AN EXPLORATORY STUDY OF ALABAMA DISTRICT TECHNOLOGY
COORDINATORS: THEIR DUTIES AND THE VARIOUS PATHWAYS TO ACQUIRING THE POSITION

by

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ABSTRACT

This study explored Alabama District Technology Coordinators’ various pathways to becoming a district technology coordinator and how these pathways influenced their role and responsibilities. Qualitative methods were used to conduct the study. Participating District Technology Coordinators were surveyed and interviewed. Ten themes emerged from the participant interviews: guidance from others, pioneer, life-long learner, initiative to train others, hands-on technical duties, team size, multiple titles, change embracer, perception of duties, and team building. Additionally, three main concepts can be derived from the data gathered: a) a review of the data indicates there is a disparity in the pedagogical duties of those District Technology Coordinators who initially have technology training as opposed to those with initial pedagogical training, b) the initial training realm seems to have an effect on the person’s personnel skill preferences, even after additional training in the pedagogical realm, and c) those participants who subsequently earn educational administrative degrees, after initial technology training, seem to place a greater value on pedagogy than those who did not.

The findings of the study may be valuable to superintendents and their boards in understanding the District Technology Coordinator position and evaluating candidates for the Technology Coordinator position. Current District Technology Coordinators may utilize the results in planning technology implementation and integration for their systems and themselves. Persons interested in the District Technology Coordinator career choice may gain insight into the specifics and changing responsibilities of this leadership position. In addition, the results may give information for guidance to state departments of education in providing resources for
District Technology Coordinators and setting job description specifics for certification. Most system level positions require administrative certification. If District Technology Coordinators have technology administrative certification, the significance of the duties and responsibilities could gain recognition.
DEDICATION

I dedicate this doctoral dissertation to my loving family, the Collum 12: Wendell Collum, Sam Ball, Traci Collum Ball, Blake Collum, Taleah Hunt Collum, Cody Collum, Kaitlyn Ball, Alex Ball, Paxton Ball, Zachary Ball, Jackson Collum, and Logan Collum. You are my loves, my joy and my world. I thank my God upon every remembrance of you. Philippians 1:3. Also to my brother George Turley who is the only other person who knows what it meant to be a child in our family. And to the memory of my deceased parents Bobbie Ann Waits Turley and Troy Jay Turley whose love and support of me was never questioned.
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CHAPTER I
INTRODUCTION

In the 1980s, computers replaced typewriters in the educational setting. In that same
decade, the federal educational climate changed when

. . .the Nation at Risk report (1983) warned leaders that unless schools became more
effective—the U.S. would languish economically and other nations would leapfrog over
America to capture global markets. By the late-1980s, states had raised their graduation
standards, created more rigorous curriculum frameworks, and began testing regimes.
(Cuban, 2014)

However, computer use in all classrooms did not really gain widespread implementation
until the 1990s, with help from federal funding. In late 1989, President Bush and the nation’s
governors met in Virginia for a bipartisan education summit where they laid the groundwork
through National Education Goals, which later became part of the Goals 2000 Education
Program (Austin, 2009). Schools in Alabama used Goals 2000 federal grant money to purchase
computers for classrooms and computer labs. President Clinton spurred on the push for
technology in the classroom as he noted “During the past seven years, we have worked to
connect every classroom to the Internet” (Clinton, 2001). The implementation of No Child Left
Behind in 2001 moved the emphasis in education to “test-driven accountability” (Cuban, 2013).

According to Arne Duncan, U.S. Secretary of Education, schools are beginning to adopt
digital innovations which have changed nearly every aspect of our lives (Duncan, 2013). Mr.
Duncan further credits digital technology in today’s classroom with the ability to ensure that 21st
century students are ready for their college training into the 2030s. Technology was making individualized instruction and blended learning possible in the local district classroom. Another important component of the federal government plan was the implementation of online testing. These tests will ask students to develop products or experiments; test hypotheses; analyze data; and support, justify and explain their reasoning. And over time we will see students work within real-world scenarios to solve problems with assessments that function almost like flight simulators. These tests will examine if students understand content and better gauge whether they can demonstrate critical thinking and apply learning. (Duncan, 2013, p. 70)

In 2007, the State Educational Technology Directors Association (SETDA) launched an action plan initiative highlighting the class of 2020 on their website (http://www.setda.org/wp-content/uploads/2013/11/Class-of-2020-Action-Plan-for-Education.pdf). SETDA presented four areas of student need in technology that are relevant to these students: a) powerful broadband access; b) innovative approaches to teaching science, technology, engineering and math (STEM); c) technology-based assessments; and d) virtual learning. Teachers also would need assistance to enhance student achievement. The 2020 document listed those needs as: a) teachers must be empowered through on-going staff support; b) teachers need access to training, resources and mentors; and c) teachers need specific technology integration training. While the career expectations for this class of current eighth graders are yet to be determined, indicators of current issues can give guidance in what is needed to prepare for life after high school graduation. Current indicators of crisis noted in the 2020 document include a low high school graduation rate, a low percentage of lower income homes with Internet access, few students graduating college with STEM degrees, less than half of all high school graduates prepared for the
workforce or college, 8 million students in grades 4-12 not reading on grade level, education ranking last when compared to other industries in the use of technology, and almost half of all teachers leaving the profession in the first five years.

CoSN (the Consortium for School Networking), a national professional organization for k-12 school district technology leaders, notes that over the past 10 years we have gone from a goal of 1 computer to five students ratio to an increased effort to accommodate 1:1 initiatives and BYOD (Bring Your On Device) projects. In 2011, CoSN launched its CETL™ (Certified Educational Technology Leader) exam available to those technology district leaders with a minimum of four years of experience with a Bachelor’s degree or seven years of technology leadership experience (CoSN Leading Education Innovation, 2014).

In 2001, the International Society for Technology in Education (ISTE) brought together a team of educational administrator organizations to develop a list of National Education Technology Standards for Administrators (NETS*A). These NETS*A standards were updated in 2009 (Standards A). “School success is often intricately linked with educators mastering a given set of professional standards” (Richardson, Bathon, Flora, & Lewis, 2012, p. 131). The need for technology leadership in the school district is demonstrated by pedagogical and technical demands on the local school system classroom. District Technology Coordinators are employed by Alabama school systems to support the implementation of technology and technology integration in grades PreK-12. “A Technology Coordinator performs several tasks within a school environment and plays multiple roles that influence teaching and learning each day” (Sugar & Holloman, 2009, p. 66). The 2012-13 Technology Coordinator Survival Kit for Alabama Technology Coordinators records the standards for this position as:
A local board of education shall have a Technology Coordinator (TC) that meets the job description and qualifications established by the State Department of Education. The Alabama Department of Education shall provide on an annual basis, beginning October 1, 2005, support in the amount of $35,000 to assist with funding this position. Continued funding for this position will be dependent upon annual approval by the Alabama Legislature. The duties of a Technology Coordinator may be conferred on any officer or employee of the local board of education, except the local school superintendent. (Alabama State Department of Education - Technology Initiatives Department, 2015-16, p. 9)

Job titles for district technology leaders are changing as noted in the CoSN 2014 K-12 IT Leadership Survey where 73.9% of respondents listed their job title as Chief Technology Officer/Chief Information Officer up from only 43% in 2013 (CoSN Leading Education Innovation, 2014). The term District Technology Coordinator was used to denote the Chief Technology Officer or Chief Information Officer for the PreK-12 school system in this paper.

**Statement of the Problem**

According to Molnar (2013), in 1992 a District Technology Coordinator’s duties were approximately 80 percent technical; in 2013 the duties were only 20 percent technical and 80 percent leadership, vision and coordination of the educational environment with technology. As of the 2011-12 school year, the 137 school districts in Alabama had an average daily student membership of 741,057.86 (Alabama State Department of Education, 2011-2012). The Technology Coordinator Survival Kit lists 129 district Technology Coordinators serving the students, faculties and administrators of Alabama (Alabama State Department of Education - Technology Initiatives Department, 2015-16). Voogt and Pegrum (2005) found that technology leadership is indispensable for implementing innovation, particularly in pedagogy change. Since
any officer or employee of the school district may be appointed as Technology Coordinator (Alabama State Department of Education - Technology Initiatives Department, 2015-16), training backgrounds can be technical, pedagogical or administrative. “In cooperation with school staff, teachers and students the Technology Coordinator implements a series of strategies to facilitate the most effective integration of technology to the existing school curriculum” (Garrety, Schmidt, & Thompson, 2005, p. 1379).

Whether supporting an individual teacher through the learning process, maintaining the hardware and software necessary to support technology integration or supporting collaborative learning relationships, the role of the Technology Coordinator was ever changing and evolving. (Garrety, Schmidt, & Thompson, 2005, p. 1381)

While much research has been completed on technology integration in the classroom, current research was not found that addresses the impact these differing backgrounds of technology leadership may have on technology integration in the PreK-12 classroom.

**Statement of Purpose**

The purpose of this study was to explore Alabama District Technology Coordinators’ various pathways to becoming a district technology coordinator and how these pathways influence their role or responsibilities.

**Significance of the Study**

The findings of the study may be valuable to superintendents and their boards in understanding the District Technology Coordinator position and evaluating candidates for the Technology Coordinator position. Current District Technology Coordinators may utilize the results in planning technology implementation and integration for their districts and themselves. Persons interested in the District Technology Coordinator career choice may gain insight into the
specifics of this leadership position. The results may also give information for guidance to state departments of education in providing resources for District Technology Coordinators.

**Theoretical Framework**

The current study applied Albert Bandura’s social cognitive theory (SCT) of self-efficacy as the theoretical framework. Social cognitive theory can provide a qualitative methods framework within which to study how one’s skills and beliefs impact personal career decisions, both in selecting a career and in fulfilling the career requirements (Bandura, 2002), which is what this study proposes to do. Studies have shown that these three influences do not operate individually. “The triadic influences on various aspects of educational and career development are interactive and indirect” (Bikos et al., 2014, p. 159). “Whatever the social conditions might be, there is still the task of explaining the varied directions that personal lives take at any given time and place. This requires a personal, as well as a social, analysis of life paths” (Bandura, 1989). The triadic influences of intra personal influences, external environmental factors and individual behaviors, as observed in training and career experiences, exert influences on individual career pathways, both through interactions and indirectly. The self-efficacy framework allows for the personal and social analysis of these pathways.

**Research Question**

The central research question for this study was: How do individuals’ backgrounds (technical, pedagogical, or administrative) shape the pathways they take to become District Technology Coordinators and how do these pathways influence their role or responsibilities?

**Assumptions of the Study**

The basic assumptions of this study were a) that the beliefs, attitudes and experiences of Alabama District Technology Coordinators, as revealed through interviews, can illuminate the
career paths taken and the duties of this career position, b) that the differing career background experiences of technical, pedagogical or administrative affect the roles of Alabama District Technology Coordinators, and c) that participants were honest in their responses.

**Limitations of the Study**

This study was limited to seven representatives of PreK-12 District Technology Coordinators in the state of Alabama and may not be generalizable to other similar situations.

**Operational Definition of Terms**

**AETA** – Alabama Education Technology Association is an organization of K-12 educational technology professionals in Alabama public schools whose purpose is to promote technology in Alabama schools. The organization’s website address is http://www.go-aeta.org/.

**Advocacy** – according to the Consortium of School Networking (CoSN) Organization, advocacy is the act of maintaining contact with the local community and legislators to request consideration for the technology needs of the school system. The CoSN advocacy website address is http://www.cosn.org/advocacy.

**Alabama Virtual Library** – The Alabama Virtual Library is a collection of online databases that provide all citizens of Alabama library resources and information. The full expense of this service is paid by the state legislature as part of the education budget. The program was implemented under Governor Bob Riley. A password obtained at a local library or school is needed to login to the website from home. Students and faculty may log in from their school network without using a password. The website address for this service is http://avl.lib.al.us.

**Authentic Problems** – Problems utilizing real world information and situations, according to Ann Carlson (2001).
**Administrative Background** – An education, experience and training background which includes a minimum Master’s Degree in Educational Administration/Leadership with a professional educator certification in administration or leadership. Previous experience would include classroom teaching and administration of a school or district. Any degrees or certifications in computer or networking technology would be in addition to the stated degrees and certifications.

**Assistive Technology** – Technology that can facilitate use by individuals with disabilities. Examples are headphones, large monitors, voice controlled software, and large print fonts.

**BYOD (Bring Your Own Device)** – A district’s decision to allow students and faculty members to bring their personal computing devices to access the Internet through district provided networking services. These devices can vary but generally include laptop computers, tablets and smart phones. Policies and guidelines are set by the district to ensure the safety and security of the user and school networks.

**CALL** – CoSN Alabama Leaders is a state chapter of CoSN and a subgroup of AETA which operates under the AETA Board guidelines. The stated purpose of the organization is to empower Alabama K-12 technology leaders through an affiliation with the national organization. Information on the organization can be found at their website https://sites.google.com/site/cosnalabama.

**CoSN** – The Consortium for School Networking is a national professional association for district technology leaders. Their web address is http://www.cosn.org.

**District Technology Coordinators** – The chief technology and/or information officer of a k-12 school district in the state of Alabama.
**Digital Citizenship** – Just as there are norms of correct behavior as a citizen, digital citizenship is the appropriate etiquette of responsible online computer use. Some responsible behavior, such as not giving personal information to other users online, is for the safety of the online user. Other demonstrations of digital citizenship involve legal activity such as documenting copyrighted information obtained online.

**e-Learning for Educators of Alabama** – An online service that provides technology professional development to Alabama educators through a partnership with the state department’s Technology In Motion program and Alabama Public Television (http://elearning.alsde.edu).

**eRATE** – Grant funding provided through USAC (Universal Services Administrative Company), a division of the FCC (Federal Communication Commission), to schools and libraries in the United States to assist in paying for telephone services, internal connections and Internet connections. Schools are funded based on their free and reduced lunch rate with additional funding going to rural schools. Funds to be distributed are collected through a universal service charge on all customer phone bills.

**ISTE (International Society for Technology Education)** – ISTE is an organization of educators concerned with the effective integration of technology in schools. The ISTE standards for students, teachers, and administrators along with their 14 essential conditions provide guidelines for District Technology Coordinators on technology integration in the classroom. The ISTE website (www.iste.org) provides additional information for district technology coordinators, superintendents and other school leaders on leading and advocating for technology funding for schools.
**Pedagogical Background** – An educational experience and training background, which includes a minimum Bachelor degree in any area of education with a professional educator certification and previous experience. This would include the classroom or some other academic setting. Any degrees or certifications in computer or networking technology would be in addition to the stated degrees and certifications.

**Self-efficacy** – A self-belief or assumption that one possesses certain skills or abilities. Self-efficacy differs from self-assurance in that it is usually followed by affirmative action: I can; therefore, I do. The reward obtained from successful completion of these actions leads to a higher self-efficacy, and the circular process continues (Bandura & Zeiss, 2003).

**Technical Background** – An educational, experience, and training background which does not include a minimum Bachelor degree in an area of education. Any degrees or certifications, though not required, would be held in the computer technology or networking areas. A person with this background might have previous experience in the business or technology area.

**Technology in Motion (TIM)** – Professional development provided to Alabama Educators by the State Department of Education to enable proficiency in technology education. The TIM In-service Centers are: Alabama A&M University; Alabama State University; Athens State University; Auburn University; Jacksonville State University; Troy University; The University of Alabama; University of Alabama at Birmingham; University of Montevallo; University of North Alabama; University of South Alabama; and Web-based through e-Learning for Educators in Alabama. Instructional Technology Specialists from these centers provide onsite technology training on topics selected by the school districts (http://www.atim.us).
**Technology Integration** – The incorporation of computers and other technologies in the classroom to enhance or facilitate the lesson. True technology integration involves more than just using technology in place of another resource, such as textbooks or chalkboards. When learning connections are made using technology that would not be possible without the technology, true technology integration is occurring. For example; a science classroom studying tornadoes is able to track a real time tornado on the Internet as it makes its way toward land.

**Virtual Environment** – A virtual environment refers to Internet resources which usually has a collaborative aspect. Online courses are perhaps the most utilized and safest resource of student participation in a virtual environment. Other types of virtual environments which may necessitate safety policies include participation in a virtual world in which students adopt an avatar persona and interact with other participants in social situations. Students may also participate in online gaming or social media, such as Facebook or Twitter.

**Summary**

This dissertation consists of five chapters. Chapter I provides an introduction to the study. It consists of an introduction to the topic, a statement of the problem, research questions, significance, theoretical framework, assumptions, limitations and definitions. Chapter II presents a review of the literature on topics related to the study and its methodologies. Chapter III provides an in-depth discussion of the methodology used in this study. This chapter includes a description of the setting, participants, instrumentation, positionality of the researcher, data collection and analysis methods and the reasoning behind their selection.

Chapter IV provides a summary of the results of the study. Included in this chapter are excerpts from interviews with select participants. Chapter V discusses the findings and
conclusions of the study and how they relate to the research questions. Implications of the study and recommendations for future research are addressed.
CHAPTER II

REVIEW OF THE LITERATURE

The District Technology Coordinator is a multi-faceted career title. This literature review not only looks at the duties of the District Technology Coordinator, but also what has been written concerning the influences that help to characterize the position. An explanation of Social Cognitive Theory is also included.

