

ABSTRACT OF CAPSTONE

Karen L. Coburn

The Graduate School
Morehead State University

April 17, 2017

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KENTUCKY WORKFORCE PATHWAYS DEVELOPMENT

Abstract of capstone

A capstone submitted in partial fulfillment of the
Requirements for the degree of Doctor of Education in the
College of Education
At Morehead State University

By

Karen L. Coburn

Ashland, Kentucky

Committee Chair: Dr. Lee Nabb, Associate Professor

Morehead, Kentucky

April 17, 2017

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KENTUCKY WORKFORCE PATHWAYS DEVELOPMENT

The purpose of the study was to determine whether the advent of healthcare information technology was a viable career pathway for the people of northeastern Kentucky. The qualitative study used the Delphi Method to conduct and examine interviews with nine experts in Kentucky's workforce development, economic development, education, and healthcare fields to determine how the education system could develop a viable career pathway for students. Further, the study assumed to reduce confusion over what constitutes healthcare information technology.

Healthcare Information Technology (HIT) is a relatively new field that healthcare facilities have been reluctant to adopt. Part of this reluctance is due to governmental changes, and part is due to confusion over what healthcare information technology means. Ashland Community and Technical College (ACTC) may already house the classes required for a Healthcare Information Technology program but in two separate programs - computer information technology and nursing programs. By merging portions of these programs together, higher education would be able to accommodate the new career pathway. A succinct career pathway in healthcare information technology would provide employers with qualified employees instead of having to re-educate current employees.

The Delphi Method was used to provide an iterative examination of the reoccurring themes and codes encountered. The surveys, of three iterations, were conducted through electronic mail using QuestionPro Professional where all

responses were archived. Feedback was requested from participants upon the completion of the data analysis to ensure interpretive support. The rigorousness of the Delphi methodology provided a justification for the consensus. It also provided high-quality findings to help educators and workforce development specialists improve decisions.

The research should support future research in healthcare information technology as a valid and beneficial career pathway for northeastern Kentucky.

KEYWORDS: Economic Development, Workforce Development, Healthcare Information Technology, career pathway, skills gap

Candidate Signature

Date

KENTUCKY WORKFORCE PATHWAYS DEVELOPMENT

By

Karen L. Coburn

Approved by

Larry Ferguson
Committee Member Date

Fujuan Tan
Committee Member Date

Lee Nabb
Committee Chair Date

Timothy Simpson
Interim Department Chair Date

CAPSTONE

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DEDICATION

This capstone is dedicated to my parents, Arnold and Wilma Coburn. They have never stopped encouraging me to pursue my dreams. When I have felt unable to move forward with this endeavor, they would reassure me I could do this. They are my biggest fans and my constant support.

ACKNOWLEDGEMENTS

I would like to thank my committee chair, Dr. Lee Nabb. I appreciate your help and encouragement in pursuing my Master's and then my Doctorate at Morehead State University. I would also like to thank my committee members, Dr. Fujuan Tan and Dr. Larry Ferguson. In addition to these fine people, I would like to thank Dr. Justice, Dr. Curry, and Dr. Privott. Your support, advice, encouragement, and classes have helped me grow as a student and as a person.

I would like to thank my partner on this journey through a new Morehead State University doctoral offering, Charles Holloway. Charles, you traveled this road with me, and I hope you were able to lean on me as much as you allowed me to lean on you. The other members of my Say Anything cohort were also valuable partners in this pursuit. Thanks to each and every one of you.

Finally, I would like to thank my family and friends. Jack, who put up with late nights of writing and research and talking me through my frustrations. Cris, Susan, Scott, Kayla, Craig, Megan, Dave, Benjamin, Emily, Drew, Gabbie, Gracie, Dawson, Zoe, Wrendi, Arnie, Diana, Priya, Chrisha, Chris, Steve, and Kim, who helped me to remember to have fun.

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Chapter One

Introduction/Executive Summary

Due to the ongoing decline in high-paying, high-demand jobs since the 2008 recession, Northeast Kentucky must now determine new and viable career pathways to provide a much-needed boost to the economy. The new career pathway cannot be considered a rapid response to the current situation, as the implementation of career pathways takes time. However, it can be seen as a long-term response to restructuring our current manufacturing-based economy to a new service-based economy. A potential career pathway that could efficiently and effectively be introduced to the region and provide access to high-demand and high-wage employment is healthcare information technology.

Background of the Problem

Healthcare information technology, also known as health informatics, is defined by the U.S. Department of Health and Human Services website (n.d.) as follows:

Health information technology (HIT) involves the exchange of health information in an electronic environment. Widespread use of health IT within the healthcare industry will improve the quality of healthcare, prevent medical errors, reduce healthcare costs, increase administrative efficiencies, decrease paperwork, and expand access to affordable healthcare. It is imperative that the privacy and security of electronic health information be ensured as this information is maintained and transmitted electronically (Healthcare Information Technology section, para. 1).

The definition is deliberately broad as it encompasses a wide variety of emerging technologies in the healthcare field. This broad definition illustrates why some have been reluctant to adopt the field. It is an expensive capital investment that will regularly change (Coye & Kell, 2006). It requires oversight and buy-in from patients, medical staff, and information technology security systems (Cohn et al., 2009). It is not a perfect system because of the fluctuation in new technology. In general, HIT is defined as the comprehensive creation and management of patient data and its secure exchange. Coye and Kell (2006) state “the distinction between medical equipment and IT is blurring as these technologies converge” (p. 165).

Two-year colleges have played a major role in taking the learning infrastructure and redefining it to match emerging technology and knowledge economies. Austin (2012) points out that community colleges are “the providers of skills for middle-level occupations” as well as “workforce development for niche roles, including increasingly customized training for industry” (p. 21). The creation of a short-term healthcare information technology program and the connection to health systems would seem a natural fit for a regional college like Ashland Community and Technical College (ACTC).

Statement of the Problem

To address the emerging skills gap a new career pathway for students must be developed that leads to high-wage and high-demand jobs in Northeastern Kentucky. A primary issue is whether area medical facilities would accept a healthcare information technology educational program resulting in a degree from an accredited

institution such as ACTC.

Purpose of the Study

The study seeks to answer the research question “Is healthcare information technology a viable career pathway for students in Northeastern Kentucky that can be supported by developing and initiating a suitable educational or training program in the region’s community colleges?” Surveys were sent to 15 prominent figures in Kentucky’s workforce development, economic development, education, and healthcare fields. The participants were purposely selected for their experience in education, workforce development, economic development, and healthcare. The selected list includes the President of Ashland Community and Technical College, the CEO of the Ashland Alliance, the Business Services Coordinator and the Director of Workforce Development at TENCO Workforce Investment Board, the CEO of King’s Daughters Medical Center, and the CEO of Our Lady of Bellefonte Hospital.

The researcher used the Delphi method to analyze data gathered from participant responses as an iterative examination of the reoccurring themes and codes encountered. The method allowed for feedback from interviewees throughout the process while maintaining their anonymity. Upon the completion of the data, analysis interviewees were provided the opportunity to review the results to ensure interpretive support. The research should support healthcare information technology as a valid career pathway and encourage future research on similar beneficial pathways for Northeastern Kentucky.

Significance of the Study

As the literature review reveals, high-wage jobs in Eastern and Northeastern Kentucky are in decline. The loss of coal and iron industry work will create an additional burden on an area that already has a higher poverty rate than the rest of the state. Healthcare remains one of the leading employers in the area and could provide new employment opportunity.

The significance of this study will demonstrate how the development of a healthcare information technology program is viable as an educational pathway for Northeastern Kentucky. The reclassification of current classes into a healthcare information technology program will require minimal effort since they exist in the current Kentucky Community and Technical Colleges System (KCTCS) catalog. However, it is crucial to have supporting data from local business and industry to ensure the program will lead to high-wage, high-demand jobs.

Additionally, the study will create a guiding process for future workforce program implementation as changes in technology force existing business and industry to change. Northeastern Kentucky and higher education, in particular, cannot remain stagnant. Technological advances can be capitalized upon and create niche markets for the region.

Research Design

As previously mentioned, the Delphi Method was used for the development of the study. A Delphi study is a structured group communication method to gather expert opinion on a complex issue using a series of surveys and controlled feedback.

The study consisted of 15 participants on the expert panel who impact education and economic development in Northeastern Kentucky. The survey questions were structured, and the researcher created the initial survey with collaboration from peers in Workforce Development within the KCTCS Workforce Solutions Peer Team.

The researcher used an online program, QuestionPro Professional, to develop each survey, collect the responses, and analyze the results. Based on research from Day and Bobeva (2005), the surveys were sent in three rounds. The first round introduced the topic and components of desirability and feasibility. Subsequent iterations of survey questions were developed based on the examination of reoccurring themes and codes encountered in the earlier survey. The analysis of themes and codes from each round drove the development of the convergence of opinion among the panel of experts. A summary of findings was sent to participants who confirmed they wished to see the final analysis.

Definition of Terms

Health(care) Information Technology - The comprehensive creation and management of patient data and its secure exchange.

Workforce Development – Economic development approach that enhances a region’s prosperity and economic stability by focusing on the citizens rather than solely on businesses.

Skills Gap – Difference between the skills required for the job and the actual skills employees possess.

Career Pathway – A series of structured programs and support services that help students gain academic, employability, technical skills, and continuing education to place them in high-wage, high-demand jobs.

2+2 Approach – terminology used within KCTCS to indicate a program’s ability to transfer two years of community college education credit to a participating University for completion of a bachelor’s degree.

Summary

The importance of developing new career pathways is clear. What is not clear is what pathway may be best to implement. The consensus among peers is healthcare information technology may be the best pathway, but this conversation has not included all relevant stakeholders. Healthcare information technology is promising because of the existing educational structures and high numbers of medical facilities within the region. Further, healthcare information technologies is an emerging field in general and show signs of continued growth. The literature review in Chapter 2 will illustrate the need for continued research in finding the right career pathway answer for Northeastern and Eastern Kentucky.

Chapter Two

Review of Literature

While the literature supports a viable career pathway in healthcare information technology, it also indicates a collaborative approach between Workforce Development, academics, and economic development is needed. The collaboration would provide a bridge to address the soft skills gap, provide a career pathway to high-wage, high demand jobs in a main industry sector, and provide students with a competitive edge in the workforce.

Workforce Development is an economic development and human resources strategy that enhance regional employment initiatives. In the state of Kentucky, Workforce Development initiatives are supported by a variety of groups. These groups include the Education and Workforce Development Cabinet, the Kentucky Skills Network, Kentucky Workforce Investment Board (KWIB), the Kentucky Cabinet for Economic Development, and KCTCS. Each of these entities works collaboratively on state or regional initiatives such as Saving Our Appalachian Region (SOAR). Workforce Development is also responsible for individual efforts such as short-term workforce classes taught through KCTCS colleges and research conducted by the Education and Workforce Development Cabinet.

Workforce Development has become a critical component of education in Kentucky. *Forbes* magazine listed Workforce Development as one of the top ten issues facing higher education in 2014 (Ebersole, 2014). Employers have jobs available but claim applicants lack the skills needed, which create a skills gap in the

labor force. Employers are pushing Workforce Development and its short-term classes to the forefront of educational change rather than waiting for students to complete two- or four-year degrees.

Kentucky has identified a skills gap as being a major issue. A study by Burrowes, Young, Restuccia, Fuller, and Raman (2014) supports this finding as employers nationwide cite the need for technical and soft skills as significant barriers to employment. There is some debate on what exactly defines a skills gap. The college readiness assessment organization, ACT (2011), proposes in its research *A Better Measure of Skills Gaps* to define the skills gap as “the difference between the skills needed for a job versus those skills possessed by a prospective employee” (p. 2).

