

The Pennsylvania State University

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**PERCEPTION OF 21ST CENTURY 4CS (CRITICAL THINKING, COMMUNICATION,
CREATIVITY & COLLABORATION) SKILLS GAP IN PRIVATE-SECTOR EMPLOYERS
IN LACKAWANNA COUNTY, NEPA.**

A Dissertation in

Workforce Education and Development

by

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ABSTRACT

A critical issue today for organizations is the lack of skills among the workforces. One of the main concerns for industries and organizations in the United States is how they plan to keep up with these shortcomings and be able to compete with fierce competition in a global market. The only rational and palpable answer to this concern is for the educational system and leading industries and organizations to start investing in preparing more students with not only essential academic and vocational skills but also in soft skills such as the 21st century 4Cs skills to meet the challenges of emerging businesses and technologies.

The purpose of this applied qualitative research is to examine, explore, and describe perceptions of private-sector employers operating from Lackawanna County, NEPA concerning the 21st Century 4Cs (*Critical Thinking, Communication, Creativity and Collaboration*) skills gap, which impacts their productivity. This research starts by introducing the overall issue of the soft skills gap, including the 4Cs skills in the United States and as a global issue for organizations and businesses by shedding light on the complexity of soft skills including 4Cs and the uses of them by organizations.

This research conducted a data-gathering process via interviewing participants, conducting coding, and recognizing emerged themes and subthemes, and finally arriving at several main themes that represent final findings related to the three main research questions. As a result of this research, there will be an introduction to emotional intelligence clusters and related competencies that connect to the main emerged themes.

In conclusion, this research indicates its suggestions and recommendations regarding the implications of those emerged themes and the emotional intelligence competency-based training for organizations, their current workforce, educators, trainers, and developmental programs.

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I am dedicating this work to my father Mr. Hossain Bakhshandeh, who always believed in me and my abilities; this one is for you Baba joon.

CHAPTER ONE

INTRODUCTION

The lack of skills and competencies among today's workforce is becoming a critical issue for national and international organizations. The 21st century industries are facing dramatic changes in business situations (Longmore, Grant & Golnaraghi, 2018). How is the United States planning to keep up with national and international job growth and locate the enormous volume of skilled talent required to replace the mass departure of baby boomers from the labor market? (Gordon, 2009). The only logical and obvious answer is that the United States educational system and leading organizations must start preparing more American students armed with the necessary education (academic and vocational) and skills in order to meet the requirements of a 21st century workforce, that is, one equipped with 4Cs and soft skills to fulfill these 21st century jobs (Gordon, 2009). The purpose of this qualitative study is to review the perception of 21st century 4Cs (*critical thinking, communication, creativity & collaboration*) skills gap in private-sector employers in Lackawanna county, NEPA.

In the new global economy, organizations are concentrating on providing excellent services, using up-to-date knowledge, technology and information. Having a skilled and competent workforce is becoming essential to organizations' and businesses' ability to successfully compete in their markets and even to survive the fierce national and global competition (Boyles, 2012; Longmore et al., 2018). This increasing demand for recruiting and obtaining skilled and competent employees has shed light on the importance of workforce development with a college education. Current research has revealed that even recently employed college graduates don't have the necessary skills which employers require for their organizations' compatibility and sustainability (Boyles, 2012).

Twenty-first-century employers are looking for the workforce with 21st century skills such as Critical Thinking, Communication, Collaboration, and Creativity. These skills are known as 4Cs, as you can see at the Figure 1.1 below:

