			X
Sheffield High	X	X	X
Southwest Technology	X	X	X
Westwood High	X		X
Whitehaven High	X	X	X
Wooddale High	X	X	X

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Appendix C: NCTE/IRA Standards For The English Language Arts

NCTE Standards/Technology	Development of Curriculum
The vision guiding these standards is that all students must have the opportunities and resources to develop the language skills they need to pursue life's goals and to participate fully as informed productive members of society. These standards assume that literacy growth begins before children enter school as they experience and experiment with literacy activities—reading and writing, and associating spoken words with their graphic representations. Recognizing this fact, these standards encourage the development of curriculum and instruction that make productive use of the emerging literacy abilities that children bring to school. Furthermore, the standards provide ample room for the innovation and creativity essential to teaching and learning. They are not prescriptions for particular curriculum or instruction. Although we present these standards as a list, we want to emphasize that they are not distinct and separable; they are, in fact, interrelated and should be considered as a whole.	• Students read a wide range of print and non-print texts to build an understanding of texts, of themselves, and of the cultures of the United States and the world; to acquire new information; to respond to the needs and demands of society and the workplace; and for personal fulfillment. Among these texts are fiction and nonfiction, classic and contemporary works. • Students read a wide range of literature from many periods in many genres to build an understanding of the many dimensions (e.g., philosophical, ethical, aesthetic) of human experience. • Students apply a wide range of strategies to comprehend, interpret, evaluate, and appreciate texts. They draw on their prior experience, their interactions with other readers and writers, their knowledge of word meaning and of other texts, their word identification strategies, and their understanding of textual features (e.g., sound-letter correspondence, sentence structure, context, graphics). • Students adjust their use of spoken, written, and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes. • Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes. • Students apply knowledge of language

(Table Continued)

	structure, language conventions (e.g., spelling and punctuation), media techniques, figurative language, and genre to create, critique, and discuss print and non-print texts. • Students conduct research on issues and interests by generating ideas and questions, and by posing problems. They gather, evaluate, and synthesize data from a variety of sources (e.g., print and non-print texts, artifacts, people) to communicate their discoveries in ways that suit their purpose and audience. • Students use a variety of technological and informational resources (e.g., libraries, databases, computer networks, video) to gather and synthesize information and to create and communicate knowledge. • Students develop an understanding of and respect for diversity in language use, patterns, and dialects across cultures, ethnic groups, geographic regions, and social roles. • Students whose first language is not English make use of their first language to develop competency in the English language arts and to develop understanding of content across the curriculum. • Students participate as knowledgeable, reflective, creative, and critical members of a variety of literacy communities. • Students use spoken, written, and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion, and the exchange of information).
Drawing on our own experiences and of those from the teachers with whom we work, we also suggest the following questions as a means of inspiring a more	• Why do I want to use technologies? Is the purpose authentic? Purposeful? Do I have an instructional need that is not being currently met that technology might help with? If not, is

(Table Continued)

critical consideration for those teachers of the English language arts and English educators entertaining the thought of integrating technology:	there an instructional strategy or learning activity that I want to implement that technology might enhance or assist? • What are my goals and objectives as a teacher for my students? How can the technologies enhance my ability to reach these goals and objectives? How can they enhance my students' abilities to reach these goals and objectives? • What are my students capable of doing and handling with regard to technology? What are their limitations? What am I capable of doing? What are my limitations? How can we teach each other, grow together? • What technology resources are available for me and for students, and how can they be used? • How might issues of access and equity affect our experience? • If resources are minimal, how can I maximize them? How can I adapt to limited access to technology tools and resources? • How will the use of technology affect or enhance my students' overall literacy? Are there applications available for developing "translation/critical" literacy (Myers 1996) and/or "digital" literacy (Gilster 1997)? Are these consistent with my goals and objectives? • What are the curriculum standards, local, state, and national, which address technology in the English language arts? How might I fold these into a purposeful use of technology in my classroom?

Note. Adapted from National Council of Teachers of English/International Reading Association (2009, p.59). Grades K-College Standards.