Technology Integration

“The common metric to judge public school response to technological changes is the ratio of students to computers. The calculation is done by dividing a school’s total number of students by its total number of computers. Since the early 1980s, acquiring more machines to reduce the ratio has been the primary measure of a school’s technological success” (Cuban, Kirkpatrick, & Peck, 2001, p. 818). A measure of success in providing technology to Alabama students has been primarily the computer/pupil ratio reported on the system report card furnished by the state. The lower the ratio, the more successful the school system (Alabama State Department of Education, 2007). Penuel (2006) reports that one-to-one initiatives are expanding in an effort to provide laptop computers and Internet access to students for use at home and school, while Georgina and Hosford (2009) discuss the idea that large amounts of money are being spent to connect classrooms to the internet. Hundreds of thousands of eRate dollars are spent annually to provide bandwidth to all classrooms. According to Cuban, Kirkpatrick and Peck (2001), the availability of these technologies does not ensure the use of the devices or that their use is improving teaching and learning. “The recent National Education Technology Plan
released by the U. S. Department of Education stated that over the past 10 years, 99% of
American K12 schools have been connected to the Internet with a 5:1 student to computer ratio”
(Yalizhao, 2007, p. 311).

Often, the decisions as to what technologies are to be purchased and how teachers are to
use those technologies do not involve classroom teachers or the District Technology
Coordinator, resulting in little change in classroom technology use (Cuban, Kirkpatrick, & Peck,
2001). Surveys from as far back as 1993 have consistently shown technology has not been an
interwoven part of the academic subject areas (AL-Bataineh, Anderson, Toledo, & Wellinski,
2008; Yalizhao, 2007). Even as late as 2001,

Teachers and senior high school students report that they use computers mostly
for word processing. In eighth-grade math, less than one half of the teachers
reported in 1996 that they used computers at all. Of the teachers who did, 18%
said they had students do drill and practice on the machines, 13% had students
play math games, 3% had students do simulations, and 5% used software to
demonstrate new concepts in math. (Cuban, Kirkpatrick, & Peck, 2001, p. 817)

A lesson utilizing technology should be about the concept being taught not about the
technology. Students should learn to use the technology as an inclusive part of the lesson
(Dillenbourgh, 2008). In recent years, small steps have been taken to move from preoccupation
with the acquisition of equipment and services to stressing the seamless integration of
technology in all classes (Van Leeuwen & Gabriel, 2007). “Researchers emphasize technology
uses that support inquiry, collaboration, and reformed practice, whereas many teachers tend to
focus on using presentation software, learner-friendly Web sites, and management tools to
enhance existing practice” (Harris, Mishra, & Koehler, 2009, p. 393). For example, using a
software package to make a presentation on research results is one application, but using technology to conduct experiments, and then using analysis software to analyze the data collected, is a more in-depth use of technology. Recent years have seen a general movement toward more teachers using the provided technologies to support learning and seeking to learn more about available technologies to increase student participation (Oncu, Delialioglu, & Brown, 2008).

One major deterrent to technology integration found by Cuban et al. (2001) was available time for technology.

Teachers told us that they did not have enough time to incorporate computers into their daily teaching. They would need hours to preview web sites; hours to locate the photos they required for the multimedia project they assigned to students; hours to scan those photos into the computers; and hours to take district or corporate courses to upgrade their skills. (p. 828)

Cuban et al (2001) report that those schools that have the structure of a six-period day make it difficult for teachers to adopt innovations.

Technology Standards

In addition to ISTE (International Society for Technology in Education) standards for administrators that apply to technology coordinators and other administrators in the school district, ISTE also brought a group together to formulate standards for students and teachers. The District Technology Coordinator as the chief technology officer of the school district is responsible for a technology program that ensures the proper accountability for... technology professional development and meeting all requirements of the Alabama Professional Development Standards for Teachers and Administrators,
Technology Competencies, the K-8 Technology Course of Study, and the Computer Skills curriculum. (Alabama State Department of Education - Technology Initiatives Department, 2015-16, p. 1.3)

These resources are used to train teachers and administrators on “technology portions of the new EducateAlabama and Quality Teaching Standards that are based on the ISTE Standards.” (Alabama State Department of Education - Technology Initiatives Department, 2015-16, p. 3.4) “ISTE Standards (formerly the NETS) for Teachers (ISTE Standards·T) are the standards for evaluating the skills and knowledge educators need to teach, work and learn in an increasingly connected global and digital society” (ISTE, 2014, p. 1).

The ISTE web site states that all teachers should meet the ISTE standards and the performance indicators that are part of the standards.

Teachers facilitate and inspire student learning and creativity—Teachers use their knowledge of subject matter, teaching and learning, technology to facilitate experiences that advance student learning, creativity and innovation in both face-to-face and virtual environments. Teachers a) Promote, support and model creative and innovative thinking and inventiveness; b) Engage students in exploring real-world issues and solving authentic problems using digital tools and resources; c) Promote student reflection using collaborative tools to reveal and clarify students’ conceptual understanding and thinking, planning and creative processes; d) Model collaborative knowledge construction by engaging in learning with students, colleagues, and others in face-to-face and virtual environments. (ISTE, 2014, p. 1)
The second ISTE standard is to design and develop digital age learning and experiences and assessments (ISTE, 2014). Teachers should design lessons which incorporate current authentic learning opportunities and experiences which develop students’ technology knowledge. The classroom should provide a technology-enriched learning environment where students are equipped to seek information. Authentic problems of interest to the learner should be incorporated whenever appropriate to engage the student in the learning process. Technology use in the classroom makes it possible to differentiate learning based on interests and abilities of the students. Students should be provided with multiple and varied formative and summative assessments aligned with content and technology standards. Teachers should use resulting data to inform learning and teaching (ISTE, 2014).

The third ISTE standard for teachers states that teachers should model technology usage in their professional and personal lives. Teachers model technology by using it to communicate with parents and other educators, using it to present lessons, and demonstrating technology usage in the classroom (ISTE, 2014). Teachers should model “digital age work and learning by exhibiting knowledge, skills and work processes representative of an innovative professional in a global and digital society” (ISTE, 2008). Teachers model technology by using it to communicate with parents and other educators, using it to present lessons, and demonstrating technology usage in the classroom. Staying informed on what technologies are available for classroom use helps with lesson planning (ISTE, 2014).

The fourth ISTE standard for teachers deals with the importance of digital citizenship, student safety, and responsible use of technology. Teachers should understand local and global societal issues and responsibilities in an evolving digital culture, and exhibit legal and ethical behavior in their professional practices. An aspect of this fourth standard is globalization, as
Thomas L. Friedman (2007) notes in his book, *The World is Flat*. Teachers are tasked with conveying to students that the online society is a global society, and to “live” in this online global society, tolerance and respect for the views of others is required. For example, a survey of 270 teacher trainees found “The great majority were in favor of teacher training courses incorporating information regarding ways of combating bullying. However, they had less confidence about their ability to deal with bullying” (Nicolaides, Toda, & Smith, 2002, p. 105).

The fifth and final ISTE standard for teachers, which District Technology Coordinators are charged with addressing, is that of professional growth and leadership. Technology is always changing and District Technology Coordinators are the leaders of this change in schools. Providing continuous professional development and technology engagement opportunities assists teachers to be lifelong learners and users of technologies. Improving teacher technology skills will help not only the teachers but the students. Teachers who are skillful in the use of technology are able to promote the use of technology in the classroom, school, community, and virtual world.

District Technology Coordinators rely on the course of study provided by the State Department of Education for guidance in what technology integration should be occurring in their school districts and are charged with leading its implementation. The *Alabama Course of Study – Technology Education* (2008), adopted in March 2008, mandates that all students be technology fluent by the end of the eighth grade.

A technology-fluent student demonstrates basic technological operations and concepts; understands human, cultural, and societal issues related to technology; and utilizes technology productivity, communication, collaboration, research, and problem-solving skills. Technology-fluent students are proficient in operating
technology systems and in conducting research using digital tools. In addition, they are able to use digital tools to solve real-world problems, collaborate with others, and create simulations. (Alabama State Department of Education, 2008, p. 1)

The standards found in the Alabama course of study correlate with the ISTE Standards for students. Technology courses are not expected to be stand-alone courses in grades K-8, but the technology standards are to be interwoven with other classes. Computer Applications is the concluding course in grade 8 and is described as a stand-alone course whose content is additionally integrated into all high school curricular areas, further expanding the students’ technology competence (Alabama State Department of Education, 2008). The Computer Applications curriculum, along with all grade level curriculums K-8, are divided into six strands: a) Technology Operations and Concept; b) Digital Citizenship; c) Research and Information Fluency; d) Communication and Collaboration; e) Critical Thinking, Problem Solving, and Decision Making; and f) Creativity and Innovation (Alabama State Department of Education, 2008).

In 2003, Project Tomorrow began surveying students, parents, teachers, librarians, and district administrators across the United States to provide an “unfiltered stakeholder voice on digital learning” (Project Tomorrow, 2014, p. 17). Participation by Alabama school districts has seen a steady increase over the years. The most recent survey, conducted in fall 2013, gathered responses from 37,750 teachers, 3,020 school administrators, and 577 school technology leaders, in addition to students, parents, and community representatives. The New Digital Learning Playbook: Advancing College and Career Ready Skill Development in K-12 Schools (2014) report on the fall survey findings concerning school participants found 23 percent of teachers
with less than 3 years of teaching experience “said that their teaching program did not prepare
them well for using technologies in the classroom” (p. 9). A very interesting finding in this
report, with implications for District Technology Coordinators, is the response to the question
“How important is the effective implementation of technology within instruction on student
success?” “… approximately 56 percent of high school principals, parents of high school
students, and district administrators ranked technology use in this context as extremely
important. In contrast, only 36 percent of teachers shared that same valuation” (Project
Tomorrow, 2014, p. 5). District Technology Coordinators work with administrators in
implementing technology initiatives in their schools. The administrators surveyed by Project
Tomorrow reported “securing teacher buy-in on new initiatives and then providing appropriate
training to support classroom usage are two common hurdles” (p.5) they face in planning and
implementing new technology learning initiatives. Teachers are especially interested in “how to
effectively integrate mobile devices such as tablets and laptops into everyday instruction” with
“33 percent noting a need for professional development as a barrier to more effective technology
use” (p. 5).

Thirty-eight percent of teachers reported regular access of students to technology,
including laptops, tablets, smartphones and other mobile devices within instruction. “These
types of one-to-one classrooms include students that are using their own devices, students that
are assigned personal devices for use at school and students with school assigned devices that
they can use both at school and at home” (p. 5). Over half the teachers reported that the use of
these devices in the one-to-one classroom increased student engagement, provided a method of
personalizing instruction, facilitated greater student ownership of the learning process, and
helped to extend learning beyond the school day. Teachers also reported that using digital
resources to teach online classes, to provide digital content, and to teach 1:1 mobile classes had increased student creativity and development of problem solving and critical thinking skills (Project Tomorrow, 2014). This result speaks to not only the increased national, state, and local emphasis on college and career readiness skills, but also the emerging sophistication of teachers’ use of digital tools to support instruction in the classroom, usage that goes beyond simply engaging students in a sporadic use of technology as a fun activity. (p.8)

This is important to District Technology Coordinators because teachers are becoming more sophisticated in the use of classroom technology and require ever more sophisticated technologies in the classroom and professional development opportunities.

While online learning is being used by many types of students, the majority reported using online learning for remediation (66%), dropout prevention engagement (63%), credit recovery (61%), home-bound (53%), and at risk students (50%). Those reporting the use of online services for more academically minded students were for advanced coursework (49%), gifted students (41%) and dual enrollment with local colleges (39%) (Project Tomorrow, 2014).

**TSPAT**

With the purchase of computer technologies for the classroom increasing, a growing need for a technology trained faculty was evident to leaders in Alabama. In 1993 the Alabama Commission on Higher Education established the Technology Scholarship Program for Alabama Teachers (TSPAT) in an effort to build a workforce of technology trained teachers in the academic areas of English, math, science, social science and history including teachers in K-6 and other state designated areas (King, Frith, Zenanko, & Zenanko, 1995). The Alabama Legislature passed Act 93-636, which provided funding for the scholarship program. There were
three technology courses offered under the scholarship: (a) Computer-Based Instructional Technologies, (b) Current and Emerging Instructional Technologies, and (c) Curriculum Integration of Technology (King, Frith, Zenanko, & Zenanko, 1995). The scholarship was two parts: (a) teachers who had completed a master’s degree could take the three courses at no cost, and (b) teachers who had not yet completed a Master’s Degree could complete the three courses and all other requirements for a Master’s Degree at no cost. Teachers taking advantage of this scholarship had to apply each year and agree to teach in an Alabama school for a minimum of 3 years (Alabama Administrative Code, 1993).

CALL (CoSN Alabama Leaders) Technology Coordinator Salary Survey

In the fall of 2010, CALL was organized as the 12th state chapter of the national CoSN (Consortium for School Networking) organization. Membership in CALL is in conjunction with membership in the Alabama Education Technology Association (AETA). One of the initial projects of CALL, in the summer of 2011, was to survey members with a stated purpose “to further the CALL mission by providing information, tools and resources for Alabama technology leaders” (Nutting, Chamberlain, Williamson, & Kay, 2011, p. 3). Seventy-five of the 133 (56.4%) District Technology Coordinators from local education agencies in the state responded to the survey. Of those reporting: 52% (39) were not certified in education, 32% (24) had their administrative certification, 45% had a technical certification, and 85% possessed a 4 year degree or higher (Nutting, Chamberlain, Williamson, & Kay, 2011). These percentages do not add to 100% due to the overlapping certifications held. For example, some coordinators may have non-education degrees and technical certification while some others may be certified in education, certified in administration and hold technical certifications. Nine respondents reported having earned a doctoral degree. “All technology coordinators who responded to the survey have
twenty years or less experience as a coordinator, but twenty-six reported that they have twenty-
one years or more of relative experience which relates to the job” (p. 4). This relative experience
was not documented as either educational or technical.

The technology coordinator is the state recognized position for all things technical
in the LEA (Local Education Agency). In most cases the technology coordinator
assumes the traditional role of Chief Information Officer and sets the technology
direction for the school system. The technology coordinator has the responsibility
for network design and maintenance, technology budget, data integrity and
influence over technology integration in instruction. (p.6)

Fifty-two respondents listed their responsibilities as a combination of curriculum and
technical, while 22 were solely responsible for technical issues, and 1 was only responsible for
curriculum issues. Some held job titles in addition to District Technology Coordinator; these
included Curriculum or Professional Development Director, Facilities Director, Federal Program
Director, Finance Director, Guidance and Counseling Supervisor, Accountability Coordinator,
and Attendance Supervisor. This survey provides insight into the qualifications and duties of the
Alabama District Technology Coordinator.

**Pedagogical and Administrative vs Technical Career Backgrounds**

The implementation of technology in PreK-12 classrooms requires a variety of skills and
knowledge. Unlike technology positions in business and industry, whose major area of concern
may be providing resources to the company, District Technology Coordinators are primarily
concerned with enhancing learning opportunities for the student through technology usage. van
Manen (1991) defines pedagogical as having to do with influences at the heart of interactions or
situations between teachers and students. Technological skills refer to those skills involving
hands-on management of networks and/or computer repair. Entry level positions in this field are sometimes referred to as IT Technicians, and require both computer repair and network maintenance skills, according to Denning and Gordon (2015).

Orlikowski (1992) describes the technical hands-on aspect of technology maintenance and repair versus the use of software and the Internet to perform an action. Because of these dual realms of technology in school systems, Technology Coordinators have both the technical and pedagogical sides of implementation to direct. While Alabama Technology Coordinators serve only PreK-12 classrooms, insight can be gained by reviewing technology integration at all grade levels. “Higher education institutions around the globe have increasingly adopted information and communication technologies (ICT) as tools for teaching, curriculum development, staff development, and student learning” (Al-Senaidi, Lin, & Poirot, 2009, p. 575).

While the literature on school District Technology Coordinators is very limited, this is not just an education phenomenon. “It appears that CTOs are not publishing their activities and few academics are researching the position” (Smith, 2007, p. 18). In “an archival database search on the term (Chief Technology Officer) and its three-letter abbreviation, there were fewer than 20 published journal articles” (Smith, 2007, p. 18) found for the preceding 10 years. District Technology Coordinators are the Chief Technology Officers of the school system. Yet, their duties and responsibilities tend to be largely undefined by the state, just as in industry. When the title “teacher” is mentioned, individuals both in the field and outside the field have an understanding of the job duties. This is not necessarily the case with District Technology Coordinators. “Today, many organizations have managers with specific responsibility for technology, but the exact nature of their responsibilities—both tactical and strategic—and their job titles can vary considerably” (van der Hoven, Probert, Phaal, & Goffin, 2012, p. 25).
Just as in business, District Technology Coordinators have a variety of titles and responsibilities. With the increase of available technologies for the classroom, the specifics of technology management of schools is ever evolving. Levinson and Surratt (1999) suggested that a well-organized district is one that integrates technology activities across all levels and departments, with a structure that can provide proper support and a responsible use of funds. In order for this to happen, Levinson and Surratt believe that the Technology Coordinator must be in an authoritative position, one equivalent to an Assistant Superintendent. Furthermore, this individual must have a combination of talents in both technology and education because the responsibilities of the Technology Coordinator are vast. They include all technology planning, daily system operation, design and maintenance of the network, approval of technology expenditures, oversight of instructional technology, and coordination of all technology activities in each department and school (Lesisko, 2005).

In a study of university technology experts and business CTOs, Scott (2001) derived a list of 24 focus areas for technology leaders. van der Hoven (2012) provides a table of Scott’s 24 focus areas. In the table, strategic planning for technology products, new product selection, establishment of a technology vision and organizational learning about technology are a few that correlate to the duties of District Technology Coordinators.

Technology Leadership

District Technology Coordinators are the technology leaders for their school district. When hiring a Technology Coordinator, Superintendents must find individuals with the following traits: the ability to control and manage technology resources; promote technology utilization within the district; the ability to develop and follow a technology plan; an understanding of emerging technologies that can be used in the classroom; a solid foundation of
hardware, instructional software, and network infrastructures; The Technology Coordinator position requires a person Technology Coordinator with a unique blend of skills and abilities that enables the person to work with both equipment and people. (Lesisko, 2005, p. 14)

District Technology Coordinators lead inside their LEA (Local Education Association) when offering resources to classroom teachers needing assistance in integrating technology in the curriculum. Glazer and Page (2006) found that after-school workshops were not accomplishing the school technology goals, and they recommended that Technology Coordinators serve as mentors to teachers on lesson planning and technology integration.