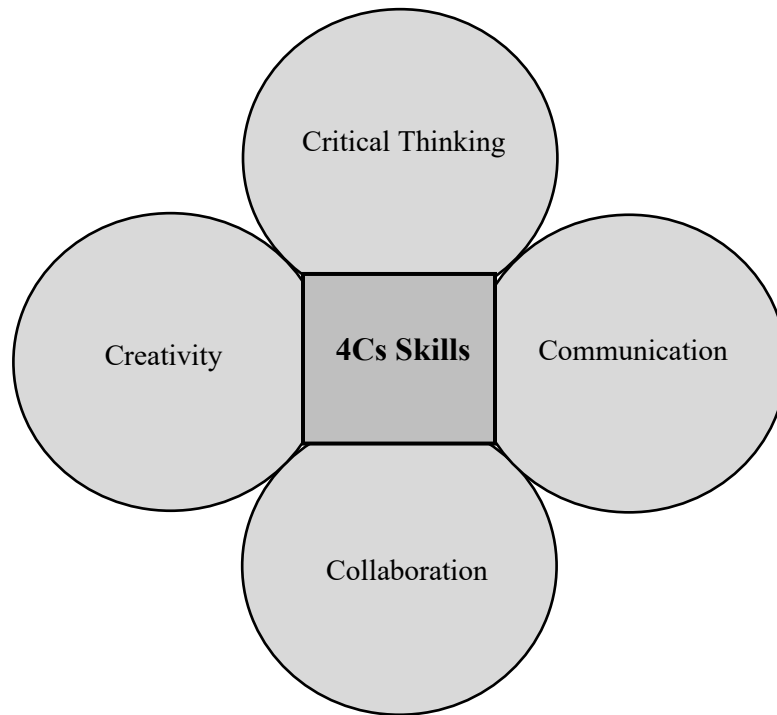


Figure 1.1. The 21st century 4Cs skills model display

In addition to the 4Cs, soft skills are vital and necessary for the 21st century's workforce development and effectiveness. As part of soft skills, interpersonal competencies are essential in establishing a healthy work environment (Handley, 2017). According to Handley (2017), it is challenging to define interpersonal competencies due to its intricacy and vagueness of conceptualizing. It is hard to pinpoint the broad concepts of interpersonal competencies into one or two descriptions. Commonly, efforts to describe or explain the interpersonal competencies usually contrast in terminology and fundamental characteristics of studied concepts (Handley,

2017). Certain terminologies attempt to describe interpersonal competencies which are trait characteristics, such as emotional intelligence, social intelligence, communication ability, management interaction ability, composure and many more which are fundamental features of motivation, knowledge, and skill (Handley, 2017). Simply said, it is very difficult to pinpoint the definition of soft skills to only interpersonal skills or people skills.

Academic and educational establishments, such as high schools, colleges, and technical vocational institutes should modify and adapt their curriculums to face this critical need by including the 21st century skills as part of their education (Martz, Hughes & Braun, 2016). Twenty-first century organizations are looking for a workforce with not only technical competencies or subject-matter expertise but also with modern skills, such as critical thinking, initiative, problem-solving, adaptability, agility, communication, and the ability to collaborate with others (Longmore et al., 2018; Martz et al., 2016; Soulé & Warrick, 2015). Studies have revealed that because of these essential professional needs, business education systems are facing criticism for failing to develop a workforce to meet the 21st century demand on skilled labor (Longmore et al., 2018). The above information and findings of essential needs (critical thinking, initiative, problem-solving, adaptability, agility, communication, and collaborative ability) would assist in a more in-depth understanding of the impact of “Workforce Skills Gap in 21st Century Skills” in the United States. In addition to those modern skills, skills training is typically separated into two main groups: hard skills and soft skills. The hard skills usually refer to more of the tasks, technical and administrative aspects of a business while soft skills refer to individuals’ attitudes, personal behaviors, and social/interpersonal habits (Ibrahim, Boerhannoeddin & Bakare, 2017). Soft skills are the skills that when added to hard skills would make someone competitive in business and desirable for hiring and promotion at work. “It is

often said that hard skills get one a job, but soft skills keep one in the job” (Ibrahim et al., 2017, p. 389).

In today’s labor market, there is a recognizable issue facing educational institutes and employers. Regardless of high school graduates’ plans to enter the labor market directly after graduation or after going through vocational schools or obtaining a college degree, in order to be a productive member of an organization or even to be considered as a new hire, they need to demonstrate specific abilities. They need to have strengths and skills to think critically, be creative and have competencies to communicate effectively and solve problems in their workplace, as well in their lives in general (Soulé & Warrick, 2015; Martz et al., 2016). Soulé and Warrick (2015) stated that “These are today’s survival skills—not only for career success but also for a quality personal and civic life” (p. 178). Given the importance of 21st century skills (4Cs) and soft skills, there are many studies (Soulé & Warrick, 2015; Robb, 2017; Longmore et al., 2018) conducted to underline the impact of lacking abilities and competencies in general and 21st century skills (4Cs) notably. At the same time, there has been much research done (Longmore et al., 2018; Ibrahim et al., 2017; Martz et al., 2016; Soulé & Warrick, 2015) on the needs for further development of such skills, not limited to 4Cs, but also on soft skills and other skills needed by employers such as KSAs (Knowledge, Skills, Abilities). One such research and proposal is the *P21 Model 2009* (“Partnership for 21st Century Learning”, n.d.), a 21st century learning framework which is helping practitioners integrate these skills in schools to make learning about these skills more relevant to students’ future endeavors in higher education as well as in employment. This framework model has been used by thousands of educators across the United States and by international educators, implementing a mix of specific skill sets, content knowledge, competencies and literacies among other traditional learning subjects for

students' advantage (Soulé & Warrick, 2015). Soule and Warrick (2015) gave credit to the concept of "Framework for 21st Century Learning" as it has been characterized as an influential resolution for integrating learning for today's demands on students and the labor force in their day-to-day lives at home and more broadly as a member of society as a whole. All available and future research on 21st century skills would provide empowering knowledge to use in recognizing the impact of "Workforce's Skills Gap in the 21st Century" in the United States, in the state of Pennsylvania, and especially in Lackawanna County.