ACT used Work Keys skill assessments for math, reading and locating skills (chart and graph analysis). ACT’s (2011) research found significant skills gaps exist for both two- and four-year levels of education. The research implies a higher level of education does not necessarily better prepare individuals for the level of workplace skills needed by employers. The ACT research matches the moderate or severe shortage in skilled workers reported by employers to industry consulting firm Accenture (2014). Shortages were as high as 75% regardless of education level.

Targeted education and training must be implemented to address the skills gap, however, according to the American Society for Training & Development (ASTD) (2012) “these efforts have minimal impact when treated as isolated events” (p. 11). Instead, collaborative efforts must be made by education, government,

business and industry, and nonprofits to assure available jobs and required skills are being matched appropriately. Without this collaboration, skills gap reduction is a guessing game.

Manufacturing companies are working with state and federal agencies, to build upon this momentum. The Kentucky Federation for Advanced Manufacturing Education (KY FAME) is an example of such a collaborative effort. In the KY FAME program (Kentucky Cabinet for Economic Development, 2015) students take classes two days per week at the local community college while learning on-the-job skills with a sponsoring organization 24 hours each week. Students may complete an associate's degree from the college without incurring any debt.

Peter Cappelli, author and Professor of Management and Director at The Wharton School of Business at the University of Pennsylvania, recently conducted research on the skills gap. It is his assertion there is a problem with how human resources departments look at the hiring process and an absence of employers willing to take on some of the training challenges. Business and industry have removed themselves from being part of the solution by placing blame with post-secondary education (Cappelli, 2012). In reality, no one education system can educate employees with the specific skills for each business. This reality exists in spite of the \$583 billion spent annually on public education (Beach, 2013).

The current Kentucky Education and Workforce Development Cabinet unemployment report (2014) lend some credence to this viewpoint. The report shows Kentucky has a 5.5% unemployment rate (Brannock, 2015). This rate is below the

5.7% unemployment rate average for the United States (Brannock, 2015). The continued improvement in the employment rate would seem to dismiss the skills gap issue as myth. The skills gap may, in reality, be a geography gap (Murphy, 2014).

According to the U.S. Department of Labor Local Area Unemployment Statistics Maps (2017), Eastern Kentucky's economy lags behind in the state with an unemployment rate averaging between 7-10%. Magoffin and Jackson counties both have rates at 11% or higher. According to the most recent report by United States Census Bureau American Community Survey (2013), Kentucky's overall poverty rate was 18.8% compared to 14.3% nationally. The state ranks 45th nationally for overall poverty and 48th for women in poverty. More than a quarter of children in Kentucky live in poverty (U.S. Census Bureau, 2013).

With the decline in major industry in Eastern Kentucky, the poverty rate will most likely not improve soon. The primary industry for decades within Eastern Kentucky has been coal. Jobs in the coal industry have been reduced by over 43% due to machination alone (Strickland, Hendricks, & Bovarnick, 2014). The overall reliance on coal by the United States has decreased, and climate legislation will cost the industry additional jobs. There has been an emphasis placed on building entrepreneurship, small business development, and technology jobs to replace the loss. In many cases, relocation and re-education are the answer for a new high-paying job (Strickland, Hendricks, & Bovarnick, 2014).

For rural Eastern Kentucky, it is difficult to address the skills or geography gap. There are areas of the region that have limited accessibility. The accessibility to

well-maintained roads is limited. There is also a lack of basic business requirements such as access to broadband (Smoot, 2014).

In addition to these limitations, Eastern Kentucky is known for its clannish history, which creates a cultural constraint. Family and small town living are strong values intrinsic to most in the area. The expectation is not for every person to relocate to find gainful employment. The area must be made successful in spite of its location by engaging employers in the region to participate with educators in preparing the workforce (Murphy, 2014).

The U.S. Department of Labor issued National Emergency grants in 2014 which totaled \$11.3 million. The grant was awarded to Eastern Kentucky Concentrated Employment Program (EKCEP) to stop the egress of dislocated skilled workers from the region (Valentine, 2014). In partnership with SOAR, EKCEP intends to create a new infrastructure to develop comparable high-wage, high-demand jobs for Eastern Kentucky. Additionally, Dr. Kay Adkins, President and CEO of ACTC, announced a grant award to a consortium of six KCTCS colleges (K. Adkins, personal communication, February 26, 2015). The Department of Labor awarded this \$10 million grant through the Trade Adjustment Assistance Community College and Career Training (TAACCT) program.

Kentucky will require education and the development of career pathways to eliminate skills or geography gaps. Career pathways are multiple paths built from the categorization of education (Cannady, Greenwald, & Harris, 2013). By providing explicit career pathways, students will be able to discern the classes, skills, and

credentials they need for the job they want. Students can build upon their education with “stackable” credentials; specific educational courses that serve as steps to industry-recognized credentials (Eyster, Anderson, & Durham, 2013).

A requirement of the \$10 million TAACCT grant awarded to KCTCS in February is the clear implementation of such pathways. Career pathways not only assist students but reduce the barriers for unemployed and underemployed workers (Eyster, Anderson, & Durham, 2013). Entry- or mid-level skills certifications may be earned more quickly through this step process to help workers find gainful or advanced employment.

In addition to the grants awarded to Eastern Kentucky, the state legislature established goals to increase the number of college or career-ready high school students by 33% in 2015 (Adkisson, 2012). This legislation will require both high schools and colleges to play a role in the success of students beyond graduation from their respective institutions. According to former Dean of Student Affairs, Willie McCullough, over 75% of incoming first-year students at ACTC currently require some form of developmental assistance (personal communication, April 15, 2015). A reduction in this number would reduce financial aid funds spent on remediation courses for students, and improve the speed in which they complete a college certification or degree.

The northeastern portion of Eastern Kentucky had maintained some stability throughout the recession years as the reliance on the coal industry decreased. The stability of the area came under fire in 2015. The closure of the American Electric

Power Big Sandy Coal Plant in Lawrence County on June 1, 2015, was followed by another devastating announcement. On October 16, AK Steel issued a Worker Adjustment and Retraining Notification (WARN) to almost 800 hourly and salaried employees at their Ashland, Kentucky, works (Levingston, 2015). According to the United Steelworkers Training Coordinator, Kendall Kilgore, the idling of the plant began with two rounds of layoffs in December (K. Kilgore, personal communication, March 24, 2016). Without a change in global economic iron processing, the idling of the plant will continue. As of April 2016, AK Steel has yet to provide a closure or a reopen date to the WARN.

The future for Kentucky workers does not need to be seen as bleak. It is more a reality of how a change to labor market affects economic trends. Wes Schwalje from the London School of Economics (2001) identifies periods of skills deficiencies as existing with any labor market adjustment. Schwalje states “shifts in the underlying supply of and demand for skills require time to re-establish market equilibrium due to the lag in the time it takes to develop particular skills” (p. 1).

Cities such as San Francisco, California; Guildford, North Carolina; Livermore, California; Santa Clara, California; and Los Angeles, California, established strategic regional partnerships to address their specific concerns and built best practices in Workforce Development into the community college environment (Alssid et al., 2002). According to Skills2Compete (Workforce Alliance, 2009), California is specifically addressing the middle-skill job needs that represent approximately 49 percent of future job openings. The caveat for Kentucky is in how

quickly the equilibrium can be re-established. If Kentucky can address the needed education and logistic issues, Kentuckians in the eastern portion of the state should return to viable, high-paying jobs.

Kentucky has been addressing this concern. Dr. Jeffery Schwartz, Education Program Manager for the Appalachian Regional Commission (ARC), identified gaps in the fields of Information Technology and Healthcare Information Technology. These fields could serve as potential new industries for Eastern Kentucky (J. Schwartz, personal communication, March 4, 2015). Skills2Compete (National Skills Coalition, 2011) found a similar gap in the Information Technology and Healthcare Information Technology fields in the state of New York. New York addressed the gap with strategic and collaborative business, education, and community initiatives. The same strategic initiatives are needed in Northeastern Kentucky to succeed in identifying the appropriate pathways to bridge the gaps for these two fields.

Another challenge for the region will be political as well as economical. Larger industries working within these smaller regions have political clout. They may push for a bigger piece of the funding at the detriment of smaller businesses. Political interference could minimize entrepreneurship opportunities and limit the expansion of smaller industries (J. Schwartz, personal communication, March 4, 2015).

The push for a unified method of building a skilled and educated workforce is a relatively new phenomenon in Kentucky. The WorkSmart Kentucky Strategic Plan was created in 2009 and is overseen by the KWIB. The KWIB advises the governor's

office on workforce training issues in the state. The Board consists of representatives from business, industry, labor, education and the political arena. Former Governor Beshear challenged the board in 2010 to change from a reactive management group to a proactive, solutions-based group (Kentucky Workforce Investment Board [KWIB], 2010).

One of the areas identified as a problem in the fall of 2012 was Kentucky's lack of a coordinated effort by government and educational facilities across the state to enhance economic development (KWIB, 2010). Until 2012, the Education and Workforce Development Cabinet, the Economic Development Cabinet, the educational entity of KCTCS, and the individual counties and cities each had their processes and plans for how to impact economic growth (Box & Stagnolia, 2013). This lack of a cohesive message meant new or expanding business received conflicting information on incentives and education for building in or remaining with the state. Identifying with Massachusetts' plan (National Skills Coalition, 2010) to create a long-term vision and provide better access to basic education and training, may be a starting point.

Sederburg and Stern (2014), in their article highlighting Utah's use of Student Longitudinal Data Systems (SLDS), recommend the following to address workforce pipeline issues:

1. Create a long-term vision for an integrated education and workforce system (Data: The Link Between section, para. 6).

2. Create a state governing framework for longitudinal data using specific metrics to measure success (Data: The Link Between section, para. 7).
3. Build a common language among all systems, so employers and educators understand the steps to converting skills to credentials and back (Data: The Link Between section, para. 8).
4. Make use of the data to show accountability and progress (Data: The Link Between section, para. 9).

KWIB and ARC are embracing these recommendations as part of the Strategic Plan for Kentucky.

The KWIB WorkSmart Kentucky Strategic Plan is a transformation initiative that seeks to place performance positioning and measurements for education, entrepreneurship, and economic development agencies to create alignment and partnerships (KWIB, 2010). The success of the plan will be gauged using Key Performance Indicators of college and career readiness, unemployment, education alignment and attainment, earnings, and sustainable employment. Of the original 24 initiatives recommended in 2010, 21 had been implemented by 2013 (KWIB, 2013).

To better serve business and industry in the state, the KWIB determined statewide sectors. As part of WorkSmart Kentucky, five main industry sectors were determined. The first of these is automobile and aircraft manufacturing. The second

is transportation, distribution, and logistics. Business services and research and development placed third. The final two sectors are healthcare and social assistance, then energy creation and transmission respectively.

By understanding the sectors that currently employ the majority of the Kentucky workforce, career pathways can be developed to prepare future employees. Kentucky can also develop supporting businesses for these industries to reduce their costs and remain located within the state. Eastern Kentucky will receive the initial funding and installation of the broadband infrastructure over the next eighteen months (J. Schwartz, personal communication, March 4, 2015). It is the hope for Eastern Kentucky this will allow for the access needed to develop the area as a healthcare and information technology talent hub.

For Kentucky, future planning is crucial as an aging population sets the state up for the potential of a continuing skills or geography gap. In 2011, the U.S. Department of Labor showed in manufacturing alone, the average age of employees is 44 nationally (Accenture, 2014). Minimizing Eastern Kentucky's geography gap is the key to success. As the infrastructure is being prepared to address the geography gap, Eastern Kentucky must work toward developing and retaining the internal talent to meet the expected skills demand.

With an aging population and new healthcare information security measures assigned by the federal government, developing the healthcare and information technology career pathways seems the best fit. The 2010 U.S. Census Bureau data identified in Eastern Kentucky a marked decrease in people under the age of 45 and

an increase in people over the age of 65 (Hjalmarson & Johnson, 2011). The age demographic indicates healthcare will continue to be a viable form of employment in the region. To prevent a further decrease in the younger population, developing a healthcare information technology pathway could ensure a successful employment pipeline.