More crowded classrooms, more pressures to succeed due to the impact of No Child Left Behind Act and more day-to-day responsibilities are playing a key role in the allotment of time in the daily lesson planning of a teacher. Discipline issues and special needs students are other areas that have had a significant impact on incorporating technology into the classroom. (AL-Bataineh, Anderson, Toledo, & Wellinski, 2008, p. 382)

In addition, teachers must master many skills to perform well in academic classrooms of today. According to Chen, at times a teacher’s stated beliefs don’t always match their classroom practice. In his study of 12 Taiwanese teachers, he found these teachers, who all reported high agreement levels on constructivist concepts promoted by educational policies, mainly used technology only for supporting content coverage. Technology integration is one necessary skill (AL-Bataineh, Anderson, Toledo, & Wellinski, 2008) which must be developed through District Technology Coordinator leadership. “From the social-constructivism perspective, the teacher manages to create an effective learning environment in which students are actively engaged in knowledge construction through the interaction between peoples and artifacts” (Wu, Chang, &
Guo, 2009, p. 207). Al-Senaide, Lin and Poirot (2009) noted that barriers to technology integration might be classified as external, which relate to technical issues, or internal, which relate to teacher issues, such as teacher confidence or attitude. The objective of Alabama District Technology Coordinators is to support technology integration in the PreK-12 classroom from inside the classroom and out.

**Technology Coordinator Job Description**

The first six District Technology Coordinators were hired in the State of Alabama in the summer of 1982 (AETA, 2015). In 1998, District Technology Coordinators began holding quarterly meetings to provide support to each other. This group was initially called Central Alabama Technology Consortium (CATC). This group was later to become the Alabama Educational Technology Association. (AETA, 2015)

The federal government began providing funding for technology in March 1994, when President Clinton signed the Goals 2000: Educate America Act. Under this act, the U.S. Education Department invited states to apply for first-year funding. This Legislation made $86.5 million available to states to begin developing school improvement plans. Then, $5 million was provided to states to develop plans to use state-of-the-art technology to enhance teaching and learning. (TEC, 2015) These Goals 2000 technology funds were made available to Alabama schools through grant applications.

The Telecommunications Act of 1996 authorized the Universal Service Administrative Company (http://www.usac.org) to manage funding for schools and libraries through a grant process known as eRate. These eRate funds were available to help fund telephones, networks, and Internet connections.
The Technology Coordinator job description was not adopted until October 13, 2005 as a requirement by the legislature, which had agreed to partially fund the position as a line item in the education budget. The job description was created to include general descriptions of the District Technology Coordinator position in two related content areas of standards and duties/responsibilities. The document also includes technology program elements for K-12 public school districts which relate to the duties of the District Technology Coordinator (Alabama State Department of Education - Technology Initiatives Department, 2015-16).

The only standard given in the job description is that each local board of education will have a Technology Coordinator and that the $35,000 provided by the SDE be used toward the salary of that individual. It also designates that any employee of the LEA, other than the Superintendent, may be designated as the Technology Coordinator. There are no educational or experience requirements given by the SDE for this position (Alabama State Department of Education - Technology Initiatives Department, 2015-16). The complete job description can be found in Appendix F.

The second section of the Technology Coordinator job description deals with the duties and responsibilities of the position. As with the standards, the duties and responsibilities are stated in general form. A prominent term used is accountability which is to say responsibility for seeing that something is done and done correctly (Alabama State Department of Education - Technology Initiatives Department, 2015-16).

First, the District Technology Coordinator is accountable for technology funds. This accountability includes seeking the acquisition of funds and spending acquired funds wisely. The eRate program grant is still a major source of funding for most school systems. On July 23, 2014 the FCC adopted an E-rate Modernization Order which began the process of moving more
funding to Wi-Fi and broadband connections and away from other services such as telephones and webpages (Schools and Libraries (E-Rate), 2014).

Second, the District Technology Coordinator is accountable for technology professional development for all faculty (Alabama State Department of Education - Technology Initiatives Department, 2015-16, p. 1.3). Technology in Motion is a program offered by the Alabama State Department of Education to assist in providing technology professional development to teachers across the state. Technology in Motion offers training at the LEA and online through e-Learning for educators in Alabama. District Technology Coordinators can contact their service center to schedule a training session on a variety of topics (Alabama Technology in Motion, 2014).

A third responsibility of the District Technology Coordinator is to file all required reports and plans. The District Technology Coordinator is responsible for assuring each school has a technology plan and that faculty and staff are aware of that plan. The District Technology Coordinator is also responsible for preparing the district technology plan and submitting it to the State Department of Education. No E-rate funds can be received by the local district without a state approved district technology plan (Alabama State Department of Education - Technology Initiatives Department, 2015-16).

A fourth responsibility of the District Technology Coordinator is to coordinate technology across all programs.

They are to assist, and/or supervise school and district-level personnel designated for the collection, maintenance and reporting of data and work with other central office staff, school leaders, and teachers to integrate technology into the ongoing instructional program for all curriculum areas by identifying strategies and
materials, and by implementing activities for integration. (Alabama State Department of Education - Technology Initiatives Department, 2015-16, p. 1.3)

The fifth responsibility given District Technology Coordinators by the State Department of Education is to make sure safety and security measures are in place for the network and all data. Superintendents should expect District Technology Coordinators to maintain secure data and protect equipment. (Alabama State Department of Education - Technology Initiatives Department, 2015-16).

Responsibility number six is to assist with the implementation of technology standards for students and faculty. One such set of standards is the Alabama Professional Development Standards for Teachers and Administrators that serve as a guide for the LEA Professional Development Plan. These standards were adopted June 13, 2002 and were linked to the state standards NCLB definition in Title IX, Section 9101(34) (Alabama State Department of Education, 2014). The standards to be implemented for students are found in the Alabama Technology Course of Study.

Finally, the District Technology Coordinator performs all duties as assigned by the superintendent and board of education while serving the students and members of the community. As a public education representative, the District Technology Coordinator needs to be cognizant of the importance of federal, state and local laws applicable to technology and education. When purchasing items costing more than $15,000 total, bids must be prepared and conducted according to the Alabama bid law (Alabama Department of Finance, 2014). E-Rate bid guidelines (Federal Communication Commission, 2014) must also be followed when applicable. Resources necessary to fulfill these standards are to be furnished by the local board of education.
The District Technology Coordinator job description provided by the Alabama State Department also includes 15 essential technology program elements. The first four of the elements address the need to collaborate with stakeholders at all levels from vendors to students to administration and the community (Alabama State Department of Education - Technology Initiatives Department, 2015-16). Another essential element is the ability to prepare the annual budget, any budget amendments and bid documents. Purchase order, invoice and inventory systems must be accurately maintained for all equipment purchased.

Leadership in planning is another essential element of the position. Technology plans should be completed, submitted and implemented in a timely manner at the school and district level. After preparing the Internet Use Policy, two public meetings must be held giving the community an opportunity to comment (Alabama State Department of Education - Technology Initiatives Dept, 2012-2013).

**Social Cognitive Theory**

Social Cognitive Theory (SCT) was developed by Albert Bandura in the 1970s and relies on a “triadic reciprocal causation utilizing the interactivity of intrapersonal influences, individual behaviors and environmental factors” (Bandura, 2012, p. 11). Studies have shown that these three influences do not operate individually. “The triadic influences on various aspects of educational and career development are interactive and indirect” (Bikos, et al., 2014, p. 159). In Bandura’s first book on self-efficacy, *Self-Efficacy: The Exercise of Control* (1997), he cites four types of information or influences to the development of an individual’s self-efficacy. The first is individual mastery through lived experiences and performance feedback. Successful, positive experiences tend to encourage activities in individuals while negative experiences discourage associated activities. The second is what Bandura terms social modeling. An example of this would be watching a person demonstrate how to tie a specific type of knot in a rope (Davidson,
An example of the third would be evidenced by an individual actually practicing tying the demonstrated knot and receiving positive encouragement from the instructor or another individual. This is what Bandura calls social persuasion. The final influence on self-efficacy, labeled physical and environmental, deals with self-perceptions and beliefs. People sometimes react to circumstances because of pre-conceived beliefs. For example, people desiring to cross the street will follow a well-dressed person who is disobeying the signals but will hesitate to follow a poorly dressed person under the same circumstances (Davidson, 2003). Perceptions of skills and abilities, whether real or imagined, will influence an individual’s technology career decisions and training history.

The study of self-efficacy by Bandura was initially met with outright rejection from his fellow psychologists who concentrated on the single aspect of rewards and punishments to change human behavior. While this process might explain some behavior, Bandura recognized the more complex human social evolution guiding individual behavior (Davidson, 2003). This understanding is represented by the Individual Behavior component of his triadic model of self-efficacy. Through the research of Bandura and his influence on others such as Bijou and Baer, Alovis, and Wolpe (Bandura & Zeiss, 2003) self-efficacy gained, first qualified acceptance, and then, widespread acceptance in the late 1900s. Many fields of study now recognize self-efficacy as a motivational process of facilitating individual change in behavior.

Social cognitive theory can provide a qualitative methods framework within which to study how one’s skills and beliefs impact personal career decisions, both in selecting a career and in fulfilling the career requirements (Bandura, 2002). Studies have shown that the three influences of Individual Behavior, Intra Personal Influences and External Environmental Factors do not operate individually but are both interactive and indirect.
The agentic perspective of social cognitive theory encompasses the self-efficacy component. Bandura (2012) describes being an agent as intentionally influencing your own behavior and environment by your individual decisions and actions, thus self-efficacy becomes this agent of change in an individual’s career. Behavior enhancing self-efficacy may be understood as a self-belief or assumption that one possesses technological capabilities and skills. Self-efficacy affects which options are given serious consideration when making career decisions (Bandura, 2012). If an individual does not believe they possess the skills necessary for a technology position, then no attempt may be made to acquire those skills. “The self-efficacy portion of social cognitive theory addresses the origin of self-efficacy beliefs, their structure and functional properties, their diverse effects, the processes through which they work, and how to develop and enlist such beliefs for personal and social change” (Bandura, 2012, p. 13). If I know I can’t, then I can’t. According to Weibell (2011), while other factors might serve as guides to certain career decisions, these are all dependent on a person’s core belief that the power to affect change lies within himself. Thus, the person possesses the skills and knowledge to create change.

Two studies provide examples of utilizing the Self-efficacy framework to illustrate how career pathways can be applied to the triadic influences of Individual Behavior, Intra Personal Influences and External Factors. In their study of missionary children’s career development, Bikos et al. (2014), employed Bandura’s social cognitive theory to provide an understanding of the challenges faced by this group in educational and career development. Technology issues as they relate to careers were addressed by Lang (2012). In her qualitative study of secondary school students in three grade levels, Lang applied a self-efficacy framework to determine what influenced student decisions to pursue IT careers and courses.
Summary

The literature shows that the District Technology Coordinator (DTC) career position touches all aspects of PreK-12 education in Alabama. Since 1980, the inclusion of technology in the classroom has seen a tremendous expansion. National initiatives have fostered this inclusion through the use of grants and funding, while technology integration has been left to local, state, and district efforts. District Technology Coordinators have been utilized in Alabama schools since the 1990s, but were not even partially funded by the state until 2005.

Technology integration, technology standards, technology leadership and the Technology Coordinator job description have helped to define the duties and responsibilities of the position. TSPAT has helped implement technology in Alabama schools by providing technology training to educators across the state. The CALL survey has helped provide information on more current issues concerning District Technology Coordinators. Pedagogical and administrative versus technical career backgrounds are found in currently employed Alabama District Technology Coordinators and provide differing views of technology.

The self-efficacy component of Social Cognitive Theory informs this study by providing an orientation of relevancy to the data. Bandura’s self-efficacy triadic model relays a framework of structure for the study. The framework supports the understanding of views on technology career pathways and duties expressed by Alabama District Technology Coordinator study participants.
CHAPTER III

METHODOLOGY

The purpose of this study was to use the self-efficacy perspective of social cognitive theory to explore Alabama District Technology Coordinators’ duties and the various pathways to becoming a District Technology Coordinator. This study employs a qualitative approach using the constant comparative method within a constructivist worldview.

Setting of the Study

This study took place in the southeastern state of Alabama. As of the 2010 census, Alabama had a total population of 4,780,127 people. Of this, there were 798,281 children between the ages of five and eighteen living in Alabama from which the public school systems draw their students. The population by race for this young age group was 74.2% White, 15.3% Black or African American, 4.6% Asian, 4.1% two or more races, 1.5% American Indian and Alaska Native; and 0.3% Native Hawaiian and Other Pacific Islander (United States Census, 2010). According to census data, 22.3% of Alabama citizens hold a bachelor’s degree or higher. In addition, Alabama is not a wealthy state with 19% of the population living below the national poverty level and a median household income of $41,415.

Participants

Participants for this research were District Technology Coordinators employed in Alabama public school systems. The Alabama State Department of Education and the AETA (Alabama Educational Technology Association) were contacted for assistance in the selection of participants. Those selected for interviews were representative of the District Technology
Coordinator population selected by: a) demographic backgrounds of technical, pedagogical, and administrative; b) economic status of the school district; c) district student population numbers; and d) a mixture of personal traits of the individuals such as years of experience, gender and race. Seven respondents were interviewed to gain further insights into their views and methods concerning the District Technology Coordinator’s role in technology integration. The interviews were approximately 45 minutes to an hour with follow-up when necessary. Five interviews were face-to-face and two were over the telephone to accommodate the participants’ schedules.

**Researcher Positionality**

A major factor of qualitative studies is the idea of researcher influence on the study. My fifteen years as a District Technology Coordinator provided at least a small amount of influence on this study. As once an insider who now as a retiree has a somewhat more distant stance, I still have an understanding of the position as only one who has held any position can possess. The benefits afforded by this influence are related to access to an available participant pool through organizational and collaborative connections, and an understanding of the “language” peculiar to District Technology Coordinators and education in general. This influence assisted with analysis of the data when using the constant comparative method to ascertain relevant themes and categories.

While insider influence can have its benefits there can also be detrimental aspects. Care has been taken to avoid influencing the study toward the researcher’s belief through the wording of questions. The selection of participants included those from districts in both high and low economic areas; administrative, pedagogical, and technical backgrounds; and representatives of varied race and gender. An attempt was made to include participants from districts across the state in order to achieve a better representation of the northern, middle and southern regions.
Research Question

The central research question for this study was: How do individuals’ backgrounds shape the pathways they take to become District Technology Coordinators and how do these pathways influence their role or responsibilities?

Data Collection

Qualitative methods were appropriate for this study. “A Likert-type scale is appropriate for phenomena that have positive and negative valences, such as attitudes, opinions, and likes and dislikes, but not for self-efficacy because a judgment of complete incapability (0) has no lower negative gradation” (Bandura, 2012, p. 16). Through qualitative research and interview procedures an individual can relay personal thoughts and behaviors. Data for this study were collected through a pre-interview survey (see Appendix D) and interviews with technology coordinators (see Appendix E).

Maximum variation sampling was used to assure a purposeful diverse representation of the District Technology Population. There were two major factors considered in the selection of participants, obtaining a variation in the school system demographics and in the personal characteristics of the individuals. The participants represented both large and small school systems classified by size based on student population. City and county school systems were represented along with higher and lower economic status school systems based on student free and reduced lunch rates. Participants represented a mixture of personal traits, such as race and gender.

The qualitative research process is one of discovery by following the bricks of categories and/or themes as they build a trail to a theory. “... qualitative research allows researchers to get at the inner experience of participants to determine how meanings are formed
through and in culture, and to discover, rather than test variables” (Corbin & Strauss, 2008, p. 12). Corbin and Strauss state “that experience must be located within and can’t be divorced from the larger events in a social, political, cultural, racial, gender-related, informational, and technological framework. . .” (2008, p. 8). Qualitative research relies on surveys and/or interviews with participants that provide detailed narratives of a phenomenon or experience (Glanz, 2003). Qualitative research, specifically phenomenological research is a study of lived experiences.

In other words, phenomenological research consists of reflectively bringing into nearness that which tends to be obscure, that which tends to evade the intelligibility of our natural attitude of everyday life. About any experience or activity, whether it be mothering, fathering, teaching, testing, reading, running, leading, lending, drawing, driving, or the experience of time, space, thing, the body, others, we can reflectively ask what is it that constitutes the nature of this lived experience. (van Manen, 1990, p. 32)

Interviews from qualitative studies are reviewed and unpacked to note similarities and differences among the thoughts of interviewees. “Interviews enable the researcher to learn the complexities of the participants’ experiences from his or her point of view” (van Manen, 1990, p. 145). Data concerning lived experiences of career training and career choices is best gathered by personal interview with participants. Through interviews, the researcher may be able to gather communication clues as to the importance the participant relays in his/her responses. Glanz quotes Steidman (1998), saying “interviewing is the most suitable data collection method if we are to understand the experiences of others and the meanings they make of them” (2003, p. 145). Qualitative interviews utilizing open-ended questions are structured, semi-structured or informal.
The semi-structured interview used in this study gave the researcher the opportunity to group responses and gather additional information from the respondents. In the semi-structured interview, the interviewer begins with a pre-conceived question, and the response may lead to additional probing questions. Informal interview questions present themselves as the conversation progresses and may be more difficult to analyze as the information obtained may cover dissimilar topics.

Permission from the Superintendent of each school district to conduct onsite interviews was obtained before interviews were conducted. Permission from participants was obtained following receipt of the Superintendent’s permission and pre-interview surveys were conducted to determine demographic information. For the convenience of the participants, semi-structured interviews were conducted at the interviewees’ school districts or by phone.