Background of the Study

Organizations and businesses began to face a dramatic alteration in business concepts and the environment in the 21st century as compared with previous decades; they were forced to adopt a whole new learning process to stay competitive and thrive in this new environment (Longmore et al., 2018; Soulé & Warrick, 2015). As a result of these shifts in the business and market environments, organization leaders became more interested in a workforce with more than technical competencies and knowledge of their trade (Longmore et al., 2018). Highly valued traits included the ability to demonstrate critical thinking, to be able to communicate effectively, to access creativity to resolve issues and be interested in collaborating with others (Longmore et al., 2018; Soulé & Warrick, 2015). These competencies and skills are the foundation for a workforce capable of problem-solving, providing initiatives and practicing adaptability in their workplace (Longmore et al., 2018). According to the *2010 Critical Skills Survey* conducted by the *American Management Association (AMA)*, some 2,115 executive and senior manager participants ranked communication and critical thinking skills as the first and second most essential skills in their organizations, as well as the top two skills needed when looking for new hires (Martz et al., 2016).

As Tulgan (2015) pointed out, the young workforce has many qualities to offer to organizations such as new ideas, positive energy, technical abilities, and fresh perspectives. However, given their lack of soft skills, so many of them are not able to connect with the older generation, and this disconnect is causing friction in the workplace. What Tulgan (2015) referred to as soft skills are many non-technical skills known as people skills, teamwork, self-awareness and more. In addition to those aforementioned soft skills, Robles (2012) added the following elements which refer to the top ten attributes for which business executives are searching in their new or existing workforce: “integrity, communication, courtesy, responsibility, social skills, positive attitude, professionalism, flexibility, teamwork, and work ethic” (p. 453). There may be confusion and ambiguity about what soft skills are. This confusion is understandable given the variety of descriptions, explanations, and definitions of these skills. Charoensap-Kelly, Broussard, Lindsly, and Troy (2016) described soft skills as associated with emotional intelligence and place soft skills into categories such as self-regulation, self-awareness, empathy, motivation and social skills.

Furthermore, Charoensap-Kelly et al. (2016) linked soft skills to some career traits and skills such as communication, teamwork, problem-solving, leadership, and customer service. Very similar to Charoensap-Kelly et al. (2016), Levasseur (2013) described soft skills as classifications of skills and competencies such as self-awareness, communication, leadership, interpersonal skills, and collaboration. Levasseur (2013) linked these soft skills traits essential to and consistent with skills development and change management and organization management efforts. Anthony and Garner (2016) mentioned the large range of meanings and elements of soft skills and the distinct differences from hard skills and technical abilities. Anthony and Garner (2016) pointed at some personal characteristics and attitudes such as empathy, cooperation,

teamwork, listening, civility, professionalism, etiquette, motivation, civility, and social intelligence as what would fall under the umbrella of soft skills. Ibrahim et al. (2017) referred to soft skills as a collection of behaviors, habits, qualities, attitudes, social skills, and personality traits, which are needed for workability in a professional career as well as in life as a whole.

Regarding the importance of accumulating and developing soft skills to increase employability in Pennsylvania, the PACTT Alliance (2016) (Pennsylvania Academic & Career/Technical Training Alliance) provide the *Employability and Soft Skills Manual* which report 27 crucial competencies, within five general realms such as; 1) Career awareness and exploration, 2) Job search skills, 3) Job retention and career advancement skills, 4) Life skills and 5) Personal and social development skills. Interestingly enough the majority of these 27 competencies are covered under the definitions of 4Cs and soft skills. Furthermore, PACTT Alliance (2016) clarified that these competencies are not predestined to be all-inclusive to future employment, but they represented the minimum set of skills for which students need to be trained and have developed as their groundwork to a successful job.

It is clear that the workforce's technical abilities and skills, in addition to knowledge of their trades, are essential to any employer. However, it would be difficult for any employer to disagree with the importance of having employees armed with critical thinking, creativity, communication, and collaboration skills and competencies (Martz et al., 2016; Soulé & Warrick, 2015). One set of skills is not a substitute for the other (Martz et al., 2016). The 4Cs allow for the development of problem-solving abilities which are a base for other vital skills such as math, correspondence, and teamwork. Increasing an interest and a desire for these skills and abilities, along with an organization's attraction to recruits who exemplify these skills, make new and innovative educational programs and approaches for developing 4Cs in schools and colleges

more essential (Martz et al., 2016). To this point, there is robust criticism aimed at education systems and business education for not entirely succeeding in developing a skilled workforce with competencies able to fulfill the employers' demands with employees competent in the 21st century skills (Longmore et al., 2018; Soulé & Warrick, 2015). In today's fierce national and global competition, organizations that desire to survive, must arm their workforce with both soft skills and hard skills as requirements for training and development (Ibrahim et al., 2017; Soulé & Warrick, 2015).