In 2014, the United States Chamber of Commerce released a study with recommendations on talent pipeline or talent pathway management. It is no longer employer-driven or education-driven, but should instead be a collaborative partnership of the two. Employers must link talent strategy to business strategy and communicate their specific needs while education develops talent solutions aligning performance and incentives with the employer measures (U.S. Chamber of Commerce Foundation Center for Education and Workforce, 2014).

Eastern Kentucky and Kentucky in general, has been strengthening partnerships with business and industry over the last five years to make sure the state is meeting the needs of the employers. The premiere example of this partnership is the Advanced Manufacturing Technician (AMT) apprenticeship program. The Kentucky Cabinet for Economic Development (Medler, 2015) states this program was developed and implemented through a collaborative effort by Toyota Motor Manufacturing, Inc. and Bluegrass Community and Technical College (BCTC). Students in the AMT program work three days at Toyota and two days in the classroom. The program provides a real-time application of the classwork and reduces the cost of education for the student.

Other regional competitive assets within the workforce should be identified to establish the strengths available. Strategic policy and physical and educational infrastructure planning should then support the economic development initiatives (Uhalde, 2011; Mullin, 2013). The states of Arizona, Colorado, Florida, Louisiana, Nevada and Wisconsin have established similar strategic partnerships with business and industry, government, community, and workforce programs to address their own skills gaps with the aid of the American Recovery and Reinvestment Act (Barnow & Hobbie, 2013; Van Noy, Jacobs, Korey, Bailey, & Hughes, 2008).

These strategic partnerships should not be limited to metropolitan areas. Rural partnerships have been equally successful in communities where the college helped to produce best practices for the coordination and advocating in rural economic development efforts (Nickoli, 2013).

In Nebraska, the syNErgy research grant looked at workforce curriculum specifically as a major part of economic development and how it addresses the skills of the unemployed and the underemployed. Through a collaboration with industry, education, and government Nebraska determined green energy would be a viable new pathway for employee training. Their research found people are willing and ready to receive training with a successful attrition rate of 15% (Killingsworth & Grosskopf, 2013).

The Baltimore Workforce Investment Board established a similar committee to Kentucky's WorkSmart group in 2007. The results from their in-depth research show Kentucky is on the right path toward creating specific talent pipelines by

examining the primary workforce sectors and conducting a gap analysis to meet future needs and eliminate skills shortages. There must be an alignment between employees, employers, and community, and education must build the connecting bridge. This work should be done at regional levels to address issues particular to that area rather than focusing on a one-size-fits-all solution for an entire state (Baltimore Workforce Initiative Board, 2010). Workforce Development sustains the bridge between education and the region.

Workforce Development can quickly train new or incumbent employees in some fields, bypassing traditional college requirements and focusing solely on a needed skill or improvement. The swift response to education needs could assist in keeping our youth within the region, as well as draw new talent to the workforce. In 2013, workforce partners in Kentucky provided training to over 2,551 companies and trained approximately 83,264 individuals (Benton, Ferguson, & Haydon, 2014). ACTC alone provided services to 120 businesses and 1,367 individuals in the fiscal year 2014 (Ashland Community and Technical College, 2015). The number of businesses and individuals served for the fiscal year 2015 is expected to have grown by at least 2% in our region (W. McCullough, personal communication, April 15, 2015).

Jacobs and Dougherty (2006) speak of evolution in community colleges. Colleges should separate the mission of teaching vocational skills for high-paying, high-tech jobs from the mission to help people out of poverty by providing “basic education and occupational training” (p. 54). This mission can be one-in-the-same in

Eastern Kentucky. The basic education required to lift people out of poverty can be part of the pathway to high-paying, high-tech jobs. Partnerships within the region can innovatively address economic and social equity, create supporting policies, provide student support services, develop accountability for student learning outcomes, and provide stackable credentials to develop attainable career pathways (Myran & Ivery, 2013; Alssid et al., 2005; Bragg, Dresser, & Smith, 2012; Bozic & Dunlap, 2013; Grubb, Badway, Bell, Bragg, & Russman, 1997).

If Eastern Kentucky does look to healthcare and information technology as career pathways to return citizens to work, then Workforce Development programs could play a major role in creating pathways for entry-level and mid-level schools. In particular, Workforce Development programs within community colleges could be the answer to the question of the talent development pathway for these careers (see Tables 1 and 2). For example, the SIM Advocacy Research Team (2006) identified communication and project management as skills candidates lacked in entry-level and mid-level information technology organizations respectively. Workforce Development maintains active programs within both areas, in addition to State Registered Nurse Aide programs, and could address these growing needs in collaboration with employers.

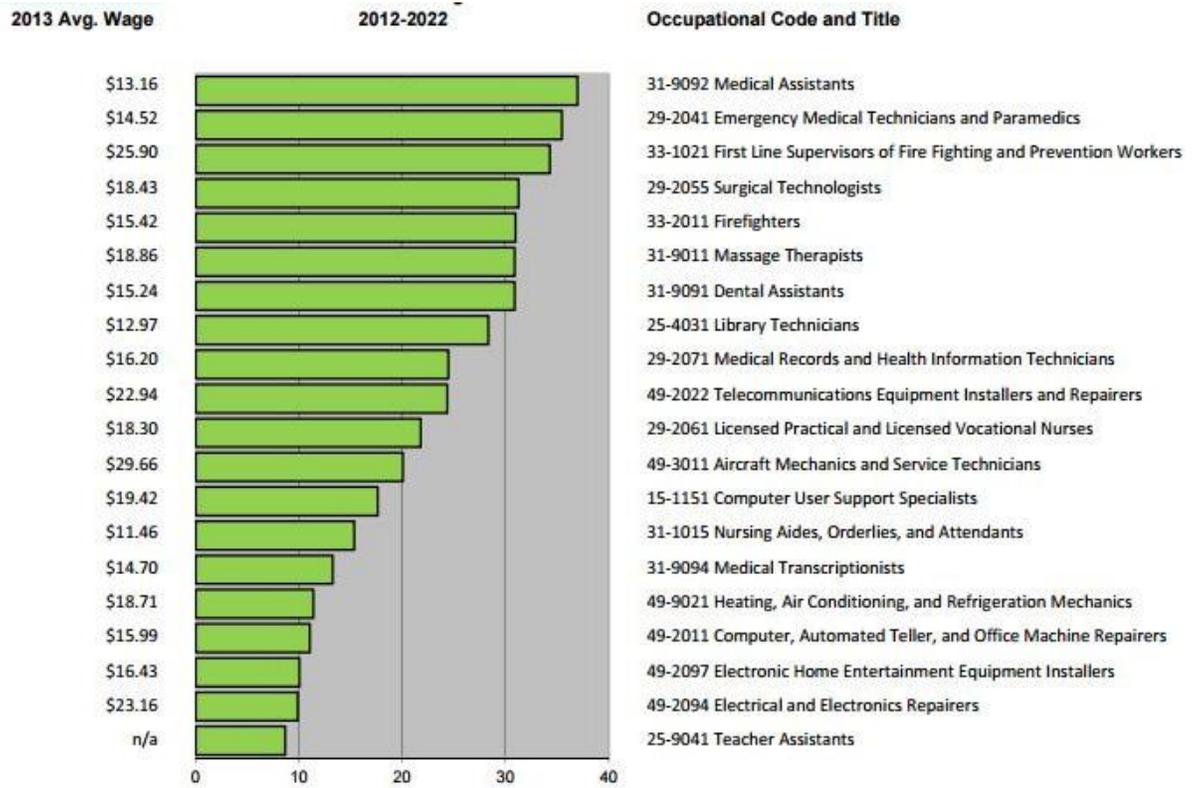


Table 1. Twenty fastest growing Kentucky occupations 2012-2022. The graph shows the percent change and the occupations that require a postsecondary non-degree award, or some college, no degree.

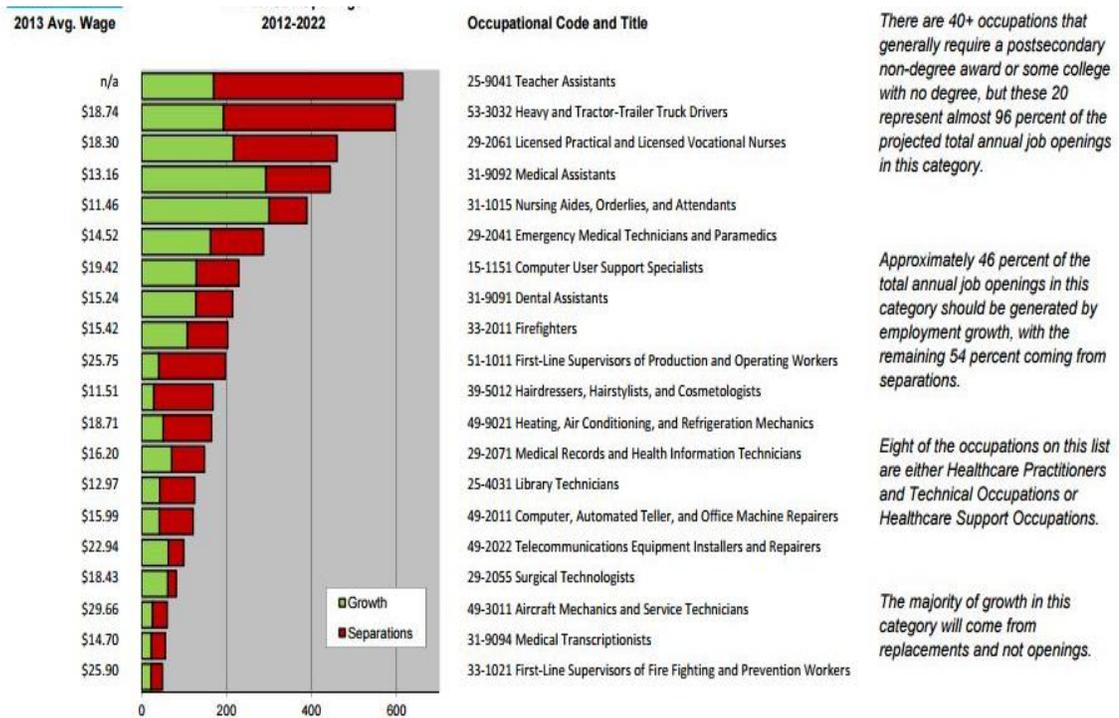


Table 2. Twenty Kentucky occupations with most annual job openings. The green bar represents the number of openings due to employment growth. The red bar represents job openings due to workers separating from the occupation. These occupations require a postsecondary non-degree award, or some college, but no degree.

Workforce education must be innovative in answering these needs and look to all levels of education as part of an overall strategy. Data linkages must be created and maintained for support (Bevins, Carter, Jones, Moye, & Ritz, 2012; Mullin & Lebesch, 2010). The U.S. Department of Labor’s interest in funding workforce programs provides evidence that community colleges must play a leadership role and be proactive in the strategy-building for economic development (Bragg, Dresser, &

Smith, 2012; Nickoli, 2013; Bozic & Dunlap, 2013). The strategy should include addressing the income-achievement gap at a younger age. Within Eastern Kentucky, the role of poverty creates degradation in the planning ability of children leading to educational and workforce barriers later in life (Crook & Evans, 2013).

Globalization has also opened the opportunity for Eastern Kentucky to develop a role of its own within the economy. An increasing number of corporations are looking to bring information technology jobs back to the United States. Kentucky's development of broadband access and drive for technology-based, call-center opportunities can create a much-needed collaboration for employer and employee. These mutually interchangeable jobs can play a major role in the development of a new economy for Eastern Kentucky as human capital becomes more of a corporate need than brick and mortar locations (Bevins et al., 2012).