The supposition was that participants would be more relaxed and forthcoming in the surroundings in which they are accustomed to performing their duties. Interviews were scheduled at the participants’ convenience. The identity of the participants is known only to the researcher. Each participant was assigned a number during the first coding and is referred to by that number throughout this study. The participants’ numbers indicate the career background of the individual as technological (T), pedagogical (P), technical and administrative (TA) and pedagogical and administrative (PA). First-order narratives in which the participants tell stories about themselves and their own experiences leading to their career decision to become a District Technology Coordinator and duties were sought (Creswell, 2007, p. 119). Each interview was recorded for accuracy and notes were taken during the interviews.
Data Analysis

The data collected from open-ended question interviews (see Appendix E) were transcribed from audio recordings, which is part of the continuous qualitative research process. The transcription of the recordings allowed for an initial review of the interviews. The digital recordings were transcribed verbatim and all identifying information was removed. Open coding utilizing keywords (technological, pedagogical, and administrative) was initially applied to the transcriptions. These predetermined categories were applied in an attempt to classify each participant by career training and work experience backgrounds. This coding resulted in the labeling of participants as T for technological, P for pedagogical, TA for technological and administrative, and PA for pedagogical and administrative.

The process of constant comparative data analysis informed the data collection procedure. A second coding of all transcripts revealed ten major career themes: guidance from others, pioneer, life-long learner, initiative to train others, hands-on technical duties, team size, multiple positions, affinity for change, perception of duties, and team building. A final coding was used to code the career themes within Bandura’s triadic model framework of Individual Behavior, Intra Personal Influences and External Environmental Factors.

The constant comparative method, which utilizes the comparison of incident to incident, was used to code and analyze the transcripts. After reflecting on the data collection and data analysis of each interview, any emergent themes were addressed in the future interviews. Subsequent interview transcripts were analyzed for these categories and comparisons of the categories made internally until similarities emerged.
CHAPTER IV

FINDINGS

The purpose of this study was to explore the duties of Alabama District Technology Coordinators and the various pathways to acquiring the position. The findings for this research are the views and reflections of seven District Technology Coordinators employed in seven different local public school systems. These seven District Technology Coordinators are representative of the Alabama State District Technology population in both school system and personal traits. This chapter includes a description of each school system and the District Technology Coordinator position within that system. The qualitative themes revealed as a result of the study are described.

Context

The participants selected for this qualitative study are representative of the District Technology Coordinator population of local Alabama K-12 school systems. Representatives of the Alabama State Department of Education and the Alabama Educational Technology Association were contacted by phone, email, and in person for assistance in the selection of participants. Maximum variation sampling was used to assure a purposefully diverse representation of the District Technology Population. There were two major factors considered in the selection of participants, variation in the school system demographics and in the personal characteristics of the individuals. The participants represented both large and small school systems classified by size based on student population. City and county school systems were represented along with higher and lower economic status school systems based on student free
and reduced lunch participation rates. Participants represented a mixture of demographic traits, such as race and gender.

Consent for the participation of the local District Technology Coordinator was requested by email from the Superintendents of 13 selected local school systems. In cases of a non-response, a follow-up phone call was made to the Superintendent/and or Superintendent’s secretary. Twelve school systems were initially selected, but an additional system Superintendent was contacted when the Superintendent of one system indicated the school system did not employ a District Technology Coordinator. From the selected local school systems, nine Superintendents responded affirmatively and granted permission for the researcher to contact their local District Technology Coordinator. One of the non-participating school systems required a pre-approved IRB and board approval before granting permission and was, therefore, unable to participate since the IRB approval could not be obtained in a timely fashion. Emails containing the consent to participate were then sent to the District Technology Coordinators of the nine systems with affirmative Superintendent responses. The participants replied by return email to provide their agreement to participate. Some invitees were sent two emails and/or telephoned/visited to gain consent. One of the nine never responded to the emails or phone calls and another indicated she did not wish to participate.

A link to a pre-interview survey was sent to all participants and an approximate 1-hour interview was scheduled with each. The interviews were semi-structured utilizing open-ended questions. To accommodate the busy schedule of the participants, two of the interviews were conducted over the phone. All participants are identified within this study by assigned numbers to maintain anonymity. The numbers identify the participants as having a career and/or training background of technological (T) pedagogical (P) and administrative (A). TA represents an
administrator with a technical career background and PA represents an administrator with a pedagogical career background. The identity of participants is known only to the principal investigator. Personal identifying information which might lead to the identification of participants has been removed or obscured by using general terms. All participants were given gift cards after the interview in appreciation for their participation. Table 1 gives a summary of participant demographics.

Table 1

Participant Demographic Information

<table>
<thead>
<tr>
<th>District Technology Coordinator</th>
<th>Gender</th>
<th>Race</th>
</tr>
</thead>
<tbody>
<tr>
<td>TA1</td>
<td>Female</td>
<td>White</td>
</tr>
<tr>
<td>T2</td>
<td>Female</td>
<td>White</td>
</tr>
<tr>
<td>T3</td>
<td>Male</td>
<td>Black</td>
</tr>
<tr>
<td>PA1</td>
<td>Male</td>
<td>White</td>
</tr>
<tr>
<td>PA2</td>
<td>Female</td>
<td>White</td>
</tr>
<tr>
<td>PA3</td>
<td>Male</td>
<td>White</td>
</tr>
<tr>
<td>PA4</td>
<td>Female</td>
<td>White</td>
</tr>
</tbody>
</table>

Participants

Thirteen local school systems were contacted for participation in this qualitative study. Seven Alabama District Technology Coordinators agreed to participate, relaying information concerning their duties and pathways of acquiring the position. The gender of participants is three males and four females. The ethnicity of the group consists of one black and six whites. The estimated age range for the study group is between 40 and 60 years of age. While the exact age of participants is unknown, participants received initial degrees between 21 and 37 years ago. Administrative degree programs require three years of experience in the education system.
before being admitted to this Master’s level degree program. Therefore, the five participants holding administrative degrees would have this additional educational experience.

The information gathered from the pre-survey helps to classify backgrounds as initially technical or pedagogical and later administrative. PA1, PA2, PA3, and PA4 are from an initial pedagogical background and TA1, T2, and T3 are from an initial technical background. For pay scale classification, the three technical participants (TA1, T2, and T3) are classified as support, and the four pedagogical participants (PA1, PA2, PA3, and PA4) as administrators, although six of the participants hold some type of administrative degree. T3 listed himself as support on the pre-survey but changed that classification to administrative in the interview. His degree was indicated as a Master’s in Business Administration, which is not eligible for administrative certification in the education field. This could mean while his degree would qualify as support, the school system may be paying him as an administrator since the duties of the position are administrative in nature. This, however, was not stated and is only a supposition. Therefore, he is listed here according to his pre-survey response.

School System Selection

School systems were selected for inclusion in the study based on size, ethnicity, and economics. The thirteen systems originally selected for participation in the study were both city and county, large and small, and well-funded and underfunded. The seven school systems participating in the study identified by letters A thru G in the following chart varied in their student ethnic make-up from 0% black and 97% white to 46% black and 39% white. The free and reduced rate lunch participation for each school system was used to evaluate the socio-economic level of the school system. The free and reduced lunch participation rates of these seven systems range from a low of 0% to a high of 72%. As identified in Table 2, two systems’
Superintendents did not grant permission to contact the District Technology Coordinator, two systems’ District Technology Coordinators did not agree to participate in the study, one Superintendent indicated the system did not employ a District Technology Coordinator, and one system was prohibited from participating by a board policy that required IRB approval be granted before the Superintendent could assent to participation.

Table 2

School System Demographic Information

<table>
<thead>
<tr>
<th>School Systems</th>
<th>Number of Schools</th>
<th>City or County</th>
<th>Approximate Enrollment</th>
<th>White</th>
<th>Black</th>
<th>Other</th>
<th>Free &amp; Reduced</th>
</tr>
</thead>
<tbody>
<tr>
<td>1*</td>
<td>7</td>
<td>County</td>
<td>4000</td>
<td>85%</td>
<td>5%</td>
<td>10%</td>
<td>72%</td>
</tr>
<tr>
<td>2*</td>
<td>7</td>
<td>County</td>
<td>2000</td>
<td>5%</td>
<td>90%</td>
<td>5%</td>
<td>64%</td>
</tr>
<tr>
<td>3****</td>
<td>44</td>
<td>City</td>
<td>24000</td>
<td>1%</td>
<td>93%</td>
<td>6%</td>
<td>92%</td>
</tr>
<tr>
<td>4***</td>
<td>4</td>
<td>City</td>
<td>1200</td>
<td>0%</td>
<td>99%</td>
<td>1%</td>
<td>63%</td>
</tr>
<tr>
<td>5**</td>
<td>3</td>
<td>City</td>
<td>1200</td>
<td>82%</td>
<td>12%</td>
<td>6%</td>
<td>63%</td>
</tr>
<tr>
<td>6**</td>
<td>4</td>
<td>City</td>
<td>2300</td>
<td>59%</td>
<td>38%</td>
<td>4%</td>
<td>53%</td>
</tr>
<tr>
<td>A</td>
<td>2</td>
<td>City</td>
<td>1500</td>
<td>63%</td>
<td>29%</td>
<td>8%</td>
<td>54%</td>
</tr>
<tr>
<td>B</td>
<td>4</td>
<td>County</td>
<td>2000</td>
<td>74%</td>
<td>18%</td>
<td>8%</td>
<td>65%</td>
</tr>
<tr>
<td>C</td>
<td>6</td>
<td>City</td>
<td>4500</td>
<td>97%</td>
<td>0%</td>
<td>3%</td>
<td>0%</td>
</tr>
<tr>
<td>D</td>
<td>6</td>
<td>City</td>
<td>4000</td>
<td>61%</td>
<td>24%</td>
<td>15%</td>
<td>58%</td>
</tr>
<tr>
<td>E</td>
<td>6</td>
<td>County</td>
<td>2000</td>
<td>78%</td>
<td>14%</td>
<td>8%</td>
<td>65%</td>
</tr>
<tr>
<td>F</td>
<td>11</td>
<td>City</td>
<td>8000</td>
<td>59%</td>
<td>27%</td>
<td>14%</td>
<td>29%</td>
</tr>
<tr>
<td>G</td>
<td>12</td>
<td>City</td>
<td>5000</td>
<td>39%</td>
<td>46%</td>
<td>15%</td>
<td>72%</td>
</tr>
</tbody>
</table>

* no-reply from superintendent
** no-reply from District Technology Coordinator
*** system did not employ a District Technology Coordinator
**** system policy stipulation prohibited participation

Note: Information retrieved September 14, 2015, from the Alabama State Department of Education Website: http://web.alsde.edu/PublicDataReports/Default.aspx

The Pre-Survey

Each of the seven study participants was asked to complete an online survey before being interviewed. The purpose of the survey was to categorize each participant’s background as technical, pedagogical or administrative. These answers seem to point to the individuality of
District Alabama Coordinators. The distribution of responses to these five questions follows.

Table 3 gives the educational background of all participants.

Table 3

*Educational Background of Participants*

<table>
<thead>
<tr>
<th>DTC</th>
<th>Degree 1</th>
<th>Degree 2</th>
<th>Degree 3</th>
<th>Degree 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>TA1</td>
<td>BS Mathematics Minor Basic Engineering</td>
<td>MS Industrial Engineering</td>
<td>MA Secondary Education Mathematics</td>
<td>MS Educational Administration</td>
</tr>
<tr>
<td></td>
<td>BS</td>
<td>MS</td>
<td>MA</td>
<td>MS</td>
</tr>
<tr>
<td>T2</td>
<td>BS Finance and Accounting</td>
<td>MS</td>
<td>MS</td>
<td>MS</td>
</tr>
<tr>
<td>T3</td>
<td>BS Computer Information Systems Minor Management</td>
<td>MS Business Administration</td>
<td>MS</td>
<td>MS</td>
</tr>
<tr>
<td>PA1</td>
<td>BS Elementary Education</td>
<td>MS</td>
<td>MS Educational Administration</td>
<td>MS</td>
</tr>
<tr>
<td>PA2</td>
<td>BS Business Education</td>
<td>MS</td>
<td>MS Educational Administration</td>
<td>MS</td>
</tr>
<tr>
<td>PA3</td>
<td>BS Mathematics Education</td>
<td>M. Ed. Mathematics Education</td>
<td>AS Computer Science Technology</td>
<td>Ed. D. Educational Administration</td>
</tr>
<tr>
<td>PA4</td>
<td>BS Elementary Education Minor Mathematics</td>
<td>MS Elementary Education</td>
<td>PhD Educational Leadership In Instructional Technology Administration</td>
<td>Ed. D. Educational Administration</td>
</tr>
</tbody>
</table>
Educational Background

While five of the participants in this study have a pedagogical background, technology was not always their early field of choice. One participant obtained training in Computer Science Technology after obtaining a Master’s in Mathematics Education. Two participants held Elementary Education degrees. Of the two participants with no pedagogical training, one has a degree in Finance and Accounting and the other has a degree in Computer Information Systems and Management. Only those with B.S. degrees and experience in education are admitted to administration degree programs. Therefore, only pedagogical track coordinators can receive a M.S. in Administration. This is one factor contributing to the multiple degrees earned by many of the study participants. Four of the participants have an administrative certification in-addition to other degrees.

Work History Background

It is evidenced by the participants’ responses that the road to District Technology Coordinator is a convergence of multiple trails and directional changes. The work history backgrounds of these seven participants can well attest to this fact.

TA1  Energy Company Engineer/Systems Analyst → Teacher and Technology Specialist → Middle School Teacher → Private School Teacher → Technology Resource Teacher → Technology Coordinator and Computer Science Teacher → Technology Consultant → Supervisor of Technology, Testing, Information & Quality → Teacher’s Aide → District Technology Coordinator

T2  Private Industry accounting, networking and programming → District Technology Coordinator
The majority of participants took their earliest employment steps as teachers in local schools. Several began their careers while the technology emergence in schools was still very young. Some schools even had no computers in classrooms when the individual was employed. As PA2 mentioned in her interview,

So then I started working with the kids as a resource for K-8 the first year in (school system). They had three schools and then I also worked for the Superintendent so I worked for all the Principals and the Superintendent and went around to the students saying “the computers are coming, the computers are
coming.” And basically with a cardboard box showing them what that might look like.

Certifications Held

This question was meant to and interpreted to refer to technology certifications as well as educational teaching certificates. Table 4 shows the certifications held by the participants.

Table 4

Certifications Held by Participants

<table>
<thead>
<tr>
<th>DTC</th>
<th>Certification 1</th>
<th>Certification 2</th>
<th>Certification 3</th>
<th>Certification 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>TA1</td>
<td>Class A Mathematics</td>
<td>Class A Administration</td>
<td>Substitute Teacher</td>
<td></td>
</tr>
<tr>
<td>T2</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T3</td>
<td>CETL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PA1</td>
<td>Class B Elementary Education</td>
<td>Class A Administration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PA2</td>
<td>PC Repair and Network</td>
<td>Class B Business Education</td>
<td>Class A Business Education</td>
<td>Type III Career Technical</td>
</tr>
<tr>
<td>PA3</td>
<td>Class A General Music and Mathematics</td>
<td>Class AA Mathematics</td>
<td>Class A Administration</td>
<td>Class AA Administration</td>
</tr>
<tr>
<td>PA4</td>
<td>Class B Elementary Education</td>
<td>Class A Elementary Education</td>
<td>Class A Administration</td>
<td></td>
</tr>
</tbody>
</table>


Five of the respondents hold educational certificates. One holds technology certification and one holds a BS degree with no certifications. Five hold certification in Administration at the Master’s and AA level. Administration certification is only issued to Education Administration majors, not Business Administration majors. The state of Alabama does not issue certificates for doctoral level degrees but does give a pay increase for the higher degree.
The CETL (Certified Educational Technology Leader) certification is issued by CoSN, the Consortium for School Networking. Recipients must pass a test to become CETL certified and complete 60 hours of professional development every three years to maintain the certification. There are only ten CETL’s in Alabama. One of the participants in this study is currently serving on the CoSN board of directors.

The certifications of participants were obtained throughout their careers, beginning in 1978 and as recently as 2014. Several were earned in the 1990s as technology was beginning to earn a place of importance in education, and leaders in the field were beginning to step forward and take positions of leadership in the school system.

**Classification as Administrator or Support Personnel**

District Technology Coordinators are not required to hold administrator certification in Alabama. This gives the system room to hire non-certified personnel in the position. It also allows systems to pay District Technology Coordinators as support personnel rather than administrators. Four of the participants in this study are classified as administrators in their school system. Three are classified as support. These classifications are for pay purposes and allow systems to pay less money to those classified as support employees. One of the three support participants has the duties and qualifications of an administrator but is on a support pay scale.

**Duties as a District Technology Coordinator**

Participants listed multiple duties that are their responsibilities as District Technology Coordinators. The first response for a majority of the participants, even those without administrative training, is a managing action which gives some indication of a supervising duty.
Hire, plan, supervise, manage, provide, and coordinate all speak of leadership roles. Table 5 lists the duties.