The Purpose Statement

The purpose of this applied qualitative study is to examine, explore and describe perceptions of private sector employers operating from Lackawanna County, Northeastern Pennsylvania regarding the 21st Century 4Cs (*Critical Thinking, Communication, Creativity and Collaboration*) skills gap which is impacting their productivity. Alignment of the previously defined 4Cs skills with the productivity and professional growth desired by business and industry will provide a baseline for continuing analysis of the 4Cs skills gap.

The Direction of Study and Relevancy to the Purpose

This study and its literature review attempt to underline and understand how the lack of 21st century skills among the workforce in businesses and organizations has a negative impact and influence on increasing productivity and business sustainability. This study and its literature review will not only introduce the concept of 21st century skills but will also look at the role of 21st century 4Cs on employment, productivity, turnover and employer-employee relationships, especially in Lackawanna County in Northeast Pennsylvania.

Research Questions

The following were the three primary research questions used in guiding this study:

Research Question 1: What value is placed on 4Cs skills in an industry setting in Lackawanna County, NEPA?

Research Question 2: How do the 4Cs skills gap impact workforce team performance in an industry setting in Lackawanna County, NEPA?

Research Question 3: What 4Cs skills training and development would be effective for the labor pool in an industry setting in Lackawanna County, NEPA?

The 4Cs and Soft Skills in Context

To have a better understanding of 21st century 4Cs and soft skills, this paper will review general ideas and descriptions of critical thinking, creativity, communication, collaboration, soft skills, and people skills as part of soft skills. It is worth noting that the large variety of descriptions and definitions of soft skills among researchers and management professionals have been mentioned in the above segments of this paper. It is important to note that the state of Pennsylvania's definition of 21st century skills (4Cs) and soft skills do not differ from the general understanding and descriptions used nationally or internationally.

Critical Thinking

In explaining the meaning and definition of critical thinking, Moor (2013) conducted a study that examined notions of critical thinking from the context of academics from three disciplines: 1) philosophy, 2) history and 3) cultural studies. Furthermore, on a study conducted by Moor (2013) called *Critical Thinking: Seven Definitions in Search of a Concept*, Moor presented seven elements which described and defined critical thinking as "(i) judgment; (ii) skepticism; (iii) simple originality; (iv) sensitive readings; (v) rationality; (vi) an activist engagement with knowledge; and (vii) self-reflexivity" (p. 506). The Moor (2013) study was part of a research survey conducted in an Australian college, interviewing university students in a variety of disciplines such as history, philosophy, literary/cultural studies. Moor (2013)

intentionally selected these disciplines given their relevance to educational sagacity. Moor (2013) thought these meanings had significant implications on teachings & learning in schools and colleges. Critical thinking and problem-solving (as one of the outcomes of critical thinking) are qualities that employers look for in college graduates entering professional employment. In the year 2010, *American Management Association (AMA)* conducted a *Critical Skills Survey*, on 2,115 executives and senior managers, asking them to rank the top skills they are looking for when hiring new talent. Critical thinking was the second most desirable, with communication skills being the most desired (Martz et al., 2016). It is understandable that organizations are looking for new hires with technical skills and other qualities and abilities related to the job. However, for many employers, the concept of problem-solving is considered as critical as mathematical skills, written communication, and teamwork among their workforce (Martz et al., 2016). In the 21st century job market, these two sets of skills go hand in hand; they are not separate but encouraged to be used in conjunction with one another (Martz et al., 2016).

Creativity

According to Runco and Jaeger (2012), the typical definition of creativity is twofold: 1) originality, and 2) effectiveness. Some might ask whether both are necessary elements. For sure, originality is essential to creativity. If an idea, thought or act is not unique, unconventional or uncommon, then it is routine, conventional, unoriginal, and consequently, not creative. The second element is effectiveness which underlies the value of originality and creativity (Runco & Jaeger, 2012). Without the idea, thought or act of being effective and not producing the results that are expected from such creativity and originality, then it is not creative (Runco & Jaeger, 2012). Ahmadi and Besançon (2017) pointed at increasing interest during the last several years to implement creativity as a topic of study in schools. This interest is due to increased attention

in the importance of competencies and skills for the current and future workforce. However, some studies have looked at the difficulty teachers face in the integration of creativity in their classrooms due to overloaded class schedules that interfere with implementing 4Cs and the needed competencies (Ahmadi & Besançon, 2017).