In a collaborative report by Oxford Economics (2015) and SAP, *Workforce 2020: The Looming Talent Crisis*, the research established that 83% of businesses globally are increasing their use of independent contractors. Many of these entry- and middle-level jobs can be performed from home anywhere in the world with the right skill set and technical access. The future of the workplace may indeed become a more flexible workforce where employees move from employer to employer. Short and Harris (2014) recommend in their *Workforce Development: Strategies and Practice* that educators and employers maintain a clear mission and vision as they "build human capability and capacity" (p. 5). This flexible workforce will be unsuccessful for many if either side fails to do its part in employee development.

Developing the specialized skills of adaptable behaviors and problem-solving techniques of a globally competitive workforce within the region will enhance the area's workforce viability (Hafner & Owens, 2008; Bhatnagar, 2008; Evans, Johnson, Garman, & Kletke, 2013). These behaviors must include improved reading, writing, and math skills, as well as the ability to perform with critical thinking, collaboration, communication, creativity, and confidence (Beach, 2013). According to research conducted by Oxford Economics (2015), the challenge for both education and employees will be obtaining the appropriate skills and abilities needed for global business and industry.

ACTC should be able to adapt the curriculum to accommodate a healthcare information technology program. According to the current KCTCS 2015-2016 Course Catalog (Kentucky Community and Technical College [KCTCS], 2015), the college currently offers multiple healthcare programs, like State Registered Nurse Aide (SRNA), Licensed Practical Nurse (LPN), and Registered Nurse (RN) and Medical Information Technology (MIT). The college system also offers a wide variety of Computer Information Technology certifications including Network Administration in CISCO and Microsoft, Internet Technologies, and Information Security. An additional CIT partnered certification was developed in 3D print technology (E. Wooldridge, personal communication, September 23, 2015).

Jefferson Community and Technical College (JCTC), a sister college of ACTC, introduced an approved health information technologies program accredited by the Commission on Accreditation for Health Informatics and Information

Management Education (CAHIM) (KCTCS, 2015). Their program focuses on records management, microcomputer applications and software integration, pharmacology, coding, health information management, and EHR implementation specialist, and healthcare trainer. Upon successful program completion, students are eligible to take the American Health Information Management Association's (AHIMA) Registered Health Information Technician (RHIT) examination .

The classes contained within the program were pre-existing in the catalog, and only required connecting them into a new pathway (A. Amarose, personal communication, August 12, 2015). Since the program already exists in the system and is accredited, ACTC would be able to replicate the same program on their campus. The two-year degree program as developed at JCTC is a selective degree program, meaning students who enter the program are selected by the college president or a designee. This practice is similar to ACTC's other Allied Health programs. The program consists of 69-75 credit hours and culminates in an Associate Degree in Applied Science. According to JCTC (2016), students may pursue Healthcare Information Management (HIM) pathways in transcription, healthcare privacy and security, clinical documentation improvement, data management, compliance, and more.

The selectivity of the program and its relationship with AHIMA and the RHIT examination may make it compatible with transfer programs with state universities. Eastern Kentucky University (2016) lists a Bachelors of Science in Health Services Administration, Health Care Administration and Informatics. According to Western

Kentucky University (2016), the University offers a baccalaureate degree in Health Information Management that is also accredited by AHIMA.

A review of universities within Kentucky reveals the opportunity for educational growth in the field extends to master and doctoral level programs. According to Head of User Services, Jennifer Little, Morehead State University is considering the development of a Health Informatics graduate program shortly (J. Little, personal communication, April 4, 2016).

In addition to a baccalaureate and graduate program in informatics, students may pursue a specialized degree of Juris Doctor/Master of Health Informatics (JD/MHI) according to Northern Kentucky University (NKU) Chase College of Law (2016). The collaborative program by NKU's Chase College of Law and the College of Informatics provides candidates with a unique combination of legal, medical and information technology expertise (Juris Doctor/Master of Health Informatics section, para. 1-7).

Taking all of these factors into consideration, the Healthcare Information Technology field could be an appropriate fit for Eastern Kentucky and provide a unique selling point to employers. What are the skills required for this new field? Desirable employees would need a basic understanding of computer and software integration, legal and ethical issues, delivery systems, nursing and medical office knowledge (J. Schwartz, personal communication, March 4, 2015).

The purpose of this research is to determine "Is healthcare information technology a viable career pathway for students in Northeastern Kentucky that can be

supported by developing and initiating a suitable educational or training program in the region's community colleges?" To answer the question, the researcher developed a Delphi study survey. A Delphi study is a structured group communication method to gather expert opinion on a complex issue using a series of surveys and controlled feedback. Surveys were sent to regional experts, as well as educational institutions to match the demand with the skills required for progress.

The information culled from this particular research is important because it gathers together in one place a variety of expert opinions. The findings should support the development of additional research and action on the part of the community colleges to establish a sustainable program. Clarity is required to educate students, retrain dislocated workers, and train-up incumbent workers. The current path appears to be based on well-meaning assumptions that will potentially fail Eastern Kentucky.

Chapter Three

Methodology

“Is healthcare information technology a viable career pathway for students in Northeastern Kentucky that can be supported by developing and initiating a suitable educational or training program in the region’s community colleges?” To answer this question, the researcher implemented a Delphi study to gather opinions from experts who live and work in Northeastern Kentucky. The Delphi study is a consensus-seeking approach that provides anonymity to the participants and allows them to respond more freely to survey questions. The Delphi study provides insightful iterative feedback that guides the expert discussion and determines a collective opinion.

Philosophical Assumptions of the Research

As the literature reveals, Northeastern Kentucky is in the midst of an economic, social, and cultural shift. Youths of the region can no longer follow in the footsteps of their parents with the expectation of working in the coal or iron industries. The region must find new long-term, viable career pathways. Healthcare, in general, has long been an alternate pathway for Kentuckians. The addition of a career pathway in healthcare information technology provides a new opportunity outside of direct patient care.

For this study, using the Classical Delphi Method approach allowed for a constructivist approach to identify the unique social and cultural aspects that shape

the participant views (Van Zolingen & Klaassen, 2003). Crotty identified three assumptions in constructivism (as cited in Creswell, 2014):

1. Human beings construct meanings as they engage with the world they are interpreting.
2. Humans engage with the world and make sense of it based on their historical and social perspectives – the meaning of the world is bestowed upon one based upon cultural norms.
3. The basic generation of meaning is always social, arising in and out of interaction with a human community (p. 9).

The research conducted holds a social constructivist worldview, seeking to develop meaning in complex views held by various stakeholders in the region. In modern constructivist epistemology, socialization is an important characteristic. It is the social aspect one can reason, debate, and challenge new knowledge since “coming to know is an adaptive process” (Noddings, 2012, p. 129). But knowledge is not a single truth. Instead, it is about the experience of the person (Denzin & Lincoln, 2008).

Methodology and Research Design

The study sought to answer the research question “Is healthcare information technology a viable career pathway for students in Northeastern Kentucky that can be supported by developing and initiating a suitable program in the region’s community colleges?” The Delphi method, or technique, was selected for the study after consultation with the Chair of the researcher’s Doctoral Advisory Committee.

The Delphi technique was developed in the 1950s by Research and Development (RAND) Corporation to forecast technical studies for the United States military. The technique has since been adopted as a method for soliciting expert opinion to enhance and leads to consensus building (Hsu & Sandford, 2007; Parente & Anderson-Parente, 2011; McGeary, 2009; Custer, Scarcella, & Stewart, 1999; Dalkey & Helmer, 1963). Linstone and Turoff (1975) defined this modern Delphi technique as the “method for structuring a group communication process so that the process is effective in allowing a group of individuals, as a whole, to deal with a complex problem” (p. 3).

There are four main elements used to maintain the structured group communication inherent to the Delphi technique. These elements are:

1. A panel of experts contributing their individual knowledge and expertise.
2. The researcher assesses and compiles the group judgment.
3. An opportunity is presented for individuals to revise views and provide new views based on the compiled data.
4. A degree of anonymity is assumed for the experts to reduce influence (Thompson, 2007).

The Delphi technique is a flexible and iterative process that surveys a panel of experts on a particular topic. The experts receive and respond individually to a series of survey questionnaires without ever assembling (Erffmeyer, Erffmeyer, & Lane, 1986). The data collected is analyzed and distilled back to the experts for an additional opinion. The experts are anonymous to one another but are known to the

researcher to inhibit group judgment influence or impairment (Lang, 1995). The method encompasses a structured information flow, considers personal experience and interpretation, as well as provides the opportunity for regular feedback between the researcher and the participants.

The researcher selected a qualitative approach for the Delphi technique in this study. Creswell (2014) states qualitative research “is popular in qualitative health science research in which investigators begin with a theoretical model, such as the adoption of health practices or a quality of life theoretical orientation” (p. 64). The rationale for using the research method is it assumed the expectation that this particular study was exploratory and will provide a comprehensive overview regarding healthcare information technology and its adoption.

An additional rationale for the qualitative approach is the need to capture expert opinion on the subject of healthcare information technology as a career pathway. Linstone and Turoff (1975) determined there are seven situations best suited for the Delphi technique including the need for a large sample size, a history of poor communication, severe or political disagreements are a risk or increasing the efficiency of face-to-face meetings. The remaining three situations apply to this particular study. These are:

- There is no precise analytical technique, but there is a benefit in subjective judgment.

- Heterogeneity is needed to assure the validity of the results and avoid dominating personalities and group think.
- Time and cost make frequent group meetings infeasible.

The researcher intended this study to be a starting point for the career pathway conversation of Healthcare Information Technology. The data is anecdotal and subjective as it seeks an opinion from a panel of experts. Accordingly, the use of the Delphi technique incorporated the breadth and depth of the subject and guided the study discovery. Martino (1973) argued the Delphi technique supports progressive research in fields affected by social and economic factors. Its use as a consensus-building and program planning tool allows for multiple iterations and participant feedback and re-evaluation throughout the process (Hsu & Sandford, 2007).

The determination of consensus building within Delphi studies tend to be based upon descriptive statistics rather than inferential statistics. Descriptive statistics simplify data into a meaningful summary. However, the consensus measurement can be varied and subjective in its nature (Von der Gracht, 2012). The nature of the Delphi study is to be flexible, which leaves this research open to criticism on how the consensus point is defined and when it is defined (Dajani, Sincoff, & Talley, 1979; Williams & Webb, 1994; DeMeyrick, 2003; Holey, Feeley, Dixon & Whittaker, 2007; Hasson, Keeney, & McKenna, 2000).

In a literature review of Delphi studies, Von der Gracht (2012) found eight consensus measurements in qualitative analysis and descriptive statistics. These

measurements include a stipulated number of rounds, subjective analysis, mode, mean/median ratings with standard deviation, and post-group consensus. For this research project, the author pre-determined the use of *level of agreement* as the consensus measurement and the composite score on a five-point Likert scale met the “agree” or “disagree” range.

Furthermore, research by Kalaian and Kasim (2012) shows the difference is in the analysis. The use of the statistical method determines consensus. For groups of 30 or more, researchers should use parametric statistics, while smaller groups should use nonparametric statistical methods.

Researchers in the industry sectors of healthcare, defense, information technology, education, and business have successfully used the Delphi technique. It is mainly used for forecasting, developing, identifying or validating a variety of research areas making it difficult to determine a standard Delphi (Skulmoski, Hartman, & Krahn, 2007). The flexibility of the method allowed for modification for each study.

Limitations Particular to this Study

Some disadvantages to the Delphi technique were called out by Job Research Center European Commission (2006). Delphi techniques are time-consuming and difficult to prepare; consensus may be false, and results may not be considered fact. Individual input is often dismissed for matching results, and the researcher must be mindful of group effect. Participants may drop out particularly after two rounds, and the method may not apply to the study. Hsu and Sandford (2007), Day and Bobeva

(2005), as well as Hasson, Keeney, and McKenna (2000) reached similar conclusions on the disadvantages of using the Delphi technique.