### Table 5

**Duties as a District Technology Coordinator**

<table>
<thead>
<tr>
<th>DTC</th>
<th>Pedagogical Duties</th>
<th>Technical Duties</th>
<th>Administrative Duties</th>
</tr>
</thead>
<tbody>
<tr>
<td>TA1</td>
<td>Install technology/software</td>
<td>Plan for technology</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Computer problems</td>
<td>Process e-Rate forms</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Network problems</td>
<td>Write grants</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Assist faculty with technical problems</td>
<td>Budget technology funds</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maintain tech inventory</td>
<td>Submit and analyze bids</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Recommend technology</td>
<td>Purchase technology items</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Data governance</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Technology related policies</td>
<td></td>
</tr>
<tr>
<td>T2</td>
<td>Professional Development</td>
<td>Network Admin</td>
<td>eRate Coordinator</td>
</tr>
<tr>
<td></td>
<td>Manages Email accounts</td>
<td>Manage Email accounts</td>
<td>Data Collection Coordinator</td>
</tr>
<tr>
<td></td>
<td>Manage Virus software</td>
<td>Helpdesk tickets</td>
<td>Purchasing/warranties</td>
</tr>
<tr>
<td></td>
<td>Helpdesk tickets</td>
<td>Projectors/Sound Systems/</td>
<td>Tech Plan and Budget</td>
</tr>
<tr>
<td></td>
<td></td>
<td>interactive boards/</td>
<td>Policies and Procedures</td>
</tr>
<tr>
<td></td>
<td></td>
<td>document cameras</td>
<td>MDM systems</td>
</tr>
<tr>
<td></td>
<td></td>
<td>New Equipment install</td>
<td>Student email and Network accounts</td>
</tr>
<tr>
<td>T3</td>
<td>Assist in professional development for faculty</td>
<td>Oversee Network, LAN, WAN and wireless</td>
<td>Manage technology staff</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Maintain and Sustain 1:1 initiative</td>
<td>Assist in state data reporting</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Student Information System</td>
<td>Purchase and recommend technology resources</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Assist with computer and software troubleshooting</td>
<td>Maintain tech budget</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Write bids and tech plan</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Manage Inventory</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Manage new tech accounts</td>
</tr>
<tr>
<td>PA1</td>
<td></td>
<td>Student Information</td>
<td>Supervise Technicians</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Purchasing technology</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>E-rate Tech Planning</td>
</tr>
<tr>
<td>DTC</td>
<td>Pedagogical Duties</td>
<td>Technical Duties</td>
<td>Administrative Duties</td>
</tr>
<tr>
<td>-----</td>
<td>-------------------</td>
<td>------------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>PA2</td>
<td>Management of support for all instructional technologies</td>
<td>Management of network and Installations Management of support for all operational technologies (Telephones, Internet, devices, filtering, software, student management system, all other systems, virus protection, etc.)</td>
<td>Hire (in coordination with schools) Manage/Supervise12 staff Management of budget and purchasing Management of policies and procedures</td>
</tr>
<tr>
<td>PA3</td>
<td>Curriculum Technology Integration Professional Development (Tech-Related)</td>
<td>PC/Network Maintenance Emergency Notification System STI Technology</td>
<td>E-rate Technology Purchasing Technology Policy Development and Implementation Admin of local and state Technology Funds Grant Development and Implementation</td>
</tr>
<tr>
<td>PA4</td>
<td>Professional Development for all faculty Work with schools to assist and model technology integration</td>
<td>Coordinate and supervise technical support, network design, security, website design and help-desk</td>
<td>Leadership and vision for technology Chair dist. tech committee Strategic planning team eRate State and OCR Reports, Technology Plan and inventory</td>
</tr>
</tbody>
</table>

The District Technology Coordinator position is a multifaceted career choice as shown by the numerous responses given. The responses are a combination of titles and specific duties. For example, purchasing technology would probably include being responsible for writing bids or making sure an item is on the ALJP (Alabama Joint Purchasing) bid list. Different systems set position responsibilities differently.
Duties Assigned in Addition to District Technology Coordinator Duties

The combination of job duties and titles linked with District Technology Coordinator seems to have no logical connection until the pathway taken to the current position is reviewed. The additional job duties are shown in Table 6.

Table 6

Additional Duties of District Technology Coordinators

<table>
<thead>
<tr>
<th>DTC</th>
<th>Additional Duties</th>
</tr>
</thead>
<tbody>
<tr>
<td>TA1</td>
<td>District Test Coordinator</td>
</tr>
<tr>
<td></td>
<td>District Accountability Coordinator</td>
</tr>
<tr>
<td></td>
<td>Other various duties as assigned by the Superintendent</td>
</tr>
<tr>
<td>T2</td>
<td>None</td>
</tr>
<tr>
<td>T3</td>
<td>District and school communications (i.e., SchoolCast announcements)</td>
</tr>
<tr>
<td></td>
<td>Aid with security cameras</td>
</tr>
<tr>
<td></td>
<td>Recruit and hire student workers to work over the summer</td>
</tr>
<tr>
<td>PA1</td>
<td>Purchasing</td>
</tr>
<tr>
<td></td>
<td>Construction and Plant Management</td>
</tr>
<tr>
<td></td>
<td>Maintenance Department Management</td>
</tr>
<tr>
<td></td>
<td>District Inventory</td>
</tr>
<tr>
<td>PA2</td>
<td>Information Security Officer</td>
</tr>
<tr>
<td>PA3</td>
<td>Human Resources/Personnel</td>
</tr>
<tr>
<td></td>
<td>Educate and Lead Alabama Highly Qualified Staff Evaluations</td>
</tr>
<tr>
<td></td>
<td>Career Technical Education (Budgets, BIC, Policy/Procedures, Staffing, etc.)</td>
</tr>
<tr>
<td></td>
<td>Insurance (Facilities and Student)</td>
</tr>
<tr>
<td></td>
<td>Student Drug Testing</td>
</tr>
<tr>
<td></td>
<td>Any other duty the Superintendent wishes to delegate</td>
</tr>
<tr>
<td>PA4</td>
<td>New construction Security</td>
</tr>
</tbody>
</table>

The respondent whose position is combined with construction has a background in construction that pre-dates his educational experience. The Career Technical responsibilities of PA3 were left over from his earlier experience as a Career Technical Director. Many of the additional duties have a strong technology dependence. Six of the seven participants had additional duties outside their District Technology Coordinator duties. Only T2 had no
additional duties which would seem to be related to the system’s classification of the position as support rather than administration.

Themes

The data collected from open-ended question interviews was transcribed from digital audio recordings. The process of constant comparative data analysis, which utilizes the comparison of incident to incident, was used to inform the data collection procedure. The data analysis process began with the transcription of the interviews and the interview transcripts were then coded to discover the major themes. Open coding utilizing keywords (technological, pedagogical, and administrative) was initially applied to the transcriptions. These predetermined categories were applied in an attempt to classify each participant by career training and work experience backgrounds. This coding resulted in the labeling of participants as T for technological, P for pedagogical, TA for technological and administrative, and PA for pedagogical and administrative.

A second coding of all transcripts was conducted revealing 10 common career themes. Data collection and analysis were simultaneous and ongoing. As career themes emerged, all interview transcripts were analyzed for these themes and comparisons were made. The prominent themes identified through coding are: a) Guidance from others, b) Pioneer, c) Life-long learner, d) Initiative to train others, e) Hands-on technical duties, f) Team size, g) Multiple positions, h) Change embracer, i) Perception of duties, and j) Team building.

The District Technology Coordinator career themes were then coded within Bandura’s self-efficacy triadic model framework. The themes of Pioneer, Initiative to Train Others, Change Embracer and Team Building were related to Individual Behaviors that influence the District Technology Coordinator career pathway and duties. Life-Long Learner, Hands-on
Technical Duties and Perception of Duties were Intra Personal Influences on career choices. Guidance from Others, Team Size, and Multiple Positions were found to be external environmental factors influencing their careers. Bandura (1989) talks specifically about the indications for technology as an influence on individuals.

The themes viewed through Bandura’s self-efficacy framework are utilized to formulate the response to the central research question for this study: How do individuals’ backgrounds shape the pathways they take to become District Technology Coordinators and how do these pathways shape/influence/impact their role or responsibilities?

Each participant was asked the same semi-structured twelve questions (APPENDIX D) concerning their duties and career paths. Follow up questions were asked of some to gather a more thorough understanding of the response. The participants’ replies were examined through the technical and pedagogical lens to highlight differences of perception, if any.

**Guidance from Others**

Guidance from others had to do with another person’s influence on the career choice, training or character of the participant. While PA3, T2, and PA4 all mentioned instances where they advanced technologically because they had a deep affinity for technology, the other participants mentioned a directional push from another person toward both technology and administration. PA2 already had a BS in Business Education and was in graduate school working on a higher education business degree when she made the decision to study computer technology.

My graduate professor in . . . I guess it was 1981, said that she felt like technology was going to be big in education one day and would I like to be a
Guinea pig and have her revamp my master’s work to include a study of instructional technology. And, I said yes.

T3, who has a technical rather than pedagogical background, was just entering college and meeting with his advisor when the topic of computers arose.

But, my advisor, first day he came in and said have you ever thought about computers? Like no, I said I want to own my own business. He said well computers are coming on and you know with a business, you know the first three years make or break. So, you know, computers you can make some good money.

I said ok, money, good, I’ll take computers. That is what got me to go to computers.

Guidance from others was not only in the technical direction but also in the push toward administration. This was the case with TA1 who was nudged to become an administrator by the Superintendent, but not in a positive manner “Because in (School System) that Superintendent said ‘you don’t need to be at the central office, you don’t have an administrator’s degree’. So, I got my administrator’s degree to please him.”

Sometimes a person is influenced by working with another person previously, as is the case with PA1 who came with the Superintendent to the school system.

And when the position was opened at (current school system), what brought me here was our Superintendent worked with me in (previous school system). He got hired as the Superintendent up here. He was the Director of Operations in (previous school system). He needed somebody to be the Director of Operations and be the Technology Coordinator when he came up here and that is kind of what brought me to (school system).
With four of the seven participants mentioning guidance from others, this theme emerged as important to career choices of District Technology Coordinators. This theme is representative of Bandura’s External Environmental Factors in the self-efficacy triadic model. Three of the participants who indicated they received guidance from others had pedagogical career backgrounds and one had a technical career background. The guidance from others came from the educational realm for the pedagogical career background participants and from the personal realm for the technical career background participant.

**Pioneer**

The pioneer theme has to do with the need or desire these participants felt to push forward in a field that was new and developing. Some participants saw a need for technology skills in their jobs and sought to fill that need. As T2 stated, “Because nobody else knew what to do.” She went on to say that in her professional life in industry “I was the young one, you know, with the initiative and the want to know how and figured it out.”

A couple of participants in the study mentioned the Apple IIe computer that was placed in their classroom as a pull into the technology realm. PA4 said

> When I started teaching, I got, they put an Apple IIe computer in my classroom and it grew from that point on. I learned to use the computers, I learned to integrate them and gain the student’s interest in them. I became the teacher that other teachers would go to for help.

PA1 also recalled his experience with this early machine.

> And I had one computer in the classroom when I first started. An Apple IIe that I shared with the teacher next door. We rolled it on a cart, then we got some Macs,
some big Macs and I started using them more and more. And it kind of led me into using some more technology and I think after 5 ½ years of teaching, and I went to, I had used the technology a lot. And (school system) decided to hire an integration specialist. And I got hired as the integration specialist in (school system).

TA1 saw a need for training in computer science, but no training existed in the late 1970s and early 1980s, so she majored in the only field open at the time for students with similar interest.

Well my degrees are math and industrial engineering. And when I was in industrial engineering that was where you went if you wanted to be in computer science because there was no computer science.

After obtaining a Master’s Degree in Mathematics Education, PA3 saw a need in the early 1980s, so he decided to earn a lower degree in the technology direction. He stated that he went . . . to Gadsden State Community College, the local community college, and getting a two year degree in computer technology from them while I was teaching. And then, of course, that sort of qualified me at the time to teach anything computer related because they didn’t have anybody that had any computer background anyway.

T3 worked hard to become an outstanding college athlete, “came back from playing basketball overseas” and then followed his training in computers into industry. He mentioned his strong work ethic and how his mother was his guiding influence.
But then, growing up, I was an only child. Single parent, mom only, dad wasn’t nowhere around. So she taught me work ethic and sacrifice and you know if you want something you have got to work for it. So the poor pitiful me stuff was not in my vocabulary. So those things right there helped build me in my, in my, who I am today.

PA2 got involved in technology planning at all levels from participating on the Alabama state technology planning committee from its inception to board member on the AETA state committee to writing and selling her own K-6 curriculum when none existed.

And then I was able to implement the curriculum that I wrote for k-6 which I in turn, turned around and sold. I had a couple of publishers ask me about it. They wanted to charge the schools too much so I ended up just selling it through TNT and basically, they advertised it that I would just go down to Kinko Copiers and they kept a copy on file, and pretty much just for the cost of copying, that curriculum got out to several schools.

PA2 also feels a leadership personality is part of the equation in technology implementation.

I’ve kind of always been somewhat of a leader. So going back to high school and being head cheerleader. I think it is in your personality that you’re not adverse to risk. You know, I wasn’t adverse to do that first flip off the mini tramp, you know, and haven’t been adverse here. I think it is that personality that just lets yourself out there and, you know, try new things.

All seven participants spoke of being a pioneer but not all in the same way. The four with pedagogical backgrounds all spoke of being pioneers in technology pedagogy.
TA1 spoke of wanting a more pedagogical career path but since one was not available at the time, taking the technical route of engineering. One technical career path pioneer was in the technical realm and one was in personal goals. These all exhibited pioneer behaviors within Bandura’s self-efficacy triadic model of Individual Behaviors.

**Life-Long Learner**

The life-long learner theme concerns the efforts these participants have made to stay current in the technology field and to continue their educations. The participating District Technology Coordinators are conscious of the need to stay current with new technologies available to assist their students. They welcome assistance from the Alabama State Department with recommendations and trainings. One responsibility of the position that requires a lot of study and research is eRate funding. eRate funds are provided through the Universal Service Administrative Company (USAC) of the Federal Communications Commission (FCC) and are a major source of funding for networking, Internet access and telephone service for schools in Alabama. The process to apply for, and receive funding through this program is a complicated one. USAC provides an “eligible services list” of technologies which they fund. The list is very technical and requires Technology Coordinators to study to familiarize themselves with the latest technological advances. The state department provides an eRate coordinator to train and assist District Technology Coordinators with this application effort through yearly workshops on eRate and State bid laws. Many school systems in Alabama would not be able to afford Internet access without these funds.

The participants are all also part of a large learning community through their professional organization, the Alabama Educational Technology Association (AETA). PA2 describes the
founding of AETA and how her involvement in professional organizations is beneficial to her professional growth:

There were about eight of us that started meeting outside my office and that was the same group that ended up meeting at the . . . and wound up forming AETA. So we formed AETA, and I continued to work with the state department, continued to work on curriculum, and technology plans. And so at (school system) they continued to let me further my professional growth. So I joined, I became very active in COSN and I currently serve on the COSN board representing Alabama. But not every state is represented so I kind of represent, I guess, the Southeast. And I am an active member in ISTE, continue to be an active member at AETA. I think I have missed one, one year of sitting at the board table. I think they just don’t know how to tell me to leave the table. So, I currently serve as the COSN chair, the liaison between COSN Alabama leaders which we have also formed in AETA.

As PA3 states:

And yes, AETA has been extremely helpful, those connections, those professional connections are in that professional learning community, that PLC that is provided through the list serve AETA has always been, been very helpful through the years.

T3 says “I’m willing to learn. I want to be successful myself, of course, but I want my people I’m working with: my system, my school to be successful also.” He feels the weakest link in technology is the weakest link in the entire system and learning and staying current on technology himself makes the system stronger.
All the participants have at least a four year degree. Two of the initial degrees were in elementary education, one was in finance and accounting, one was in business education, one was in computer information systems, and two were in Math. The connecting fiber for most of the degrees is mathematics ranging from elementary to engineering. All but one of the participants have a Master’s Degree or higher, most in an area of administration.

Life-Long Learner is a term that describes each of these District Technology Coordinators and is revealed in both the career backgrounds of the participants and their current duties and responsibilities. When coded to Bandura’s self-efficacy model this is an Intra Personal Influence that indirectly relates to Individual Behavior.

**Initiative to Train Others**

This theme reflects the self-initiative the participants demonstrated to train others in the use of technology even when it was not part of their jobs. Even before becoming the District Technology Coordinator, PA4 took the initiative to train fellow teachers. Sometimes this required being innovative in implementing a process that worked for everyone, as her following example illustrates.

When we got our student information system, and this was before iNOW or STI, we had bought our own as a system and I was in the library showing everybody how to use it over the TV system that we had set up. And I had runners in the hallway so if the teachers had a question they would push the buzzer and off somebody would go to their room to get the question and bring it to me.

District Technology Coordinators not only realize how important it is to stay trained, they also know those assisting in their efforts to sustain technology use in the schools must receive ongoing training. PA2 addresses this with weekly meetings.
And then in the schools we have a fulltime technology coordinator for every school. We meet every Thursday, from 9:00 until 4:00, going over, making sure everybody is on the same page. Everybody is aware they don’t have time in the schools to get that professional learning. And the principal is going to have to understand that they are going to have to come out of that building on a regular basis to be trained and to work together and to learn together and stay up with what is going on together, so that you are not operating in a silo. And you are not asking that person to perform tasks that they don’t understand. And they don’t have any type of professional learning community.

T2 uses the State Department of Education’s Technology in Motion program to provide professional development for her teachers. She sees the importance of training faculty and finds ways to provide that, even with her lack of staff. According to T2 the greatest challenge is “. . . teacher professional development, if it is not the equipment, you’ve got to have the money for the equipment, but it doesn’t matter what you buy if your teachers don’t know how to use it.”

In her additional roles, TA1 is responsible for training faculty in their duties and responsibilities. Through her use of technology to accomplish this training, she is able to accomplish dual goals. One example was when she gathered math teachers together.

We were learning technology, we were, I was modeling technology. We were learning Excel, which most folks were weak in at that point, because I put the data in Excel. We were looking at the test scores, analyzing the test scores and learning how to use Excel at the same time.
In other examples, she explained how new counselors and the technology committee members are trained.

And so the way we did it was, you bring your laptop to the meeting and we are going to talk about it. We are going to work on your desktop. And so they would start setting up their testing and they would help each other. When we do the ASSIST planning we bring in the technical people. They brought their laptops; we started working on their technology plans together. And they helped each other out. In a school system this small with no resources, you have got to help each other. And so that’s what, that’s my method, ok let’s get together and let’s figure it out together and it usually involves technology.