Communication

Steinfatt (2009) expressed his view of communication and its vital role in human connectedness as follows: “The central thrust of human communication concerns mutually understood symbolic exchange” (p. 295). Steinfatt’s view of communication might not be accepted as a general definition of communication, but it sheds light on the importance of this essential skill. This is the way that Steinfatt (2009) explained the functions of communication and its elements of the message, channel and receiver, and its definition of communication. The concept of communication is used in many ways, from a simple description of conversing and connecting via language, to complex technological uses in information technology and everything in between (Steinfatt, 2009). However, in general, the term ‘communication’ is commonly referred to as transferring information from one person to another, in both personal or professional environments (Steinfatt, 2009). Given the human ability to converse and use language as a tool to communicate with others, the concept of communication is vital to human connection, especially for developing professional skills and teamwork in order to increase accuracy, save time and increase productivity (Steinfatt, 2009). Communication is one of the concepts that has been and continues to be the topic of many theories and research about the human connection (Jones, 2015a). From verbal to nonverbal, from visual to sounds, body language or sign language, all humans are communicating their intentions and messages. In today’s electronic and technological environment, digital methods of communication can help

individuals and organizations communicate swiftly, through vocal and visual communication platforms and apps (Jones, 2015a).

Collaboration

In addition to being one of the 21st century's skills, collaboration is also a style of teaching in classrooms. Most teachers and business organizations are interested in collaboration as a skill that would produce faster results among students in the classrooms and propose different solutions to a problem among working teams for businesses (Ahmadi & Besancom, 2017). Collaboration gives rise to diverse opinions, expresses different views and helps to resolve issues faster than just one person's ideas (Ahmadi & Besançon, 2017). However, Ahmadi and Besancom (2017) also argued that in spite of collaboration being credited as a vital element for developing creativity, there are few studies that underline the relationship between collaboration and creativity. According to Jones (2015b), in today's society, most students are mostly connected through their 'collaborators' such as tablets, smartphones, and social media platforms. Educators and organizations can harness this phenomenon and plan collaborative tasks among students or workforce by taking advantage of their digital awareness to create collaboration and faster productivity (Jones, 2015b). *The Global Digital Citizen Foundation* calls this a collaboration fluency, similar to teachers working with students on their fluency in other subjects like a foreign language, math, science, or creativity (Jones, 2015b). Jones (2015b) also added; "Simply put, better collaborators make better students—and better citizens" (p. 24). Either at their places of employment or from home connected with their colleagues or co-workers, neighborhoods and communities collaborating with others will benefit society without self-interest, bias or political and social agendas (Jones, 2015b).

Soft Skills

The exact source of the term *soft skills* is not apparent. The earliest reference to the use of this term goes back to 1972, when Fry and Whitmore researched the US Army, on the topic of leadership (Charoensap-Kelly et al., 2015). According to Charoensap-Kelly, et al. (2015), Fry and Whitmore (1972) clarified the term soft skills from a collection of research participants' responses, as "important job-related skills that involve little or no interaction with machines and can be applied in a variety of job contexts" (p. 155). Charoensap-Kelly et al. (2015) continued to explain that since the 1990s the concept of soft skills has been used and defined by many scholars. However, what is certain is that soft skills are related to emotional intelligence, characterized by five fundamentals such as "self-awareness, self-regulation, motivation, empathy, and social skills" (p. 155). Also, soft skills encompass some delegated professional characteristics such as "team skills, communication skills, leadership skills, customer service skills, and problem-solving skills" (p. 155).

People Skills as Relevant to Soft Skills

Robles (2012) explained the relationship between soft skills and people skills, by demonstrating that in today's society, when trying to describe soft skills, most people also refer to it as people skills which are a central factor of soft skills. Furthermore, Robles (2012) mentioned that *people skills* are the interactive characteristics that illustrate an individual's relationships with other people. He underlines it as one of the most important skills at work. Robles (2012) went further to explain; "While many authors equate interpersonal skills with soft skills, interpersonal skills are only one facet of soft skills" (p. 457). Alongside interpersonal skills, soft skills include other personal abilities and career traits such as an individual's time management skills, personality, and organizational skills (Robles, 2012). At the same time, professional and career traits can include leadership abilities, effectiveness in communication,

teamwork attitude, and customer service interests which are the foundation of effective customer service and retention (Robles, 2012).

Theoretical and Conceptual Framework

In any research, the theoretical and conceptual frameworks illuminate the pathways of the research and provide the theoretical and conceptual groundwork for credibility (Dickson, Emad, Adu-Agyem, 2018). While these two terminologies seem alike, they represent different concepts and play different roles in the research examination. Given these similarities, many students find it confusing and difficult to differentiate between these interrelated frameworks' roles in their studies (Dickson et al., 2018; Imenda, 2014). The general purpose of the theoretical and conceptual frameworks is to bring more meaning to the research findings and make them acceptable to the theoretical paradigms in the fields of research and study and warrants generalizability (Dickson et al., 2018; Imenda, 2014). These two frameworks improve the empiricism and consistency of the research while assisting in stimulating the inquiry process and ensuring the extension of information by providing direction. As Dickson et al. (2018) mention, "Thus, it is no exaggeration for Imenda (2014) to say that both the theoretical and conceptual frameworks give life to a research" (p. 438).