Another caveat to this study is that it does not claim to involve a representative sampling of all expert members in education or workforce development within the panel. The Delphi study is a qualitative method that seeks to generate opinions from a group of experts. Its purpose is not to generate opinions from a population, thereby creating a quantitative study. The study should be used to determine future applications, as the participants were purposively selected for their expertise as it relates to either the region or the subject matter rather than an overall knowledge of both areas.

Panel size, therefore, should not be a deterrence when planning a Delphi Study. The quality of the expert panel should be valued more than the number of experts participating (Hasson, Keeney, & McKenna, 2000; Powell, 2002; Hsu & Sandford, 2007; Skulmoski, Hartman, & Krahn, 2007). Murphy et al. (1998) support this with their assertion there is “little actual empirical evidence on the effect of the number of participants on the reliability or validity of consensus processes” (p. 37).

Participants should be not only knowledgeable within the field, but also highly trained. The diversity and quality of a heterogeneous sample size can limit or expand a study depending upon access to expertise. The review of Delphi studies by Skulmoski, Hartman, and Krahn (2007) found studies with as few as three participants to studies containing more than 300 participants. The sample size for this study was limited due to the heterogeneity of the group within the five county region.

Therefore the benefits far outweigh the concerns when it comes to using the Delphi technique for this type of research. The Delphi technique requires participants to think long-term, determine if a consensus exists, and allows for analyses and rankings of responses (Erffmeyer, Erffmeyer & Lane, 1986). There is an opportunity for participants to gain in-depth information between rounds to guide their future opinion, and the output is operational (Day & Bobeva, 2005). And as Linstone and Turoff (1975) point out, the Delphi technique addresses a lack of information to guide a more precise analytical technique.

This study meets the recommended requirements established by past research for using the Delphi technique. The method provided the impetus for a serious career pathway inquiry and conversation regarding healthcare information technology among the local and regional experts selected for the study. The method gathered data precisely, timely, and cost effectively as the experts were dispersed throughout the region.

The experts were also high-ranking members of their individual organizations with limited time to devote to the researcher. The Delphi technique allowed for a structured flow of communication that did not impede the ability to respond or to seek guidance. Furthermore, as the literature review demonstrates, there is little information or research on the impact such a career pathway might have in Northeastern Kentucky.

Data Collection Procedures

The data collection for this study used a short series of survey questionnaires sent via electronic mail through QuestionPro Professional. QuestionPro is an online tool that offers surveys and polls, along with branching/skip logic, theme customization, over 24 question types, data export into Excel, filter and sharing of reports, multilingual support, and email management. The use of an online system helped to maintain anonymity among participants and assisted the researcher with data analysis and research validity (Thompson, 2007). Furthermore, the online tool allowed the researcher to review data as it was received.

Hsu and Sandford (2007) recommend the researcher identify an influential person or persons to endorse the Delphi study. Dr. Kay Adkins, president of ACTC, agreed to send an endorsement email to the selected panelists (Appendix A). The researcher's committee chair, associate professor Dr. Lee Nabb also agreed to provide an endorsement email for the researcher to share with panelists prior to the start of the research period (Appendix B). Once the initial introduction was established, the researcher sent a greeting and confirmation email to each participant to begin the study (Appendix C).

Questionnaire 1 established the groundwork for successive surveys. The survey was piloted among collaborative partners within the Workforce Solutions Team at ACTC to ascertain the best open-ended questions (Appendix D). Open-ended questions are considered preferential in the first round to reduce dropout of panelists, assure important statements, increase the quality of the data, as well as

determine face and content validity (Kerlinger, 1973; Marchant, 1988; McCampbell & Stewart, 1992; Powell, 2002).

Questionnaire 1

Questionnaire 1 (Appendix E) asked participants four questions, “Is healthcare information technology a viable career pathway? Would it be a viable career pathway for students in Northeastern Kentucky? Can it be supported by developing and initiating a suitable educational or training program? Could this be done in the region’s community colleges?” Participants were instructed to answer in as many statements as they wished to express a single thought. Participant statements were analyzed by the researcher with lengthier responses broken down into single thought statements by the researcher.

Questionnaire 2

Questionnaire 2 (Appendix F) contained the results of survey one and used statements from Questionnaire 1 to create a series of rateable statements for participants to consider and respond. Participants were instructed to rate the statements culled from Questionnaire 1, then add comments or insights in as many statements as they wished to express a single thought. Participant statements were analyzed by the researcher with lengthier responses broken down into single thought statements by the researcher.

Questionnaire 3

The responses from Questionnaire 2 were used to formulate Questionnaire 3 (Appendix G). To move participants to an agreement on the question of whether HIT

programs should be focused on healthcare or information technology, the question was revised and resubmitted to participants for this round. Questionnaire 3 contained the results of survey one and two. Participants were instructed to rate the statements culled from Questionnaire 2, then add comments or insights in as many statements as they wished to express a single thought. Participant statements were analyzed by the researcher with lengthier responses broken down into single thought statements by the researcher.

The researcher was mindful of questionnaire length and participant availability by developing articulate questions that allowed for brief responses. An area was also provided for participants to provide in-depth responses. An initial questionnaire requested participants share demographic, experience, and determine their level of awareness regarding healthcare information technology programs. Further, it determined the initial level of interest by the participants in such a program in Northeast Kentucky.

As the Delphi technique dictates, the follow-up rounds of the questionnaires were determined by the responses from the first round (Linstone & Turoff, 1975). The author pre-determined a level of agreement meeting a minimum of 60% would be the consensus measurement, along with a composite score on a five-point Likert scale meeting the “agree” or “disagree” range.

Solicited Participants

The 15 participants were purposively selected for their expertise and roles in workforce development, economic development, education and healthcare fields of

Eastern and Northeastern Kentucky. The researcher is connected by professional association with several participants. The researcher was endorsed by the president's office at ACTC to other participants.

The expert panel purposively selected include the following, listed by job title only:

The President of ACTC who has a master's degree in education and vocational studies from Southern Illinois University and a doctorate in educational administration from Illinois State University.

The President of Big Sandy Community and Technical College (BSCTC) has nearly 40 years of experience in higher education economic development.

The Chief Academic Officer and Healthcare Coordinator at ACTC is a native of Eastern Kentucky and holds the rank of Professor with over 40 years of experience in the community college setting. She holds a DNP, MSN, MEd, and BSN.

The Dean of Academic Affairs at BSCTC has worked at the college since 1991 when she began as a nursing instructor. She has served as biological division chair, coordinator of the pathways nursing program and associate dean of allied health. She earned her BSN and MSN from the University of Kentucky and has been with BSCTC since 1992.

The CEO of the Ashland Alliance is a graduate of Morehead State University and Eastern Kentucky University. He has been the economic development director for multiple organizations, including Greater Grays Harbor near Seattle, Washington.

The Career Center Manager and Business Services Coordinator at the

Kentucky Career Center has a communications degree from Georgetown College and has served in his current role since 2013. He has ten years of experience in Manufacturing Management.

The Director of Workforce Development at TENCO Workforce Investment Board has been with the organization since the mid-2000's. She is intimately familiar with the Buffalo Trace Area Development District and its programs, including public and private sector employment opportunities.

The Executive Director of EKCEP has been associated with that economic development organization for more than 24 years, seven as executive director.

The Director of SOAR is a Salyersville, KY native and spent the majority of his professional career in Pikeville, KY. He holds an MBA from Morehead State University.

The Chief Executive Officer of King's Daughters Medical Center (KDMC) earned an R.N. degree from ACTC and worked as a team member and Chief Operating Officer at KDMC before being named the president and CEO.

The Chief Executive Officer of Our Lady of Bellefonte Hospital (OLBH) moved into the position in 2009 after serving as its Vice-President of Planning and Operations. He is a fellow of the American College of Healthcare Executives.

The Clinical Coordinator of Health Information Technology at Gateway Community and Technical College (GCTC) is an associate professor and the Allied Health Division Chair with over 20 years of experience. She is a Certified Professional Coder through the American Academy of Professional Coders. She

assisted with the implementation of the Health Information Technology program at Gateway.

The Program Coordinator of Health Information Technology at GCTC. She is a seasoned health information management (HIM) professional with 40 years experience working in hospitals, long-term care facilities, vendor support, and teaching. She is a contributing author in the text Ethical Health Informatics by Laurinda Beebee Harmon. She earned her MS in Health Care Administration and a BS in HIM from St. Joseph University and Temple University in Philadelphia respectively.

The Executive Director of FIVCO Area Development District has a Masters degree in Communications from Morehead State University and a Masters of Social Work degree from the University of Kentucky. She has served as Executive Director for some years and is highly respected as a community member, assisting with economic development planning in the region.

The President/CEO of the Ashland Alliance has a BS in Political Science from Morehead State University. He has served as a Deputy County Judge and CEO for multiple community Workforce Development organizations.

The local director of Manpower, which is a world leader in job and employment services, connects job seekers and employers. They offer a range of services which include permanent placement, employee selection, training, and consulting.

The final two participants are the lead physicians at Bellefonte Primary Care

and Hart Family Care in Ashland, Kentucky. Both physicians specialize in family medicine and have practiced for many years in the Ashland area.

The intent of the researcher was to encourage the completion of the survey questionnaires within three to five iterations. Participants were given ten business days to respond to each survey. The researcher analyzed and produced a new survey for the next iteration within one week of the survey close. Each new iteration of survey questions was reviewed with the doctoral advisor and the ACTC Associate Dean of Advising and Retention to ensure objective interpretation of the data before the distribution of the next survey round. The intent of the researcher was to complete the Delphi study in no more than 16 weeks. If the study reached a saturation point earlier than this, the study was to be terminated.

The number of rounds in a Delphi study can be as few as two or as many as ten (Lang, 1995). Errfmeyer, Errfemeyer, and Lane (1986) indicated rounds stabilized at the fourth iteration. Martino (1983) found the average of four rounds was sufficient but determined some Delphi's may need at least five while others may only need two. Hasson, Keeney, and McKenna (2000) in their research of the Delphi technique though found "discovering opinions raises the question of how many rounds it takes to reach consensus" (p. 1011). The researcher was respectful of the time the participants allotted to the surveys and was cautious of repetitive questioning. However, the researcher was willing to extend the iterations beyond three to accommodate the interest and validity of participant responses and interest

until a consensus was met.

Data Analysis

The data analysis followed the tenets of the Delphi technique. As mentioned earlier, the intent of the researcher was to encourage the completion of the survey questionnaires within three to five iterations with a level of agreement meeting a minimum of 60% as the consensus measurement, along with a composite score on a five-point Likert scale meeting the “agree” or “disagree” range. A flowchart of the process may be found in the Appendix (Appendix J).

Once each survey was sent out, participants were given a minimum of ten business days to respond to each survey. The researcher sent follow-up reminders to participants who had not completed their survey at the five-day and nine-day marks.

The researcher analyzed and produced a new survey for each iteration within one week of the survey close. Each new iteration of survey questions was reviewed with the doctoral advisor and the ACTC Associate Dean of Advising and Retention to ensure objective interpretation of the data before the distribution of the next survey round. The intent of the researcher was to complete the Delphi study in no more than 16 weeks. If the study had reached a saturation point earlier than the 16-week mark, the study would have been terminated accordingly.

The researcher was the sole investigator on this project. Surveys were distributed via electronic mail to maintain expediency and anonymity among the participants (Skulmoski, Hartman, & Krahn, 2007). Though the initial survey was piloted with the ACTC Workforce Solutions Team, subsequent surveys were

reviewed by the doctoral advisor and an ACTC colleague. The purpose of the review was to provide oversight and support to the researcher.