T3 is convinced of the benefits a new structure for delivering professional development in his school system in half day blocks will provide.

. . . we are doing something this year, we have some partial – kids come half days and then we have PD (professional development) half days. So we are finally starting to do some of that stuff this year. I think, so as you know, being a former teacher, 3:30 hits, you don’t want to stay an hour and half for training. You’re tired, you know. But, the first four or five years I did that. So I learned the hard way. The last four or five years with the iPad initiative and our training we have done a lot of stuff during our instructional time. But you still can’t, with 50 minutes to an hour planning time. Once you get from your classroom, sit down, use the bathroom, you have 30 minutes or 40 minutes. So I am excited for (school system) that we finally incorporated these half days where kids go away, then from 1:00 to 4:00 we are doing some PD.
An outside employment opportunity of PA3 gave him additional opportunities to
demonstrate his computer skills “And also had the opportunity . . . to work for a while at the
University Center as an adjunct there, teaching the technology courses there, TSPAT, you
know.” Providing professional development is also an area of confidence with him.

I feel most confident when it comes to the professional development side, and
working with the teachers and doing training, those kinds of things. I feel much
more comfortable with that then I do with the technical side of the job.

As PA3 also stated “I do guide our professional development for our teachers. . . With
my other hats I don’t get to be doing as much in it as I would like to.”

Teachers, administrators, technicians and students all need technology training, especially
with a one-to-one initiative. PA1 has a large one-to-one initiative in his system which does
much of the computer repair and portal management at the school system.

Both of them are MacBook certified, one of them is iPad and iPhone certified. So
they can do the iPods, iPads replacement and things. We don’t send anything out,
we order our own screens for iPad. We order our own screens for iPhones, we
order our own screens for Macs. We do everything in house. We don’t send
anything out . . . both of them, I sent for training. Jacksonville State had the
Macintosh training. And then I sent (name) to Atlanta to learn that. (Names) are
the two. (Name) received the Blackboard our LMS2 on the backend of our
Blackboard stuff. So he supervised, he does that and a lot of our other programs.

These seven District Technology Coordinators all, at some point in their careers,
have taken on the initiative to train others even though this was not directly in their list of
duties. For some it was their peers, for some it was people outside their employment
circle. Some provide this training by bringing in others as service providers and some provided access to outside training for their staff. All saw the need to provide technology training and fulfilled that need with the resources available. This theme fits within the self-efficacy triadic model as an Individual Behavior.

**Hands-on Technical Duties**

Hands-on technical duties relates to the actual management and repair of equipment and whether the District Technology Coordinator handles those duties personally or not. Changes in the needs for technology in school systems have led to changes in the duties of District Technology Coordinators in several systems. The technical network duties have become so great that many don’t have as much hands-on interaction in their technical duties. They typically have a network manager or managers whose skill sets are more advanced and specific to handle those duties. The more underfunded systems are left to get by with less funding for personnel and technical resources. Pedagogical concerns, including professional development, seem to occupy much of the time of those with a curriculum background. In her early career as District Technology Coordinator, PA2 did a lot of hands-on networking using the students as her assistants.

And we wired all the schools for the first network. The kids and I did, which was a B&C network. And then they sent me to school to be a network admin so I had my novel admin network certification. (School system) was one of the first two schools in the state of Alabama to have a multimedia machine, (high school) and the University of Alabama. And at the time they cost $5000.
Now, with the growth of technology usage in the local K-12 schools and one-to-one projects requiring much more technology, PA2 doesn’t participate in the day-to-day networking operations.

Well, I still design all of the wiring for all of the schools, but not because I have to but because I like to. I have a great network admin. We try to do a lot of cross training. And so I have a network admin who is far better than I am now. You know my responsibility is in hiring good people and then making sure that they get the professional development that they need. And then to inspect what I expect. If I expect 99% up time, then I need to follow up and make sure that they have the tools that they need to do that.

It seems PA3 also follows that line of thinking and gives the following information about his school system.

In my case, I don’t have to do a lot with our network management. We have a network technician who handles most of our network issues. If we have any. I have to fund it, and I have to, you know, take care of making sure it’s paid for and supported. But as far as hands-on in the network, I don’t do it.

PA4 has additional help with the technical side due to time limitations and other pressing duties of the position.

I have a network engineer so he manages the network. I am here to help assist with scheduling the design of it; with any decisions that are made, replacing part of it. “When do we do this upgrade?” Maintaining the licenses for the equipment. But as far as the hands-on aspects, most of that falls to my network engineer.
Because of the historical career path of PA1, construction, purchasing and personnel management play a large part in his additional duties.

I feel most confident when we are constructing the new part of it and when I’m purchasing technology. Managing the technology staff is probably the most confident I feel because I don’t have any problems managing and making sure that the right people get in the right positions.

Outside resources also help manage the technical side duties. Alabama Supercomputer is an Internet resource provided to school systems in Alabama through a State funded corporation and eRate as mentioned here by PA3.

And our network is also managed by Alabama Supercomputer so if we have major router kind of issues, or whatever, it is a phone call to them, and they are on it. So, between . . . my network technician and Alabama Supercomputer I don’t have to do a lot of network work, per say.

TA1 has been the lone responsible party in technology network management during her tenure as District Technology Coordinator.

When the network went down, I was the first person they called. My responsibility was generally to go out there to see if I could fix it before I called in somebody. A lot of times I could fix it. If I saw that it was beyond me, I would call a networking company.

T3 is another District Technology Coordinator who keeps his hands involved in the implementation of the technology directly. However, with the system one-to-one initiative he has had to garner the assistance of others.
Network management, I haven’t, to be honest with you, you know, I have owned it for 14 years. It was me. I did it with the help of Alabama Supercomputer. But these last, well let me back up, these last 3 years, when we went one-to-one and we started segmenting our network; vlan [virtual lan] this, restrict this thing, I have had to get help. And, Supercomputer they still were my number one resource. But they have gotten so big now that they can’t provide those services anymore, so we have had to contract with other people. We have contracted with TechLink’s, ClearWinds, ITS, those vendor’s to help with our networks, setup. So, right now I can still go in and change a few things on the switch, the Cisco switches, but I really just pick up the phone to say “I need this switch to be, to allow this kind of traffic, block everything else.” So I have had to learn to delegate and trust other people.

Some of the District Technology Coordinators were in the position before schools were networked and have had hands-on technical involvement all along the way, especially in a system such as T2’s, where there is no additional technical assistance. She is so hands-on she is also the video projector repair person.

Email accounts, network accounts, iNOW, tech plans, eRate, video projectors, I am just about a projector doctor and I never really wanted to be that. You see that falls under me. That’s why that machine is set up and is sort of in the way because there is a problem, I plug it in and shine it up on the wall and test it and run it through and see if it needs updating and I’m like I need to start my own business here.

As far as her hands-on abilities with the network T2 recalled:
So I researched, did all that and so then we networked just the offices. That was a big step you know, counselor, principal, secretary were going to be networked. So then we wired the buildings, put in switches, and we upgraded the switches to gigabytes, and now we’ve got wireless. So I have seen it all happen, I don’t know what will be next. Where do we go from wireless? Now it’s the one-to-one project and until we get a tech out at that school we don’t need a one-to-one.

Participants who were involved with hands-on technical duties were split by career backgrounds. The three with technical backgrounds all participated in hands-on technical duties and the four with pedagogical backgrounds all managed staff who performed these duties. This theme as coded to Bandura’s self-efficacy triadic model framework is an Intra Personal Influence.

**Team Size**

Team size refers to the number of employees or team members working with the District Technology Coordinator to implement technology in the school system. Team size does not always correlate with the size of the system but does show some correlation to whether the system has a one-to-one initiative in place. The more emphasis the school system places on technology integration the more the need for school technology specialists is recognized. Of course, money is a critical factor. Even if a need is recognized, a lack of funding can prevent that need from being met. T2 is from a system of approximately 2000 students in four schools with a 65% free and reduced lunch participation rate. She jokingly replied to the team size question with irony.

I am the team! Wherever I travel, I take my entire team with me. Every meeting, I want to make sure they are totally encompassed. We all think alike,
we all stay in the same room, travel in the same car, eat the same food. People will call and say are you the one I need to talk to, “Well I am the entire department so, what part of it do you want?”

School systems that are implementing a one-to-one initiative require more technicians to keep the devices working. The technology team of PA2 has grown over the years, “At (school system) I started with me and six local school coordinators and we have built up the department to 13.” Her system of approximately 4500 students in six schools has the following team:

Well our technology team consists of a director level position, a data specialist position, a fulltime secretary which also serves as the system registrar, but that was our choice because we do all of our data verification on line. And, a network admin and two techs and everybody has a specialty area on the technical side. And then in the schools we have a fulltime technology coordinator for every school . . . And then we have, in our larger schools we have 1/3 just straight tech because it has such a large campus of over 1000 kids. And then I have an assistant that is an aide’s position that helps support the technology coordinator at the other two larger schools; one that has 860 kids and one that has again over 1000. Because they have to manage all the inventory, too. You can’t know what tools you have to offer teachers, if you don’t know what tools you have.

The technology team of nine in PA3’s system serves approximately 5000 students. His team consists of himself, one technology specialist, two technology coaches, one network technician, three computer technicians and one data technician. One position was recently added.
to accommodate the system’s new one-to-one initiative. PA3 also has a secretary whom he did not include in the list.

PA1 has staff who work under his maintenance title as well as under his District Technology Coordinator position in his system of approximately 4000 students in six schools. He also has a secretary.

Now I have five technicians that work under me and do technology and we have a couple of network administrators, and some support staff . . . Yes, I have, one of my network, really their not called network, we call them IT support specialist and IT maintenance are my two. So the IT support is more of the higher level ones there. I have one of them that does nothing but the Cisco, the PC’s, the network switches and things. The other one does all the MacBooks, all the Mac stuff, he is Mac certified. We have two Mac certified staff. With all the MacBooks, those two that do the MacBooks, that is all they do. . . Even my technology, one of my technology guys, he does our air conditioners, because the air conditioners run on computer now. . . Under our curriculum person we have a technology integration specialist that works with curriculum.

TA1 works for a county system with approximately 2000 students in six schools. Although she has other duties as well, she does not have a secretary or a technician. She regularly mentioned the fact that there was no money for technology in her system.

I did more or less define the position. You know, I followed all the procedures the state told me to. That they keep adding to us. The plans, the surveys, the, you know every meeting I always attend, the technology meetings because it’s very lonely here. Not having anybody else . . . we do have, we call them technology
contacts at the schools. They don’t get any stipends. They are our best technology people but they don’t get anything extra for being the best technology people. They are people that are on our committee that help plan.

Occasionally, TA1 would use students to help her repair computers or set up labs. She would train these students and usually recruited the same ones to assist her when she needed assistance in the schools.

You know, as Technology Coordinator, a lot of times I would go into a school and I would have a lot of computers in my car, I would need some unloaded. Or there would be a lab to be set up. I have no help here, and I would go in and say, could I have a student work with me for a little while, or two students.

The District Technology Coordinator with the smallest school system is T3 with approximately 1500 students in two schools.

Currently we have two other people in technology. We have a digital instructional specialist, her name is (name), we hired her back in May of 2013 right when we embarked on doing the one-to-one initiative, a one-to-world initiative. Back in, we have been together 13 years now in October, (name) is my technology specialist. He is a jack of all trades. As far as videos, he edits videos, he sets machines up, he trouble shoots, he does everything. And now he’s our Airwatch, MDM supervisor. He is in charge of the basic iPad deployment from the technical side. Then, I count her in, I wish it was full time, I have 1/3 of a secretary (name). She is part technology, part curriculum and operations, and part CNP. So she is split three ways but you can really look four ways . . . We have another person, we lost her, that we haven’t replaced, (name).
Right in, when (name) came on in May (name) we were going on five years. And (name) she was an STI person and she was a technician. But she was killed in a car wreck in June 2013. So we lost that position and have never been able to replace it. But we would have had three full time and (name). But we don’t.

PA4 is new this year to her position and would like to grow professional development opportunities for faculty through local school technology coordinators.

Currently, I have a network engineer and four technicians, let’s see five technicians. I have one that stays at the high school, one that stays at the junior high. We’ve got three that rotate among the other schools. And I have two part-time interns that we use from the University. . . We also use a little bit of outside help by outsourcing some of the staff right now through another company. There is not a full time (local school) technology coordinator that is a duty that is shared with a media specialist. I have one school, the one school that has a one-to-one initiative has a full time instructional technology specialist.

The Team Size theme is an External Environmental Factor within Bandura’s self-efficacy triadic model framework. Team sizes range from no team to a 13 member team. Those with technical career backgrounds have much smaller teams (two of the three have no team) than those with pedagogical career backgrounds.

Multiple Positions

Multiple positions refers to how many different job titles the participant currently holds. TA1 holds three administrative positions of District Technology Coordinator, District Test Coordinator, and District Accountability Coordinator in her school system.

I am the test coordinator. That was one reason, the last three years, I did not get to give the attention to technology that really I needed to do. I have been test
coordinator for about three years off and on. I was always backup test coordinator. It is a huge job.

PA3 holds three administrative positions in his school system. “And from there into the system position as Technology Coordinator and also Career Technical Director and since then I have added on Human Resources.” TA1 and PA3 are the only two in the study whose additional duties include some that are pedagogical in nature.

The only additional position held by PA2 is Information Security Officer which probably relates to her position as District Technology Director. PA4’s additional duty of New Construction Security also probably relates to her expertise with network wiring as part of her District Technology Coordinator position. The additional duties of T3 are related to his District Technology Coordinator position. These are SchoolCast announcements, assisting with security cameras, and recruiting and hiring summer student workers.

T2 is strictly the District Technology Coordinator with no assistance. Director of Operations, Technology and Maintenance are the Titles of PA1 which includes all LEAPS (Local Education Agency Personnel and Subject) codes, bids, purchasing and inventory for the school system.

Often positions are combined with other job titles, especially in a small district with little funding. This theme relates to Bandura’s self-efficacy triadic model framework as an External Environmental Factor. This theme seems to have little relation to where the participant’s career path is technical or pedagogical, but seems to depend more on the needs of the school system.

**Change Embracer**

Change embracer denotes how well the participants accept change now and throughout their careers. The participating District Technology Coordinators are continually attempting to
provide better and more equitable service to the students in their school systems. Many of their change ideas originate with the Alabama State Department of Education, but, often the Coordinators seek out innovative ways to assist their students and faculty. PA2 has helped initiate change throughout the state through professional organization leadership and membership on the state’s technology planning committee. She has been an agent of change for not only her system but for other systems as well. Through her system many more underfunded systems have received technology equipment that while not new, was certainly gratefully accepted by those systems. As she said “This year we donated over 500 computers . . . But that is our board.”

PA3 has also held the leadership position of President of the AETA professional organization. State department committee membership is also familiar to PA4 who currently works with a committee to request legislative assistance for technology.

I was on the Alabama Ahead Committee and even though the committee is not still in place, we are still working with our legislators to try to get funding in place. At first it was to put devices in the schools but we realized that a lot of schools didn’t have adequate infrastructure so the bill is going to fund based on students, not on anything else; based on the number of students so it will be divided equitably across the state. So, at the school system, it would start with your infrastructure. If you had the infrastructure to support their devices, then you could go ahead and buy the devices. And I am using the term device. It could mean a tablet or computer or whatever that the system decided to go with. The bill passed but the funding did not.
TA1 mentioned the emphasis on grant writing in her position and how that effort has decreased over the years.

Initially, I was writing a lot of grants and at the end there was no time for grants. But at the end of it, in the last few years, it came to the point that there was no creativity anymore.

One innovative idea came from PA3 in the Wi-Fi connections the schools will be providing at a housing project.

Yes, back to that equity kind of thing, there are some students that won’t have access right now so doing this with the housing project will kind of help at least some of those students have a place they can go to for at least a while in the afternoon or early evenings to get some Wi-Fi connections if they need it to do some, to do some work.

PA3 also talked about the District Technology Coordinator position of today:

It is not what it used to be. It is ever changing, ever changing. What I am doing today in this role, in this position is entirely different from what I was doing five years ago . . . much has changed and it continues to certainly over that long term but especially over the last few years. You know, it changes so much every few years so never a dull moment.

Some of the same sentiments were echoed by TA1 who is planning to exit the District Technology Coordinator position to step into the Federal Programs Director position in her same system. At the time of this study her District Technology Coordinator replacement had not been named.
. . . it changed a lot over the ten years. So you know it wasn’t easy but I enjoyed it. Initially, I was writing a lot of grants and at the end there was no time for grants. But at the end of it, at the last few years, it came to the point that there was no creativity anymore. There was no money, you just kind of have to beg for everything. I think that is something that I hope the new person can come in and develop more, and we have already got a little of that. I have got it on the capital plan now. So that we can, you know, start rotating computers out. So that was done in the last year, actually getting that in the capital plan. So much of my time was spent writing grants and trying to get the grants.

Some participants talked about the changes they had planned for the coming year. PA1 spoke of the plan for virtual classes that will be made because of a new state law. He was excited about the opportunity and working with the curriculum director to offer franchised ACCESS classes to the students in his system.

We are going to do some, we’re going to offer some ACCESS courses. We’re going to do some of them ourselves which is, I just learned about this myself.

There is a franchise model of ACCESS program, you know, it’s new; they piloted it a couple of years ago and they just started full-implementation to where they give the ACCESS, the ACCESS classes are built and then they give that to the school system. And so the school system uses their own teachers to teach this based on the ACCESS class.

Several study participants were in the process of changing into and out of this position during the study. T3 will be taking a position as District Technology Coordinator with another school system. PA4 just moved to her current school system as District Technology Coordinator.
in February of the current year. TA1 is changing positions within her school system and although a District Technology Coordinator replacement has not been hired, she has assumed the duties of the Federal Programs Director. And T2 is in the process of retiring to begin part-time work outside the school system.