Theoretical Framework

The theoretical framework acts as the blueprint or guideline for research (Grant & Osanloo, 2014). It is founded on the current and prevailing theories in a field of inquiry, which is connected to and reflects the research questions or hypothesis (Grant & Osanloo, 2014). "The theoretical framework consists of principles, constructs, concepts, and tenants of a theory" (Grant & Osanloo, 2014, p. 13). Besides offering a pathway to the research inquiry, a theoretical framework provides many benefits to a research and study, such as assisting the researchers in

defining their research methodology, epistemology, philosophy, and analytics which would position their research in an academic and scholarly manner (Ravitch & Carl, 2016; Grant & Osanloo, 2014; Imenda, 2014).

Influence of external issues on developing 4Cs skills gap

The following display (Figure 1.2) represents some of theoretical framework and issues as related to influential forces such as family, society, policies, learning, educational system and organizations on apparent 4Cs skills gap among the labor market (please note that the order of issues on display is not in any order of importance or influence). This study will underline some of these external issues more than others in chapter two (Literature Review).

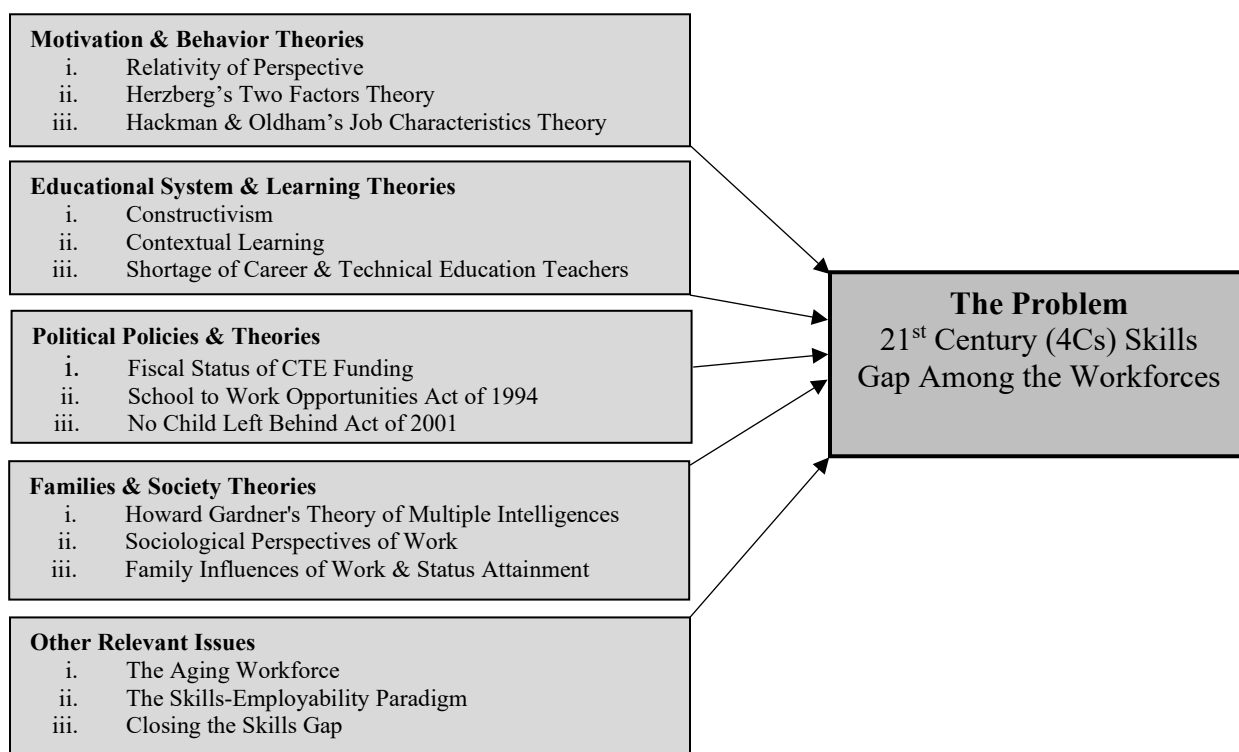


Figure 1.2. Model for the influence of external issues on developing 4Cs skills gap

Motivation & Behavior Theories. To begin with, let's look at the origin of the word *motivation*. Motivation is derived from the Latin word, *movere*, which means *to move*. To

simplify, *motivation* is the force which makes people act within or *moves* people to work in some way (Mitchell, 1997). According to Mitchell (1997) I/O (Industrial and Organization) psychologists described motivation as “those psychological processes involved with the arousal, direction, intensity, and persistence of voluntary actions that are goal-directed” (Mitchell, 1997, p. 60).