The data gathered from the surveys was analyzed during the research process by coding electronic mail responses to develop themes. Naturally recurring themes in the responses regarding the subject were coded and reported back to the participants for clarity and confirmation. A final code was selected to be placed within the descriptive model. The expectation was a final narrative to be developed for future action or research in healthcare information technology as a viable career pathway for Eastern Kentucky.

Role of the Participants

Though known to the researcher, using the structured communication of the Delphi technique allowed the participants to remain anonymous within the process. Participants provided more candid and honest responses because they were influenced by ideas rather than by roles within the community. The anonymity also reduced episodes of question bias or participant bias since participants only saw the collective responses. A disadvantage of the Delphi technique is addressed in this process. Sackman (1975) indicated anonymity might lead to a loss of accountability by the participants. In this study, the participants were known to the researcher, but not to each other.

Role of the Researcher

The researcher collected and reviewed the survey responses, identified commonalities, and conflicting opinions, as well as reducing any lengthy responses

into single thought statements. The statements were then distributed to the participants for review and further opinion until a consensus or a pre-determined endpoint was reached.

The researcher is the director of Workforce Solutions at ACTC and will collect and analyze the data. The role requires the researcher to explore new avenues for economic and community development, but this can also lead to potential new revenue streams for the college. Participants knew the researcher and were able to contact the researcher with concerns or questions regarding the surveys or the study.

The researcher was born in Ft. Wayne, Indiana, in 1970, but moved to Northeastern Kentucky at the age of six. The researcher's parents and family live in the area or the state of Kentucky. Growing up in the region provided the researcher with a personal insight into how students may or may not be encouraged to participate in higher education. It was the goal of the researcher to provide ample opportunity for the students within the region to achieve success in the industries and fields of their choice. A popular industry for the region is healthcare because of the two major hospital systems in Boyd and Greenup counties, as well as numerous urgent care and nursing facilities. There are additional healthcare providers nearby in Ohio and West Virginia.

The researcher recognized that living in the area and having a direct influence on educational pathways could create biases that shape the study. Possible biases include confirmation, cultural, participant, and question. However, the researcher was also familiar with the historical and cultural settings of those affected by a lack of

high-wage, high-demand jobs in the region. This familiarity assisted with the interpretation of the context and setting. To avoid confirmation bias, the researcher used analyst triangulation to check the researcher's interpretive analysis (Patton, 1999).

Summary

Healthcare Information Technology is a growing field and is a potential high-demand, high-wage career pathway for future students in the region. Though the outcome of the Delphi technique in this study may be considered opinion, it is the opinion of regional experts. By starting the conversation about educational development locally, members of business and industry and the community were engaged from the outset. The researcher hoped to show the need for such a program is regionally accepted and desired.

Chapter Four

Findings/Identified Strategies and Products

This research attempted to determine if healthcare information technology is a viable career pathway for students in Northeastern Kentucky, and could such a program be developed and initiated and held within the region's community college system. The results of the questionnaires sent to an expert panel using the Delphi process, as described in the previous chapter, are covered within this chapter. The discussion includes both the data gathered and the analyses.

Participation

Nine of the 18 experts solicited agreed to participate in the study by completing the demographic questions in the solicitation email. The nine included six females and three males, all Caucasian. The participants ranged in age from 30 to 70 years of age, with three between the ages of 50-60 and four between the ages of 60-70 years of age. Of the participants, one holds a bachelor's degree, while five hold master's degrees and three hold doctorate degrees. All but two of the participants have the title of college faculty, college president, chief executive officer, director, and manager. Five are responsible for making decisions that affect the Northeastern Kentucky regions economic development. The remaining four are responsible for making decisions regarding curricula at their institutions but reside within the state of Kentucky. Two of the participants have over 40 years of experience in healthcare, and one has over 20 years of experience. During the research period, one participant left their position and relocated to another state.

Of the nine who committed to participate in the project, nine completed the first questionnaire, and seven completed the second. Only two completed the third round of the questionnaire and provided no statements to continue the conversation. The seven who completed Questionnaire 2 had completed Questionnaire 1. However, only two participants completed all three rounds.

The research sought a consensus among participants regarding the initial questionnaire. In subsequent questionnaires, the researcher sought agreement among the opinions provided by the participating experts. As this is a qualitative research method, the author will limit the emphasis on statistics and focus more exclusively on the descriptive nature of the consensus. A level of agreement meeting a minimum of 60% would be the consensus measurement, along with a composite score on a 5 point Likert scale meeting the “agree” or “disagree” range.

Questionnaire 1

For this questionnaire, participants were instructed to answer in as many statements as they wished to express a single thought. Participant statements were analyzed by the researcher as described in Chapter Three.

Seven of the nine participants answered the questionnaire. All participants concurred on each of the questions. After processing their responses, there were 30 statements as a result of Questionnaire 1. These statements were grouped into four categories as follows; (1) general statements; (2) statements about the field of HIT; (3) statements regarding educational delivery methods; (4) statements providing new aspects for future research.

The first category, general statements, consisted of those statements that could not be considered rateable statements. These statements included participant admissions of limited expertise or were just simple statements. These statements were not negative to the research but did not further the research discussion.

Examples of general statements are as follows:

“Yes, HIT is a viable career pathway.”

“I’m not as familiar with Northeastern Kentucky.”

Statements contained within categories two through four were considered rateable and were used as the foundation for inquiries in Questionnaire 2. Comments regarding the field of HIT focused on the diversity of the field. As one participant stated:

“Diverse career opportunities include working at home, traveling, climbing the healthcare corporate ladder, opportunities growing in data analytics, clinical documentation improvements, revenue cycle management, privacy and security standards, and education.”

The above citation demonstrates the flexibility in career opportunities this educational path presents for students and is supported by the literature on the subject.

The third category statements about educational delivery methods differed on what area should have ownership of the education. One participant stated programs accredited by the Commission on Accreditation for Health Informatics and Information Management Education (CAHIM) should be used with Information Technology (IT) vendors support. Another participant felt altering existing IT

programs to include a healthcare focus would be beneficial. A third participant recommended either using an existing program or creating one.

Descriptive statistics for the four questions in Questionnaire 1 showed agreement amongst the responding participants. Question 1 and 3 showed the highest levels of agreement with a dichotomous response of yes by each participant.

The final category of statements provided new insights for future research. These statements centered on the need for broadband or high-speed internet access for the program to be successful. The researcher determined these statements were an important aspect of the discussion. Particularly in rural communities, this may be a beneficial avenue of future research on the subject.

Questionnaire 2

Participants were instructed to rate the statements culled from Questionnaire 1, then add comments or insights in as many statements as they wished in order to express a single thought. Participant statements were analyzed by the researcher as described in Chapter Three.

Four of the nine participants responded to Questionnaire 2. The participants were in agreement there is a specific need for this area of healthcare in Northeastern Kentucky and a 20% increased demand for HIT positions will continue through 2020. Further, they agreed broadband is a necessity for working remotely in the field of HIT and that a community college 2+2 approach with a local university would be best. Participants also agreed CAHIM accredited programs were the most viable, with a quarter of respondents believing IT programs could be altered and a quarter believing

this should be focused on healthcare programs. The remaining 50% were neutral on where HIT should be housed.

Of the four respondents, only two made statements regarding their ratings. One made only general comments (considered unrateable), and one responded in both unrateable and rateable comments. No statements met the criteria for Category Four and future research.

Category One general statements included an admission of unfamiliarity with CAHIM standards and the statement “This MUST happen.” Another series of general statements discussed the semantics of the wording “should all” in the question regarding the HIT program and if it should allow a student to earn a national credential. This series of statements can best be summed in the participant's quote “A graduate can take the exam or not take it. They don't need my permission.”

Only one statement met the requirements of Category Two and the field of HIT. The statement regarded Northern Kentucky and its opportunities for work with insurance companies, long-term care facilities, coding and billing companies, and large physician practices.

The remaining statements were all in regards to educational delivery, or Category Three. These statements were made by the same participant and indicated the education needs to be healthcare-based through CAHIM standards rather than IT based. The participant stated few software vendors provide access to their programs for training purposes.

Descriptive statistics for Questionnaire 2 show full agreement on only one statement (Appendix K). Statement 7 was the singular response with a mean of 5. Statements 1, 2, 3 showed the next highest level of agreement with a matching median, mean and mode of 4.75. The standard deviation for each of the three statements was .43. Statement 6 had a mean of 4 while statements 4 and 5 had a mean of 3.25 and 2.75 respectively. The standard deviations for these three statements ranged from 1.0 to 1.7. The ranges do not indicate a serious deviation since all are under 2 percent.

Questionnaire 3

Questionnaire 3 contained the results of survey one and two. Participants were instructed to rate the statements culled from Questionnaire 2, then add comments or insights in as many statements as they wished in order to express a single thought. Participant statements were analyzed by the researcher as described in Chapter Three.

Only two of the nine participants responded to Questionnaire 3. The participants were in agreement that CIT programs at local Community and Technical College's should alter existing programs to include training on EMRs/HER. However, one participant agreed that it could also be housed under existing healthcare programs while the other remained neutral.

Participants were also asked to share their opinion on the greatest need within HIT subfields: data analytics, clinical documentation, revenue cycle management, privacy and security, or other (with space for participant input). Only one participant

selected a response which was clinical documentation. Neither participant made statements regarding the questions or their responses.

Appendix L shows the descriptive statistics for Questionnaire 3. Since only two participants responded to this questionnaire, the median, mean and mode do not reflect a full telling of the story. Statement 1 had the highest level of agreement with a mean of 4.5. The standard deviation for each of the three statements was 1. Statement 2 had a mean of 4 with a standard deviation of 2. Based on the data alone the ranges do not indicate a serious deviation since all are at 2 percent or less.

Chapter Five

Conclusions, Actions, and Recommendations

The purpose of this study was to discover “Is healthcare information technology a viable career pathway for students in Northeastern Kentucky that can be supported by developing and initiating a suitable educational or training program in the region’s community colleges?” The answer to this research question is yes. Not only is healthcare information technology a viable career pathway, but its education can also be facilitated through regional community and technical colleges. The need for new career pathways will help retain students in the area and support local economic development. This pathway, in particular, would be beneficial because of the number of hospitals, nursing facilities, private doctors’ offices, and other healthcare providers in the Northeastern Kentucky region.

Furthermore, the discovery from this research highlights the need for more discussion between experts in the fields of education and economic development. Though the educators who participated in this study had more expertise in subject matter, the economic development personnel participated in each round of the study. This discrepancy of knowledge versus participation makes it difficult to ascertain specifics.

A collaborative effort between education and economic development could make the introduction of new programs to local community colleges more efficient. Educators need to serve as subject matter experts for the training aspect to help support economic development staff in bringing new jobs to a region. Workforce and

economic development staff should include education at the front-end of any new industry recruiting effort. Conversely, education needs to make workforce and economic development staff aware when new education programs and pathways become available. This is of particular importance when a state is served by a community college system. By working in tandem, it is the researcher's opinion that resolutions to economic development questions would be answered more expediently.

Actions

Future research should examine the necessity of access to broadband or high-speed internet to perform HIT work from home. This research could help communities discover other potential career pathways for those who wish to be contract employees. There is a risk that the lack of access to affordable broadband would limit the ability of students to pursue HIT education. The potential exists for such studies to help communities make collaborative determinations for new educational and career pathways to assist in economic development.

Broadband & Health Care, an article on the Federal Communications Commission (n.d.) Broadband.gov page, projects a potential \$700 billion savings for the healthcare industry and consumers with the use of broadband. Unfortunately, the United States currently does not have the appropriate infrastructure, particularly in rural areas. Lack of access to broadband is a particular problem in rural areas like Northeastern Kentucky.

To remedy the problem of access the federal government has plans to become more active in advancing access with changes to the Rural Health Care Program as

part of the National Broadband Plan. The Rural Health Care Program (Federal Communications Commission, 2016) targets rural areas to provide funding for the improvement of telecommunications and access to broadband. Those eligible to participate in the Rural Health Care Program include post-secondary educational institutions.