All participants mentioned some aspect of this theme in their interviews. The term technology is synonymous with change and District Technology Coordinators are charged with leading that change. Change Embracer is coded within Bandura’s self-efficacy triadic model framework as an Individual Behavior and applies equally to both technological career pathways and pedagogical career pathways.

Perception of Duties

Perception of duties refers to whether the participants’ responses imply more hands-on technical responses or pedagogical responses. When the District Technology Coordinator possesses dual pedagogical and technical backgrounds, as TA1 does, her responses reveal the concern for the teacher in the classroom dealing with technology usage to enhance learning.

I’m a firm believer that you need an education and you need strong technology skills, so, I’ve got them. I think my technology skills are probably stronger than the education skills. But, you know, I do have a master’s degree in both. And, you’ve got to be able to talk both ways. You’ve got to be able to communicate with the technical people and you’ve got to be able to communicate with the teacher that is frustrated because you can’t get the Internet. And you’ve got to understand where that teacher is coming from.

PA4 gives the impression in her answers that this career is exactly where she was meant to be and that every step along her path has led to this current position. When she speaks of her
time in elementary schools here, and then in Germany, she mentions developing her presentation
skills.

As my skill set grew, I just shared more with the teachers and when I was offered the
opportunity to become an ITS, an Instructional Technology Specialist, that was just ideal
for me. Then the following year, the Technology Coordinator position opened and I was a
little more reluctant to go into that one but I did and it just became, not a job, it just
became. . . I just loved working with technology, helping teachers grow and seeing the
benefits for our students. Working to provide them as many tools as I could.

PA2’s statements agreed with the need for technical and pedagogical skills and also
included leadership and vision, which this study would categorize in the administrative skill set.
And you have got to like technology to be able to expound and get other people
to use technology. I think it is just that leadership and vision piece, a technical
piece and an instructional piece. I think you have to have all three.
The dual pedagogical background of PA3 is evidenced by his perception of duties in his
present position.

As far as Technology Coordinator, having that classroom experience helps keep
me grounded as far as what’s going on in the classroom . . . And that also helped
keep me grounded and keep me more in touch with what was going on in the
classroom. And I also feel like that is important for a Technology Coordinator to
really understand that connection between the stuff and the classroom.
The completely technical background of T3 initially narrowed his vision, but he credits
the system Curriculum Coordinator with helping him to change his view.
She would, she helped groom me. She would say, “(T3) my students. Look at the school, look at the school environment. (T3), how is it going to help the student?” And, I would reply, “I don’t know but I know what I can do with it.”

Supervising both the Maintenance and Technology staffs has helped PA1 develop a sense of accomplishment and pride in his work. “And so, it is good that I can get them to work together and get a lot more done that way.”

Being the only person in the system with technology responsibilities has T2 in a position of feeling alone and overwhelmed with all the demands. She is doing a lot of work, but seems to feel she is dragged down by the lack of money and assistance. When asked what aspect of her position she felt most confident in, her response was “Oh my God, (researcher), which aspect? That’s a lot of stuff to cover for me.”

Perception of duties is another Intra Personal Influence of Bandura’s self-efficacy triadic model framework, which is clearly delineated by technology career background choices. Those with a career technical background lean toward the hands-on technical duty side and those with pedagogical and administrative career backgrounds lean toward the management side.

**Team Building**

This theme refers to whether a respondent sees their position as one in isolation or inclusive of the opinions of others. The most prominent technology decision in school systems right now seems to be the move to one-to-one computing where each student is provided a device to use both at school and at home. When District Technology Coordinators talk about including others in the decision, they are generally referring to the selection of a device, not whether the school will participate. TA1 relays how her system technology committee operates.
. . . we do have we call them technology contacts at the schools. They don’t get any stipends. They are our best technology people but they don’t get anything extra for being the best technology people. They are people that are on our committee that help plan. Once or twice a year we meet, discuss technology, how to take inventory, what do we want to do this year, what professional development we need.

In PA3’s one-to-one initiative, he and his school system . . . try to give some ownership to the schools in site based decision making.

And try not to tell them, get this, this, this, but say well here are a few options that some schools are using that worked out pretty well. And, you know, my role is to make sure they are doing it correctly, and legally, and ALJP(ing) what they need to.

PA2 relies on team building to accomplish her goals for technology:

Even if you can’t hire people, you can build team. And you can build trust, and you can bring people in who want to give input . . . So I think that we don’t give people enough credit. So, we try to work in isolation and you can’t. I tell people all the time, it’s not like I do anything anymore except manage all the people doing stuff.

PA1’s school system seems to have gone in another direction. He works with other departments to assist them in their projects. He has a strong collaboration with the curriculum director who manages the one-to-one program with the technology department providing the technician services. With all purchasing coming through him, and the schools simply telling him what they want, many decisions seem to have been centralized.
T2 doesn’t gain much input from other faculty. “You know, at times I will say, I can get this at this price or this at this price. Do you prefer one or the other? But it’s me, it’s on me.” T3 builds trust through technology connections: “So I’m a part of the tech, the local school tech plans. And they listen to my say”.

PA4 realizes the importance of including as many people as possible in the system technology decisions.

I have a system technology committee that is made up of people from every school. I have administrators, teachers, students and parents on that and we discuss those and we evaluate them so they have a voice in the decision making.

One, the teachers and administrators are representing their school so they are supposed to get feedback from their school when they come to our meeting. So, they are not just their voice but the voice for the school. And, that helps with buy in as you well know, getting support for any change that comes forth.

Team building is an important aspect in achieving buy-in for technology projects. The District Technology Coordinator participants with pedagogical backgrounds put more emphasis on collaborating with teachers and administrators on professional development and including other stakeholders in the process of planning. Those with technological career backgrounds emphasized providing the technology support for projects. This theme was coded with Bandura’s self-efficacy triadic model framework as an Individual Behavior.

**Summary**

After coding the technology career themes within Bandura’s triadic model framework, five themes contained responses deemed relevant to the research question. That is to say, five
themes showed a difference in the views of the participants with the pedagogical career backgrounds and those of the respondents with the technological career backgrounds.

Two of the five career themes were inputs of Individual Behavior. First, The Pioneer theme respondents with pedagogical career backgrounds all spoke of being pioneers in technology pedagogy, while the two with technological career backgrounds coded as Pioneer gave responses in the technical and personal realms. Second, The Team Building theme respondents with pedagogical backgrounds put more emphasis on collaborating with teachers and administrators on professional development and including other stakeholders in the process of planning. Those with technological career backgrounds emphasized providing the technology support for projects.

Two of the five career themes showing a difference in pedagogical versus technical career background respondents were inputs of Intra Personal Influences. First, Participants who were involved with hands-on technical duties was split by career backgrounds. The three with technical backgrounds all participated in hands-on technical duties and the four with pedagogical backgrounds all managed staff who performed these duties. Second, the Perception of Duties theme revealed differing views. Those with a career technical background perceive their duties as more technical and hands-on, and those with pedagogical and administrative career backgrounds lean toward management of resources, including personnel.

The fifth theme reflecting a difference in those with technological career backgrounds and those with pedagogical career backgrounds is the Team Size theme. Team Size is an External Environmental Factor within Bandura’s self-efficacy triadic model framework with technical career background participants having few, if any, assistants and those with pedagogical career backgrounds having the larger teams. Five career themes reflected no
differences in views among those with technological career pathways versus those with pedagogical career pathways. Those five themes are Guidance from Others, Life-Long Learner, Initiate to Train Others, Multiple Positions, and Change Embracer.

The differing views expressed by participants of technology career pathways and those with pedagogical career pathways as interpreted as themes with Bandura’s self-efficacy triadic model framework led to three main conclusions: a) there is a disparity in the pedagogical duties of those District Technology Coordinators with initial technology training as opposed to those with initial pedagogical training, b) the initial training realm seems to have an effect on the person’s personal skill preferences, even after additional training in the pedagogical realm, and c) those participants who subsequently earned educational administrative degrees after initial technology training seem to place a greater value on pedagogy than those who did not.
CHAPTER V
DISCUSSION

The purpose of this study was to explore the duties of Alabama District Technology Coordinators and the various pathways to acquiring the position. The Technology Coordinator is responsible for implementing instructional technology for a school system, provide leadership in the use of technological delivery systems, and routinely work directly with teachers and administrators to integrate educational technology into the classroom (Lesisko, 2005). School systems in Alabama are required to employ a District Technology Coordinator, yet, there are no certifications required by the state for this position.

The duties of a Technology Coordinator may be conferred on any officer or employee of the local board of education, except the local school superintendent.

. . . The Technology Coordinator shall carry out assigned responsibilities in accordance with federal, state, and local laws according to applicable rules and regulations, and perform all duties as may be assigned to the position by law, by the local school superintendent, local board of education, local government, and by rules and regulations of the State Board of Education. (Alabama State Department of Education - Technology Initiatives Department, 2015-16, p. 1.3)

District Technology Coordinators in Alabama have backgrounds in technology, pedagogy, and/or administration. Seventy-five of the 133 (56.4%) local education agencies in the state responded to the CALL survey of 2011. Of those reporting: 52% (39) were not certified in education, 32% (24) had their administrative certification, 45% had a technical certification, and
85% had earned a 4 year degree or higher (Nutting, Chamberlain, Williamson, & Kay, 2011). While much research has been completed on technology integration in the classroom, there is no current research that addresses the impact these differing backgrounds of technology leadership may have on technology integration in the PreK-12 classroom. This study explored Alabama District Technology Coordinators’ various pathways to becoming a system technology coordinator and how these pathways shape/influence/impact their role or responsibilities.

**Discussion of Major Findings**

The central research question for this study was: How do individuals’ backgrounds shape the pathways they take to become District Technology Coordinators and how do these pathways influence their role or responsibilities? Ten themes emerged from the participant interviews: guidance from others, pioneer, life-long learner, initiative to train others, hands-on technical duties, team size, multiple titles, change embracer, perception of duties, and team building.

**Guidance from Others**

With the introduction of computers to the K-12 classroom, a new age of learning began. According to Cuban et al. (2001), the availability of these technologies does not ensure the use of the devices or that their use is improving teaching and learning. This was particularly true in the early years. Some participants in this study were guided by others toward an existing need in a mostly uncharted field. One participant talked about his mother and her work ethic guidance as a strong influence on him and his career choices. “The self-efficacy body of literature emphasized how the social setting and cultural environment of a home is filtered through parents to contribute to the formation of core beliefs in a child” (Lang, 2012, p. 283). Others mentioned college professors guiding them toward technology. In 1993, the Alabama Commission on Higher Education established the Technology Scholarship Program for Alabama Teachers
(TSPAT) in an effort to build a workforce of technology trained teachers in the academic areas of English, math, science, social science and history including teachers in K-6 and other state designated areas (King, Frith, Zenanko, & Zenanko, 1995). One participant used his early technology training to assist others outside his PreK-12 school system by becoming an instructor in the TSPAT program at the University level.

Pioneer

“Technology is created and changed by human action, yet it is also used by humans to accomplish some action” (Orlikowski, 1992, p. 405). These District Technology Coordinators acted as their own agents. Bandura (2012) describes an agent as intentionally influencing his own behavior and environment by his individual decisions and actions, thus self-efficacy becomes this agent of change in an individual’s career. Those with teaching degrees used their technology skills and knowledge to assist other teachers. The participants with a more technical background typically saw a need for the equipment skills they possessed and applied their skills to their jobs. The skills they use today in the job are often related to a skill learned very early in their careers. One participant retired from the National Guard with twenty years of service where he managed supplies. Today some of his additional duties are to maintain all purchasing and inventory for his school system. He is also a licensed electrician, which helps in his other duties as Building and Maintenance Director.

Life-long Learner

“Whatever the social conditions might be, there is still the task of explaining the varied directions that personal lives take at any given time and place. This requires a personal, as well as a social, analysis of life paths” (Bandura, 1989, p. 6). Professional growth and learning is an ISTE standard for all educators, and District Technology Coordinators are responsible for
leading the initiative (ISTE, 2014). A major part of the position is to keep up with what is going on in the field of technology and making sure staff, teachers, and administrators are trained and implementing these skills. A successful District Technology Coordinator will model what she expects of others, as one participant mentioned. All study participants had degrees and most had multiple degrees. All were members of their professional organization AETA and its PLC (professional learning community). The drive to learn was evident in all participants whether technical, professional, or administrative. With new technologies come new needs to study, learn and plan for integrating these in the classroom.

**Initiative to Train Others**

Surveys from as far back as 1993 have consistently shown technology has not been an interwoven part of the academic subject areas (AL-Bataineh, Anderson, Toledo, & Wellinski, RDelialioglu, & Brown, 2008; Yalizhao, 2007). In *The New Digital Learning Playbook: Advancing College and Career Ready Skill Development in K-12 Schools* report on their Fall 2013 survey, findings show school teachers have an interest in “how to effectively integrate mobile devices such as tablets and laptops into everyday instruction” with “33 percent noting a need for professional development as a barrier to more effective technology use” (p. 5). The current study participants saw a need for assistance in PreK-12 technology integration and began assisting with that need while still employed in other areas or volunteering in the school system. As young teachers, those participants in education took a leading role in training other teachers. The pioneering initiative got them noticed and helped establish them as technology leaders.

The current study found that District Technology Coordinators are also concerned that teachers have busy schedules and don’t have time for the professional development necessary for
successful technology integration. One major deterrent to technology integration found by Cuban et al. (2001) was available time for technology. “Teachers told us that they did not have enough time to incorporate computers into their daily teaching” (p. 828). Glazer and Page (2006) found that after school workshops were not accomplishing the school technology goals, and recommended Technology Coordinators serve as mentors to teachers on lesson planning that utilizes technology integration. The participants in this study and their school systems are finding ways to make that happen. Some are building student half-days into their calendar to allow for half-days of professional development. Some are utilizing the state’s Technology in Motion resources to train teachers. The more well-funded systems are providing technology specialists or school level coaches in the schools to assist teachers. Those with a more technical background tend to leave much of the technology integration to the Curriculum Director.

Hands-on Technical Duties

In recent years small steps have been taken to move from a preoccupation with the acquisition of equipment and services to stressing the seamless integration of technology in all classes (Van Leeuwen & Gabriel, 2007). While all participants would agree with the necessity for teacher training, the participants with pedagogical backgrounds reflected more personal involvement with the professional development side of implementation. Participants with technical pathways talked more about the technology necessary to provide services and the need to insure the technology would provide the necessary service.

Team Size

“The recent National Education Technology Plan released by the U. S. Department of Education stated that over the past 10 years, 99% of American K-12 schools have been connected to the Internet with a 5:1 student to computer ratio” (Yalizhao, 2007, p. 311). District
Technology Coordinators are responsible for managing these technologies, budgeting funding resources and implementing technology integration. As mentioned earlier, researchers have identified at least 24 tasks related to technology leadership in universities and industries (Scott, 2001). Team sizes of study participants ranged from working alone as the sole resource to a 13 member department. This statistic accounts for a vast difference in the level of technology integration in the classroom.

**Multiple Positions**

“Today, many organizations have managers with specific responsibility for technology, but the exact nature of their responsibilities—both tactical and strategic—and their job titles can vary considerably” (van der Hoven, Probert, Phaal, & Goffin, 2012, p. 25). In a study of university technology experts and business CTOs, Scott (2001) derived a list of 24 focus areas for technology leaders. These focus areas inside the position are further expanded with the fact that PreK-12 local school District Technology Coordinators are often responsible for additional duties and responsibilities. Data collection, security, and maintenance are just a few of the additional duties assigned to study participants. Most duties in the school system can be related to technology and can thus form a supposed link to the District Technology Coordinator.

**Affinity for Change**

According to Weibell (2011), while other factors might serve as guides to certain career decisions, these are all dependent on a person’s core belief that the power to affect change lies within himself. The current study participants made career choices to be a part of a major change movement in education. Voogt and Pegrum (2005) found in their study, technology leadership is indispensable for implementing innovation particularly in pedagogy change. A major finding of this study is that District Technology Coordinators not only accept change but
they embrace it and the leadership role they play in the school setting. Those participants who had been in their positions for over ten years mentioned that about every five years the context of the job completely changed. This was discussed as neither a good nor bad thing but rather evidence of progress being made toward true technology integration in the classroom through their efforts. Technology use seems to be accepted by more teachers although a few are still reluctant. According to Arne Duncan, U.S. Secretary of Education, schools are beginning to let in digital innovations which have changed nearly every aspect of our lives (Duncan, 2013).

Perception of Duties

Behavior enhancing self-efficacy may be understood as a self-belief or assumption that one possesses particular capabilities and skills. “The concept of computer self-efficacy (CSE) recently has been proposed as important to the study of individual behavior toward information technology” (Agarwal, Sambamurthy, & Stair, 2000, p. 418). The study participants not only believe they are competent in technology, they know it and demonstrate that capability on a daily basis. As managers of the technology realm in PreK-12 school systems, they are responsible for the entire process. The more technically trained members don’t hesitate to handle equipment issues, keeping up with what is available to enhance the technical as well as learning environment of the schools. The pedagogically trained members focus more on professional development and integration projects. There is a different perception of duties that comes with the different training. However, as PreK-12 local District Technology Coordinators, each realizes all of these duties are inclusive. With this in mind, each participant surveys the problem, determines the available approaches and solves the problem at hand. This may mean hiring someone to handle the more technical issues for a pedagogical person or purchasing professional
development for the technical person. No matter which choices are made, the beneficiaries will be the students, staff, faculty and administrators of the school system.