(i) Relativity of Perspective. This theory explains that each person is born into a specific family, culture, customs, tradition, and historical period. This theory believes these elements affect developing habits and understanding of the world, creates perception and feeds those views into the child’s mind and continues doing so even during adulthood (Mar, 2004). We are using this theory because people can make up their minds about punctuality not being essential or add some resistance about it since their childhood. As Mar (2004) underlined, the human mind is forced, compelled and capable of generating stories and tales based on interpretations and their view of reality the way they observe and make sense of them. Furthermore, Mar (2004) mentioned that these beliefs and realities are used by individuals in many personal and professional settings at home and in the workplace. One of the crucial elements of personal or professional productivity is having skills, and getting things done correctly, and in a timely manner. Therefore, if someone for any reason related to their past upbringing—their family, culture, or background—does not believe in developing and obtaining skills, it is influencing their level of punctuality.

(ii) Herzberg’s Two Factors Theory. This theory divides the work environment into two separate areas; Hygiene Factors, and Motivators: **a) Hygiene Factors** are elements connected to the job context and linked to the extrinsic characteristics of the job itself, such as

pay, employment benefits, structure of supervision, the employees' relationships with coworkers, and organizational procedures and HR policies (Herzberg, Mausner, & Snyderman, 1959).

b) Motivators are elements connected to the job content and deal with the intrinsic characteristics of the job, such as the degree of challenges, their direct responsibility at work, the level of autonomy, and options employees have in their position (Herzberg et al., 1959). In some cases, people who are not happy with some of these job characteristics will not care about providing skillful work. Herzberg et al. (1959) believed that these hygiene factors could not independently cause and source motivation among the workforce, regardless of how origination provides reasonable compensation or supportive management and a great work environment. In the best scenario, hygiene factors can only avert the workforce from getting dissatisfied with their working situation, not the opposite. Furthermore, Herzberg et al., (1959), explained their idea for motivating the workforce which would include organizations to offer suitable stages of motivators such as jobs which are more engaging and interesting, to provide more recognition and empowerment, to create a healthy challenging environment, and to appropriate high accountability and autonomy at work. From Herzberg's point of view, organizations should pay more attention to designing meaningful and rewarding jobs and work environments while looking to maintaining productivity and profitability (Herzberg et al., 1959).

(iii) Hackman & Oldham's Job Characteristics Theory. As Spector and Jex (1991) explained, job satisfaction is strongly linked to and determined by characteristics of work and jobs. Job satisfaction is connected to the characteristics of a job and affects the quality of workers' time at work and their productivity. The following five job characteristics are connected to job satisfaction: 1) skill variability, 2) task distinctiveness, 3) task significance, 4) autonomy and 5) feedback (Spector & Jex, 1991). However, some additional factors influence

job satisfaction such as 1) condition of work, 2) level of work stress, and 3) social relationships with co-workers (Spector & Jex, 1991). I have selected this concept given its direct correlation with job satisfaction and consequently, the workers' behavior while at work. This concept also can be used for the training and development of employees to be more engaged in their work. Like job satisfaction, job characteristics are other elements of creating a positive and productive job attitude. As Zhao et al. (2016) stated: "Job characteristics are the motivational dimensions that affect employees' experiences of meaningfulness, responsibility, and knowledge relating to work activities" (p. 27). These motivational dimensions are viewed as certain features that pronounce and quantify employees' job characteristics (Zhao et al., 2016). Clearly their job characteristics such as availability of skill variability, task distinctiveness, the level of task significance, work autonomy, and the potential feedback they are receiving (Spector & Jex, 1991), plus some additional factors such as work conditions, the level of stress and workload, and social relationships with co-workers (Spector & Jex, 1991) would have relevancy among individuals caring about being motivated or being careless about their work.

Educational System & Learning Theories. The following three teaching and learning models and theories have a direct impact on how younger generations are learning the skills and information in order to apply such skills to a real-life/work situation:

(i) Constructivism. Among educators, constructivism is known as a set of conventions in relation to the nature of human learning which directs constructivist learning philosophies, theories, and teaching methods, while valuing developmentally suitable teacher-supported learning models which originate from the students (Gordon, 2014). "The theory of constructivism rests on the notion that there is an innate human drive to make sense of the world" (Gordon, 2014, p. 391). According to Gordon (2014), in today's education system,

constructivist theories are vital to and influencing the information learning sector. As Parnell (1996) underlined, through the decades, the academic education position and philosophy has been “learning to know is most important; application can come later” (p. 19). Career technical education (CTE) professionals, Parnell included, indicate that “Learning to do is most important; knowledge will somehow seep into the process” (p. 19). The CTE professionals and teachers’ position is not to set up tasks for students, but relatively to establish experiences for them, which will allow students to grow their learning parameters and develop their own knowledge and understanding of the topic at hand (Gordon, 2014).