Other recommended research would be in introducing HIT as part of a meta-major process. The meta-major model includes introductory or general courses in a variety of fields that assist undeclared students in narrowing down to a specific career pathway. The Education Advisory Board (EAB) developed their Meta-Major Taxonomy for community colleges to use in helping students better match their interests to degrees or certifications. Students can become overwhelmed with the number of program options available to them upon reaching college. The goal of the Meta-Major Taxonomy is to reduce frustration and confusion for students. Through meta-majors, students are able to match interests to sample degrees, the skills required to complete the program, and standard employment options available within a program (Education Advisory Board [EAB], 2017).

KCTCS is currently developing a student success collaborative using meta-majors. In addition to the EAB recommendations, KCTCS is encouraging participation by local business and industry to make sure the meta-majors match the needs of the employers. The guiding of intentional academic decisions may minimize the number of students who switch majors, which can cause significant delays in their completing if it is after their second year (EAB, 2017).

Recently, West Kentucky Community and Technical College (WKCTC) added health science technology (HST) as a meta-major to their Accelerate You! (AY!) program (Teague, Heflin, & Henderson, 2016). The AY! program is designed for developmental students who are interested in pursuing occupational or technical degrees. Undeclared students are enrolled in college-level classes, receive one-on-one success coaching and must complete a first-year experience class. The first-year experience class promotes a better understanding of the college environment, as well as behaviors and skills that can lead to academic success.

Recommendations

It is recommended that communities consider the use of a Delphi model to begin the conversation for improved economic and workforce development. The model allows for members within the community to share their opinions on a topic without interrupting their day-to-day schedules. The model also provides much needed anonymity so the participants do not influence opinions. Participants also seemed comfortable to admit when they were unfamiliar with a concept or lacked expertise in a particular area.

This particular study used a small sample size, but it was selected purposively. As discussed in Chapter 3, sample size is not an issue by itself in this type of study. However, a larger study should be considered to build upon the conversation started with this study and determine the future of HIT in Northeastern Kentucky.

Involving internal and external partners such as workforce and economic development groups for soft skill education, as well as local businesses and industry

to reinforce jobs available and employee needs, could promote career selection by undeclared students at an earlier stage of their education. The involvement of these groups early in the process could also open up funding avenues, as different partners may be eligible for different funding pools.

This study took place over a five-month period that was initially intended to be three months. The researcher encountered a major health issue midway through the research period. The issue delayed the final round of the study for two months. The delay may have inhibited the participation of some who had initially agreed to the initial shorter timeline of the study. The standard deviation of question 2 in Questionnaire 2 may have indicated the start of a serious deviation, but with the low response rate it is difficult to surmise if it is an actual trend in the data. It is the researcher's opinion that a shorter timeframe will improve results of future studies.

Summary

Healthcare is a field where innovation is essential. The evolution of healthcare information technology is positioned to improve the American healthcare system, particularly in terms of improving patient outcomes and costs. The strategic objectives of the American Health Information Management Association (AHIMA), an organization of HIT professionals, align with this future. The AHIMA encourages collaboration to achieve accurate and secure information in informatics, information governance, healthcare information management educational and career pathways, and patient engagement (AHIMA, 2017).

Northeastern Kentucky has the opportunity to promote improved health care

and job access to its citizens with the introduction of healthcare information technology education to the region. This research hints at a brighter future. That future requires a conversation between business, education, and industry. The conversation could create a potential new pathway for current high school students, displaced workers, and others seeking to work in a high-demand and high-pay industry without having to move to central or northern Kentucky to do so.

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Appendix A

Dr. Adkins Endorsement Email

I write this letter on behalf of Karen Coburn, a doctoral student in the Adult and Higher Education program at Morehead State University. Karen is also the Director of Workforce Solutions at Ashland Community and Technical College.

In the material that follows, Karen is asking for your participation in a study concerning the potential for a new program at the college, Healthcare Information Technology or HIT. Though there is literature to support the success of such a program, we need your help to ascertain if this is an appropriate career pathway for Northeastern Kentucky. The project consists of a few brief and focused surveys which asks you to provide and rate your opinions regarding this career pathway. Your involvement in the project is expected to last approximately two months.

I encourage you to participate in this interesting research project.

Thank you,

Dr. Kay Adkins
President and CEO
Ashland Community and Technical College

Appendix B

Dr. Nabb Endorsement Email

Dear Participant,

I write this letter on behalf of Karen Coburn, a doctoral student in the Adult and Higher Education program at Morehead State University.

In the material that follows, Karen is asking for your participation in a study concerning the potential for a new program at the college, Healthcare Information Technology or HIT. Though there is literature to support the success of such a program, we need your help to ascertain if this is an appropriate career pathway for Northeastern Kentucky. The project consists of a few brief and focused surveys which asks you to provide and rate your opinions regarding this career pathway. Your involvement in the project is expected to last approximately two months.

I encourage you to participate in this interesting research project.

Thank you,

Dr. Lee Nabb
Assistant Professor, Foundational and Graduate Studies in Education
Morehead State University

Appendix C

Participant Welcome/Confirmation Letter

Greetings [Title and Name]:

You have been identified as an “expert” (i.e. knowledgeable) in workforce, healthcare, and/or healthcare education in Eastern Kentucky. As such, I would like to ask for your participation in a study that seeks to answer the question “Is healthcare information technology a viable career pathway for students in Northeastern Kentucky that can be supported by developing and initiating a suitable educational or training program in the region’s community colleges?”

In accordance with the methodological protocol, your participation will remain confidential. If you choose to participate, you may quit at any time. Those experts who participate to the completion of the study will receive a gift in appreciation of your efforts.

The study will use the Delphi technique, a research method where a group of experts probe a question or issue through structured communication. The process will consist of a series of surveys to which each group member will respond. The entire group will then receive controlled feedback from me to further consider. The first survey will solicit your thoughts and opinions on the research question. Subsequent surveys will contain feedback on personal and group responses and you will be asked to rate synthesized statements determined from the evaluation of the first survey. The study should consist of three to five survey rounds. Each survey should take no more than 15 minutes to complete, and you will have substantial time to deeply consider your responses (two weeks per round) before submission.

The primary communication tool for this study will be via QuestionPro email. However, if you are uncomfortable with this communication tool, we can discuss an alternate process of your choice (post mail, facsimile, telephone, in-person meeting).

If you are interested in participating in this interesting research, please complete the following form and return it to me (karen.coburn@kctcs.edu or hit reply). Please contact me with any questions or concerns by email or telephone at 606-326-2129. I thank you and appreciate your consideration.

Sincerely,

Karen L. Coburn
Doctoral Candidate
Morehead State University

Study Agreement

I have read the information above and agree to participate in this study. I understand that my personal identity and the information I provide will be kept confidential and that I can quit at any time.

Electronic Signature (type your name above if you agree)

Mailing address (including name):

Preferred email address:

Please provide a short biography:

Demographic Information (Please select one):

What gender do you self-identify as?
(Male; Female; Other)

Are you Hispanic or Latino of any race?
(Yes or No)

What race do you identify as? (May select more than one option)
(Native American or Alaska Native; Asian; Black or African American; Native Hawaiian or other Pacific Islander; White; Other or Race/Ethnicity Unknown)

Please select your age range:
(20-30; 30-40; 40-50; 50-60; 60-70; 70-80)

What is your current level of education?
(High School or GED; Some College; Associate Degree; Bachelor's Degree; Master's Degree; Doctorate Degree)

What is your current title or role in your organization?
(Supervisor, Manager, Director, CEO, President, Faculty, Other)

How long have you been in your current role?
(1-5 years; 6-10 years; 11-15 years; 16-20 years; More than 20 years)

Appendix D

Workforce Solutions Peer Team Email

Colleagues,

I am developing a Delphi study (consisting of several survey rounds to a group of experts) for my capstone project. I would like to your objective feedback concerning my initial close-ended questions that will be provided to the expert panel in the first round. My intention is to investigate the development of a sustainable career pathway for Northeastern Kentucky. The question for you is: are the questions clear and free from personal bias? Do you have suggestions or recommendations for additional questions? The research question I intend to ask is as follows:

“Is healthcare information technology a viable career pathway for students in Northeastern Kentucky that can be supported by developing and initiating a suitable educational or training program in the region’s community colleges?”

Thank you very much for your time and consideration on this project.

Sincerely,

Karen L. Coburn
 Doctoral Candidate
 Morehead State University

Director of Workforce Solutions
 Ashland Community and Technical College

Round 1 Questionnaire
Is healthcare information technology a viable career pathway?
Would it be a viable career pathway for students in Northeastern Kentucky?
Can it be supported by developing and initiating a suitable educational or training program?
Could this be done in the region’s community colleges?

Appendix E

Delphi Questionnaire One – Healthcare Information Technology Viability
By Karen L. Coburn

Hello and welcome to the initial survey for the Coburn Doctoral Study on Healthcare Information Technology.

In this survey, you will be asked to answer in as many singular statements -- one sentence, one idea statements - to questions about Healthcare Information Technology. It will take approximately 10 minutes to complete the questionnaire. You have until Friday, September 23, 2016, to complete the survey.

Your participation in this study is completely voluntary. There are no foreseeable risks associated with this project. However, if you feel uncomfortable answering any questions, you can withdraw from the survey at any point.

Your survey responses will be strictly confidential, and data from this research will be reported only in the aggregate. Your information will be coded and will remain confidential. If you have questions at any time about the survey or the procedures, you may contact Karen Coburn at karen.coburn@kctcs.edu or 606-326-2129.

Thank you very much for your time and support. Please start with the survey now by clicking on the **Continue** button below.

Round 1 Questionnaire
Is healthcare information technology a viable career pathway?
Would it be a viable career pathway for students in Northeastern Kentucky?
Can it be supported by developing and initiating a suitable educational or training program?
Could this be done in the region’s community colleges?

Appendix F

Midway Email Reminder

Greetings,

This email is a friendly reminder that you have one week to respond to the Delphi questionnaire by Friday, September 23, 2017. Please do not hesitate to call me if you have any questions or concerns regarding the questionnaire. I can be reached at karen.coburn@kctcs.edu or via phone at 606-326-2129.

Sincerely,

Karen L. Coburn
Doctoral Candidate
Morehead State University

Appendix G

Two Day Notice Reminder

Greetings,

This email is a friendly reminder that you have two days left to respond to the Delphi questionnaire by Friday, September 23, 2017. Please do not hesitate to call me if you have any questions or concerns regarding the questionnaire. I can be reached at karen.coburn@kctcs.edu or via phone at 606-326-2129.

Sincerely,

Karen L. Coburn
Doctoral Candidate
Morehead State University

Appendix H

Delphi Questionnaire Two – Healthcare Information Technology Viability By Karen L. Coburn

Hello and welcome to the round two questionnaire for the Coburn Doctoral Study on Healthcare Information Technology. I thank you again for your willingness to participate in this study and your responses to Questionnaire 1.

In this survey, you will rate a series of statements using a Likert scale. Space is provided for you to comment (in singular statements) after each rating.

It will take approximately 20 minutes to complete the questionnaire. If you encounter any issues with the survey website, you may send your responses directly to my email at karen.coburn@kctcs.edu. You will have until *Tuesday, October 17, 2016*, to complete the survey. **Deadline extended to Friday, October 28, 2016.**

Your participation in this study is completely voluntary. There are no foreseeable risks associated with this project. However, if you feel uncomfortable answering any questions, you can withdraw from the survey at any point. It is very important for us to learn your opinions. Your survey responses will be strictly confidential, and data from this research will be reported only in the aggregate. Your information will be coded and will remain confidential. If you have questions at any time about the survey or the procedures, you may contact Karen Coburn at 606-326-2129 or by email at karen.coburn@kctcs.edu.