**Team Building**

Decisions as to what technologies are to be purchased and how teachers are to use those technologies often do not involve classroom teachers or the District Technology Coordinator, resulting in little change in classroom technology use (Cuban, Kirkpatrick, & Peck, 2001). The study participants with pedagogical certifications were more inclined to include other faculty and staff in the decision making process. One mentioned including students and parents in the District Technology Committee. Those with initial technical backgrounds spoke more of making recommendations of equipment than seeking input.

**Self-Efficacy Framework**

The District Technology Coordinator career themes were then coded within Bandura’s self-efficacy triadic model framework. The themes of Pioneer, Initiative to Train Others, Change Embracer and Team Building were related to Individual Behaviors that influence the District Technology Coordinator career pathway and duties. Life-Long Learner, Hands-on Technical Duties and Perception of Duties were Intra Personal Influences on career choices. Guidance from Others, Team Size, and Multiple Positions were found to be external environmental factors influencing their careers. Bandura (1989) talks specifically about the indications for technology as an influence on individuals.

The ten themes when viewed through the self-efficacy lens, reveal how these three influences shape the career paths of participants in this study. Figure 1 illustrates how these career themes apply to Bandura’s self-efficacy triadic relationship. The bi-directional arrows
illustrate the interactive and indirect relationships of the three model categories of Individual Behavior, Intra Personal Influences and External Environmental Factors.

Figure 1

District Technology Coordinator Career Model of Bandura’s Self-Efficacy Triadic Relationship

Conclusions

The researcher found first, that a disparity exists between the pedagogical duties of those District Technology Coordinators with initial technology training exists as opposed to
those with initial pedagogical training. The three District Technology Coordinators whose training was initially of a technical nature and a fourth who began his career in education as a teacher, but was technically employed as a certified electrician before turning to education, all implemented a more device/equipment hands-on and technical view of the duties they performed.

Second, the initial training realm seems to have an effect on the person’s personal skill preferences, even after additional training in the pedagogical realm. Self-efficacy could explain this phenomenon in that the belief that one possesses certain skills or abilities and the willingness to act on those beliefs provide opportunities for successful completion of these actions and a higher self-efficacy, thus the action – reward circular process builds. Here we are faced with the old cliché of which came first, the egg or the chicken. Did the person’s personal skill preferences affect his/her initial training decision or did the initial training decision affect his/her personal skill preferences?

Third, those participants who went on to earn educational administrative degrees after initial technology training seem to place a greater value on pedagogical issues than those who did not. Two participants with initial technological training went on to earn Master’s degrees in Educational Administration, leading to certification. One is leaving the technology field for a pedagogical administrative position. The other is assisting the Curriculum Director with pedagogical implementation efforts.

The researcher found those District Technology Coordinators with a technical background evidenced that background in the ownership of hands-on duties they perform as the technology leader in the school system. The fact that Alabama does not require certification for District Technology Coordinators has led to a history of school systems formulating the position
in multiple ways. A school system that has very little money might try to minimalize the position. Another system could combine it with better funded positions to expand technology services. A school system trying to offer one-to-one computer services will find it takes multiple skills to truly enhance student learning. Those interested in becoming a District Technology Coordinator will find there is no “one best” career path or set of job skills. There are, however, certain characteristics which would point to success in the field.

District Technology Coordinators have a deep affinity for, if not a love of, technology and seek to instill that appreciation in faculty and students. They are ever searching for the most innovative devices to improve student learning. They attend trainings, take classes and seek certifications in order to pass their newly acquired knowledge along to students, faculty, and administrators. They want to know how the technology works and they either train others, operate, repair, or manage multiple facets of the technology system. Although they embrace change, they realize that is not generally the response to new technologies. They typically fall either on the side of hands-on technology usage or professional development and management, but with the expansion of the one-to-one movement in the school systems, the need to manage staff is leading away from the hands-on District Technology Coordinator. They recognize the need to allow others to participate in the decision making if buy-in is expected. Technology has its own vocabulary just as education does and as TA1 stated, “. . . you’ve got to be able to talk both ways. You’ve got to be able to communicate with the technical people and you’ve got to be able to communicate with the teacher.”

**Implications of the Study**

The findings of the study may be valuable to Superintendents and their boards in understanding the District Technology Coordinator position and evaluating candidates for the
Technology Coordinator position. Job descriptions and postings should specify the training background preferred to meet the needs of the school system. If the school system sees the District Technology Coordinator position as someone who is technically advanced with the skills necessary to repair and manage the network and accomplish computer repair, then a person with a technology, computer or engineering focused degree or training would be the right person for the job. If so, the duties of this District Technology Coordinator must be evaluated to be aligned with the skills of the individual. In this case, providing professional development and other curriculum related technology tasks might be given to another member of the system team, probably the Curriculum Director. If the school system sees the need for an educationally certified teacher or administrator in the District Technology Coordinator position, who can train teachers and administrators in the pedagogical use of technology equipment and manage a technical staff, then the job description should reflect those skills. In this case, the technical duties would require outsourcing of duties or additional technical support staff at a minimum.

Current District Technology Coordinators may utilize the results of this study in planning technology implementation and integration for their systems and themselves. Regardless of the background, there are implications found in this study to give insight into what duties and responsibilities are being conducted in other systems to enhance student learning through technology.

Persons interested in the District Technology Coordinator career choice may gain insight into the specifics and changing responsibilities of this leadership position. The network manager and computer repair positions are important technology positions which require training and skill, but the leadership of the District Technology Coordinator can cause a system to lag behind or push forward in technology integration.
The results may also provide information for guidance to state departments of education in furnishing resources for District Technology Coordinators and setting job description specifics for certification. Most system level positions require administrative certification. If District Technology Coordinators had technology administrative certification, the significance of the duties and responsibilities might be more fully recognized.

**Recommendations for Future Research**

This qualitative research study focused on the career paths and duties/responsibilities of District Technology Coordinators in Alabama. One suggestion would be to replicate this study in another state for further insight and suggestions. All state departments and K-12 school system administrators could benefit.

Many of the participants had mathematical interests as indicated by their training and employment history. This leads to the question posed earlier whether the person’s personal skill preferences affect his/her initial training decision or whether the initial training decision affect personal skill preferences. This is another area recommended for further study and might have implications for STEM (Science, Technology, Engineering and Mathematics) education in high school.

The one-to-one initiative is the new technology push in schools across America. In this program students are given a device loaded with textbooks and other resources for student use which are used both at home and at school. Another suggestion for further research would be to conduct a study on the effect on student learning in a one-to-one initiative and how the District Technology Coordinator position is evolving to facilitate the management of new technology and the provision of technology development.
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APPENDIX A

INFORMED CONSENT
Informed Consent for a Non-Medical Study

Study title: An Exploratory Study of Alabama District Technology Coordinators:
Their Duties and the Various Pathways to Acquiring the Position

Investigator: Peggy Turley Collum, PhD candidate
University of Alabama

You are being asked to take part in a research study.

- This study is called "An Exploratory Study of Alabama District Technology Coordinators: Their Duties and the Various Pathways to Acquiring the Position". The study is being done by Peggy Turley Collum, who is a graduate student at the University of Alabama. Ms. Collum is being supervised by Professor Margaret Rice who is an associate professor of Instructional Technology in the Educational Leadership, Policy and Technology Studies Department at the University of Alabama.

What is this study about? What is the investigator trying to learn?

This study is about Alabama District Technology Coordinators' various career background pathways to becoming a technology coordinator. The study will look at what led to the pathways taken. The study will also look at the influence pathways taken have had on their role or responsibilities.

Why is this study important or useful?

This knowledge is important/useful because information will be obtained concerning the training, educational backgrounds and duties of current District Technology Coordinators' in the state of Alabama. This information will enable conclusions to be made concerning the influence of training and educational backgrounds on current duties and responsibilities. The findings of the study may be valuable to superintendents and their boards; current District Technology Coordinators; persons interested in the District Technology Coordinator career choice; and state departments of education.
Why have I been asked to be in this study?
You have been asked to be in this study because you are currently employed as a District Technology Coordinator in the state of Alabama.

How many people will be in this study?
About 8 other people will be in this study.

What will I be asked to do in this study?
If you meet the criteria and agree to be in this study, you will be asked to do these things:

- Complete a short online survey.
- Complete an approximate 45-80 minute face-to-face interview. The interview will be digitally-audio recorded.

How much time will I spend being this study?
Approximately 1 ½ hours of your time will be required.

Will being in this study cost me anything?
The only cost to you from this study is your time.

Will I be compensated for being in this study?
In appreciation of your time, you will receive a $10 gift certificate upon completion of the interview.
What are the risks (dangers or harms) to me if I am in this study?
There is little or no risk foreseen as a participant in this study.

What are the benefits (good things) that may happen if I am in this study?
There are no direct benefits to you as a participant in this study.

What are the benefits to science or society?
This study will help superintendents and their boards in understanding the District Technology coordinator position and evaluating candidates for the Technology Coordinator position. Current District Technology Coordinators may utilize the results in planning technology implementation and integration for their districts and themselves. Persons interested in the District Technology Coordinator career choice may gain insight into the specifics of this leadership position. The results may also give information for guidance to state departments of education in providing resources for District Technology Coordinators.

How will my privacy be protected?
The interview for this study will be conducted on your school campus at a time and location of your choice.

How will my confidentiality be protected?
Participants will be initially assigned a number and will be referred to in all documents by that number. The identity of participants will be known only to the investigator. Any personally identifying information which might lead to identification of the participant will be removed or obscured by using general terms. Digital recordings of interviews will be destroyed after the research project is completed.

What are the alternatives to being in this study? Do I have other choices?
The alternative to being in this study is not to participate.
What are my rights as a participant in this study?

Taking part in this study is voluntary. It is your free choice. You can refuse to be in it at all. If you start the study, you can stop at any time. There will be no effect on your relations with the University of Alabama.

The University of Alabama Institutional Review Board ("the IRB") is the committee that protects the rights of people in research studies. The IRB may review study records from time to time to be sure that people in research studies are being treated fairly and that the study is being carried out as planned.

Who do I call if I have questions or problems?

If you have questions, concerns, or complaints about the study right now, please ask them. If you have questions, concerns, or complaints about the study later on, please call the investigator Peggy Turley Collum at 256.253.2913 or 256.926.8316. If you have questions about your rights as a person in a research study, call Ms. Tanta Myles, the Research Compliance Officer of the University, at 205-348-8481 or toll-free at 1-877-820-3086.

You may also ask questions, make suggestions, or file complaints and concerns through the IRB Outreach website at http://osp.ua.edu/site/PRCO_Welcome.html or email the Research Compliance office at participantoutreach@bama.ua.edu.

After you participate, you are encouraged to complete the survey for research participants that is online at the outreach website or you may ask the investigator for a copy of it and mail it to the University Office for Research Compliance, Box 870127, 358 Rose Administration Building, Tuscaloosa, AL 35487-0127.

I have read this consent form. I have had a chance to ask questions. I agree to take part in it. I will receive a copy of this consent form to keep.
Signature of Research Participant

Date

Signature of Investigator

Date

I agree to the digital audio recording of the interview.

Signature of Research Participant

Date

Signature of Investigator
APPENDIX B

SUPERINTENDENTS’ ASSENT
Dear (Superintendent),

My name is Peggy Collum and I am a student in the Instructional Technology Educational Leadership PhD program of the University of Alabama. My dissertation is called "An Exploratory Study of Alabama District Technology Coordinators: Their Duties and the Various Pathways to Acquiring the Position".

As a fulfillment of my dissertation requirements I would like your permission to contact your District Technology Coordinator by email with an offer to participate in this qualitative study. Participation would only involve a short online demographic survey and a 1-hour semi-structured, face-to-face interview to be held on your campus. Your District Technology Coordinator will be offered a $10 gift card when the interview is completed.

All participants will be assigned numbers and will not be identified by name or school system in the study.

Please respond with your reply to this email.

Sincerely,

Peggy Collum

____ I give permission for my District Technology Coordinator to participate in this study.

My District Technology Coordinator's name is ____________________.

____ I do not give permission for my District Technology
APPENDIX C

PARTICIPANT PRE-INTERVIEW SURVEY
Pre-Interview Survey

Directions: Complete the following pre-interview survey on line at the following link:

All participants will be identified by a number according to the order in which you reply to the survey. Please remember your number to facilitate the correlation of your survey responses to your interview responses.

1. What is your educational background?
2. What is your work history background?
3. What certifications do you hold?
4. Are you classified as an administrator or support personnel?
5. What are your duties as a District Technology Coordinator?
6. What duties, in addition to your District Technology Coordinator duties, are assigned to you?
APPENDIX D

INTERVIEW QUESTIONS
Interview Questions

1. What personal career decisions got you here?

2. What is the story of your occupational walk; your pathway?

3. Describe how your background helped you get where you are today in your career.

4. Did you develop this position? If so describe that effort.

5. Describe what aspect of your position you feel most confident performing.

6. Describe your responsibilities in pedagogical curriculum implementation.

7. Describe your responsibilities in selecting technology available to the school district.

8. Describe your responsibilities in network management.


10. What challenges do you see as most important to the integration of technology in the classroom?

11. Discuss your technology team and your role in hiring and selecting team members.

12. Discuss collaborations you have fostered to facilitate technology integration.
APPENDIX E

ALABAMA TECHNOLOGY COORDINATOR JOB DESCRIPTION
Exhibit 2.1 – Technology Coordinator Job Description and Effective Program Elements*

*Resolution to Adopt Technology Coordinator Job Description and Effective Program Elements passed by the Alabama State Board of Education October 13, 2005.

CONTENTS:  I. Standards for Technology Coordinator

II. Duties and Responsibilities of Technology Coordinator

I. Standards for Technology Coordinator. A local board of education shall have a Technology Coordinator (TC) that meets the job description and qualifications established by the State Department of Education. The Alabama Department of Education shall provide on an annual basis, beginning October 1, 2005, support in the amount of $35,000 to assist with funding this position. Continued funding for this position will be dependent upon annual approval by the Alabama Legislature. The duties of a Technology Coordinator may be conferred on any officer or employee of the local board of education, except the local school superintendent.

II. Duties and Responsibilities of Technology Coordinator. The Technology Coordinator is responsible for a technology program that ensures the proper accountability for: technology funds; technology professional development; required technology reports and plans; coordination of technology across all programs; a safe, secure, and fully operable network and data management, and; meeting all requirements of the Alabama Professional Development Standard for Teachers and Administrators, Technology Competencies, the K-8 Technology Course of Study, and the Computer Skills curriculum. The Technology Coordinator shall carry out assigned responsibilities in accordance with federal, state, and local laws according to applicable rules and regulations and perform all duties as may be assigned to the position by law, by the local school superintendent, local board of education, local government, and by
rules and regulations of the State Board of Education. The local board of education shall provide the resources necessary for the Technology Coordinator to operate an effective technology program.

**Technology Program Elements:** An effective K-12 technology program will require the Technology Coordinator to:

1) Develop effective communication systems with vendors, school technology coordinator, other district office personnel, and principals, and serve as the primary point of contact for technology and data issues.

2) Assist the designated district and school instructional leader in curriculum evaluation and the implementation of technology into the instructional program.

3) Assist, and/or supervise school and district-level personnel designated for the collection, maintenance and reporting of data.

4) Work with other central office staff, school leaders, and teachers to integrate technology into the ongoing instructional program for all curriculum areas by identifying strategies and materials, and by implementing activities for integration.

5) Coordinate the preparation of the annual technology budget and any amendments as appropriate.

6) Develop and/or approve, and maintain a system to manage district technology contracts, purchase technology, and actively seek/procure funding for technology.

7) Retain and maintain proper documentation of expenditures associated with technology grants including purchase orders, invoices, equipment inventories, etc.

8) Supervise current documentation of individual school and district-wide inventory of technology assets.
9) Provide leadership for short- and long-range planning for all district and building-level technology and data initiatives: vision, goals, program objectives/strategies/activities, infrastructure, staffing, training, evaluation, budgeting, and collaboration with others.

10) Prepare/submit state and local technology and data reports, grants, lead preparation of school and district technology plans, and submit technology plans in a timely manner.

11) Assist the school technology coordinators, central office staff, and school leaders with implementing the district and the building-level technology plans in accordance with the state of Alabama Technology Plan, the Alabama Professional Development Technology Standards, and other state recommendations and guidelines.

12) Plan, develop, and implement professional development activities to meet established instructional technology integration needs, computer skills curriculum, data based decision making, and the Alabama Department of Education requirements.

13) Coordinate and supervise technical support, network design and management, network security, and help-desk support for all schools and the central office.

14) Facilitate planning and implementation of local and wide area networks.

15) Coordinate the development of and enforce district policies and procedures governing technology and data issues and network security.

(Alabama State Department of Education - Technology Initiatives Dept, 2012-2013, pp. 1.3-1.4)
APPENDIX F

IRB APPROVAL
June 19, 2015

Peggy Collum
ELPTES
College of Education
Box 870302

Re: IRB#: 15-OR-200 "An Exploratory Study of Alabama District Technology Coordinators: Their Duties and the Various Pathways to Acquiring the Position"

Dear Ms. Collum:

The University of Alabama Institutional Review Board has granted approval for your proposed research.

Your application has been given expedited approval according to 45 CFR part 46. You have also been granted the requested waiver of written documentation of informed consent. Approval has been given under expedited review category 7 as outlined below:

(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies

Your application will expire on June 17, 2016. If your research will continue beyond this date, complete the relevant portions of the IRB Renewal Application. If you wish to modify the application, complete the Modification of an Approved Protocol Form. Changes in this study cannot be initiated without IRB approval, except when necessary to eliminate apparent immediate hazards to participants. When the study closes, complete the appropriate portions of the IRB Request for Study Closure Form.

Please use reproductions of the IRB approved stamped consent form to obtain consent from your participants.

Should you need to submit any further correspondence regarding this proposal, please include the above application number.

Good luck with your research.

Sincerely,

[Signature]

Carpentier J. Myres, PhD, CLM, CIP
Director & Research Compliance Officer