Thank you very much for your time and support. Please start with the survey now by clicking on the **Continue** button below.

Section One

This section consists of results culled from Questionnaire One that you may want to consider as you answer the next section. When you read these, please move to the next section.

- 100% respondents agreed HIT is a viable career pathway.
- 100% respondents agreed HIT is a viable career pathway for students in Northeastern Kentucky.
- 100% respondents agreed HIT can be supported by the development and initiating of a suitable educational or training program.
- 100% agreed the program could be done in the region's community colleges.

Section Two

Section Two consists of rateable participant statements from Questionnaire One. Please rate these statements on the Likert scale of 1 for Strongly Disagree to 5 for Strongly Agree. Space has been provided for comments. Please make your comments in as many one sentence responses as you wish. Be sure each statement completes a single thought.

Round 2 Questionnaire				
Strongly Disagree				Strongly Agree
1	2	3	4	5
Please rate the following statement:				
The need for this specific of healthcare is increasing in Northeastern Kentucky.				
Rate: 1 __ 2 __ 3 __ 4 __ 5 __				
Comment:				
Please rate the following statement:				
Healthcare Information Technology positions are expected to increase by 20% through 2020.				
Rate: 1 __ 2 __ 3 __ 4 __ 5 __				
Comment:				
Please rate the following statement:				
High-speed Internet or broadband is required for remote work in the HIT field.				
Rate: 1 __ 2 __ 3 __ 4 __ 5 __				
Comment:				

<p>Please rate the following statement:</p> <p>The Commission on Accreditation for Health Informatics and Information Management Education (CAHIM) accredited programs would support HIT most likely with IT vendors who support EMRs, etc.</p> <p>Rate: 1__2__3__4__5__</p> <p>Comment:</p>
<p>Please rate the following statement:</p> <p>HIT can be supported by altering existing IT programs to include a healthcare focus.</p> <p>Rate: 1__2__3__4__5__</p> <p>Comment:</p>
<p>Please rate the following statement:</p> <p>The HIT program should allow a student to earn a national credential.</p> <p>Rate: 1__2__3__4__5__</p> <p>Comment:</p>
<p>Please rate the following statement:</p> <p>It would be wise to partner with a local university for a 2+2 approach.</p> <p>Rate: 1__2__3__4__5__</p> <p>Comment:</p>

Appendix I

Delphi Questionnaire Three – Healthcare Information Technology Viability
By Karen L. Coburn

Hello and welcome to round three of the Coburn Doctoral Study on Healthcare Information Technology. I thank you again for your willingness to participate in this study. Due to an unexpected health issue, I was unable to send this survey before the end of 2016. I hope each of you will be able to continue your participation.

In this survey, I will share results of the previous two surveys. You will then rate a series of statements using a Likert scale. Space is provided for you to comment (in singular statements) after each rating.

It will take approximately 20 minutes to complete the questionnaire. If you encounter any issues with the survey website, you may send your responses directly to my email at karen.coburn@kctcs.edu.

You will have until *Tuesday, January 17, 2017*, to complete the survey.

Your participation in this study is completely voluntary. There are no foreseeable risks associated with this project. However, if you feel uncomfortable answering any questions, you can withdraw from the survey at any point. It is very important for us to learn your opinions. Your survey responses will be strictly confidential, and data from this research will be reported only in the aggregate. Your information will be coded and will remain confidential. If you have questions at any time about the survey or the procedures, you may contact Karen Coburn at 606-326-2129 or by email at karen.coburn@kctcs.edu.

Thank you very much for your time and support. Please start with the survey now by clicking on the **Continue** button below.

Section One

Please read the responses from the previous two surveys to refresh your memory on this research.

Questionnaire #1 Responses:

- Is healthcare information technology a viable career pathway? 100% Agree
- Would healthcare information technology be a viable career pathway for students in Northeastern Kentucky? 100% Agree
- Can healthcare information technology be supported by developing and initiating a suitable educational or training program? 100% Agree
- Could this program be done on the region's community colleges? 100% Agree

Questionnaire #2 Responses (created from Questionnaire #1 comments):

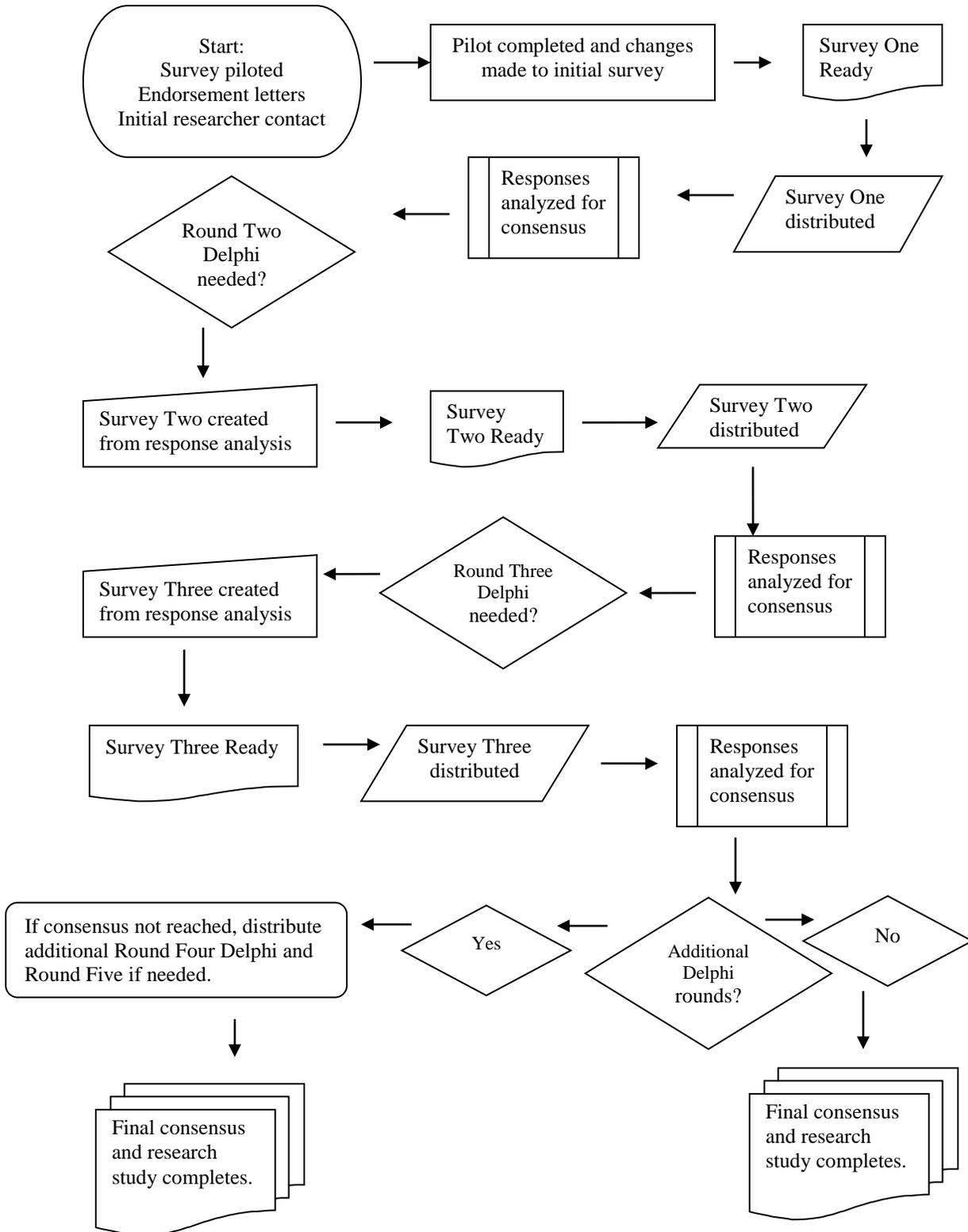
- 100% of those responding agreed the need for this specific area of healthcare is increasing in Northeastern Kentucky.
- 100% of those responding agreed that healthcare information technology positions are expected to increase by 20% through 2020.
- 100% of those responding agreed that high-speed internet or broadband is required for remote work in the HIT field.
- 75% of those responding agreed on the Commission on Accreditation for Health Informatics and Information Management Education (CAHIM) accredited programs would support HIT most likely with IT vendors who support EMRs, etc.
- 25% were neutral on the question.
- 25% of those responding agreed that HIT can be supported by altering existing IT programs to include a healthcare focus.
- 50% were neutral
- 25% believed healthcare should be the focus rather than adding IT components.
- 100% of those responding agreed a HIT program should provide a student the opportunity to earn a national credential.

Section Two

Section Two consists of rateable participant statements from Questionnaire Two. Please rate these statements on the Likert scale of 1 for Strongly Disagree to 5 for Strongly Agree. Space has been provided for comments. Please make your comments in as many one sentence responses as you wish. Be sure each statement completes a single thought.

Round 3 Questionnaire				
Strongly Disagree				Strongly Agree
1	2	3	4	5
Please rate the following statement:				
In your opinion, would local Community and Technical College's who offer CIT programs be able (and/or willing) to alter existing programs to include EMRs/HER for training?				
Rate: 1 __ 2 __ 3 __ 4 __ 5 __				
Comment:				
Please rate the following statement:				
In your opinion, would local CTC who offer HIT programs be able (and/or willing) to alter existing programs to include EMR/HER software training rather than include it in existing CIT programs?				
Rate: 1 __ 2 __ 3 __ 4 __ 5 __				
Comment:				
Please rate the following statement:				
In your opinion what is the greatest need within HIT subfields?				
Data Analytics __ Clinical Documentation __ Revenue Cycle Management __				
Privacy and Security __ Other __				
Comment:				

Appendix J



Appendix K

Questionnaire 2 Descriptive Statistics
(rounded to the nearest 10th of a point)

Question Number	Number of Respondents	Mdn	Mn	Md	Std. Dev.	IQR
1	4	5	4.75	5	.43	0
2	4	5	4.75	5	.43	0
3	4	5	4.75	5	.43	0
4	4	3.5	3.25	0	1.5	4
5	4	1.5	2.75	3	1.1	3
6	4	5	4	5	1.7	0
7	4	5	5	5	0	0

Mdn = Median

Mn = Mean

Md = Mode

Std. Dev. = Standard Deviation

IQR = Interquartile Range

Appendix L

Questionnaire 3 Descriptive Statistics
(rounded to the nearest 10th of a point)

Question Number	Number of Respondents	Mdn	Mn	Md	Std. Dev.	IQR
1	2	5	4.5	0	1	0
2	2	4.5	4	0	2	0

Mdn = Median

Mn = Mean

Md = Mode

Std. Dev. = Standard Deviation

IQR = Interquartile Range

VITA

KAREN L. COBURN

EDUCATION

- | | |
|-----------|--|
| May, 1993 | Bachelor of Arts
Morehead State University
Morehead, Kentucky |
| May, 2013 | Master of Arts
Morehead State University
Morehead, Kentucky |
| Pending | Doctor of Education
Morehead State University
Morehead, Kentucky |

PROFESSIONAL EXPERIENCES

- | | |
|--------------|---|
| 2001-2009 | Training Manager and Facilitator
Global Lead, LLC
Cincinnati, Ohio |
| 2009-2014 | Manager External Education Programs
Ashland Community and Technical College
Ashland, Kentucky |
| 2014-Present | Director of Workforce Solutions
Ashland Community and Technical College
Ashland, Kentucky |

HONORS AND AWARDS

- | | |
|------|--|
| 2015 | Member, Phi Kappa Phi |
| 2016 | 2015 - 2016 Outstanding Graduate Student (Ed.D) in Adult and Higher Education Leadership Program |

PUBLICATIONS

- Coburn, K. & Privott, D. (2017, March). Legal analysis: Sexual assault on campus.
In *Journal of Student Affairs*.