(ii) Contextual Learning. Gordon (2014) defined contextual learning as teaching and learning conceptions which would help teachers or facilitators link and create relevancy among the content of the subject-matter at hand with real-world situations and allow students to develop their own experience of how the subject-matter is working or not working in the real world (Gordon, 2014). According to Gordon (2014) some of the main strategies of contextual learning are problem-solving and critical thinking. Some research findings have displayed the fact that the abstract model of teaching and learning does not necessarily work for all students. As a matter of fact, most people learn through contextual experiences in informal settings and experiential environments (Gardner, 2006; Gordon, 2014).

(iii) Shortage of Career & Technical Education Teachers. According to Gordon’s (2014) study, between 1991 and 2001, there was at least a 10 percent decrease in higher education establishments offering CTE teachers’ training programs. Furthermore, some local and statewide communities are facing a concerning level of CTE teacher shortages and attributing it to the lack of CTE teachers’ programs in their states’ colleges and universities (Carl D. Perkins Career and Technical Education Act of 2006) (Gordon, 2014). Highlighting the National

Association of State Directors of Career and Technical Education (2012), Gordon (2014) asserted that the most shortages appear to be at the same three groups and industries, STEM (science, technology, engineering, and math), Health Science, and Manufacturing, which continue to face the maximum CTE teacher shortage in 2012 (Gordon, 2014). The updated version of Perkins Legislation was passed in 2018 (Strengthening Career and Technical Education for the 21st Century Act-Perkins V).

Political Policies & Theories. Local, State and Federal government policies and legislation and how they have been carried on or expanded have a direct impact on the availability of skilled labor in the workforce market. The following are just some examples of such policies:

(i) Fiscal Status of CTE Funding. The “Carl D. Perkins Vocational and Applied Technology Education Act of 1990”, amended and extended the “Carl D. Perkins Vocational Education Act of 1984” (Gordon, 2014). According to Baxter (2012), the Perkins Act is the main source of the budget, which supports local public vocational education programs for connecting the CTE and real-world careers for program participants. Additionally, CTE is providing an essential role in preparing the workforce and providing the necessary skills, knowledge, and competencies for them to become competitive in their labor market (Baxter, 2012).

Unfortunately, the Perkins Act budget/funding was cut and reduced to \$140.2 million in year 2011. This major budget reduction caused the elimination of the Tech Prep program in addition to \$37.3 million cutbacks for Basic State Grants (Baxter, 2012). Furthermore, Baxter (2012) estimated future cuts in funding and budget for CTE in the foreseeable future.

(ii) School to Work Opportunities Act of 1994. The School-to-Work Act (STWOA) was designed and approved by Congress to address the shortage of skilled workforce nationwide

by implementing an education model to develop a well-skilled workforce for the US economy by creating partnerships and connecting educators and employers (Gordon, 2014). The STWOA is designed to prepare students with the necessary competencies, skills, abilities, and information about professions and occupations that would prepare them for the labor market and shifting life from school to post-school employment in their local work market in partnership with local industries and organizations (Gordon, 2014).

(iii) No Child Left Behind Act of 2001. The No Child Left Behind Act of 2001 (NCLB) was signed by President George W. Bush in January 2002. This law was the reauthorization of the Elementary and Secondary Education Act (ESEA) (Gordon (2014). This law echoes an extraordinary consent on how the US education system will improve the performance of students on the elementary and secondary school levels. At the same time, one of the critical factors of this law is to ensure that no elementary or secondary student is stuck in a failing school they are attending (Gordon, 2014). According to Gordon (2014), critics of the NCLB stated that this law was placing too much importance on implementing and using standardized testing for evaluating students' learning and performance. The updated, modified and reauthorized (U.S. Department of Education, 2015) version of No Child Left Behind legislation was passed in 2015. The new legislation called "Every Student Succeeds Act, 2015."

Families and Society. The workforce's families and their upbringing plus the society in which they are participating, and their interactions have influence and impact on their behavior at work and their decision-making processes. In this section, this paper is looking at some of these influences.

(i) Howard Gardner's Theory of Multiple Intelligences. In 1983 Howard Gardner, an American developmental psychologist pronounced the following nine types of

intelligence among human beings: 1) Naturalist or nature smart, 2) Musical or sound smart, 3) Logical-Mathematical or number and reasoning smart, 4) Existential or life smart, 5) Interpersonal or people smart, 6) Bodily-Kinesthetic or body smart, 7) Linguistic or word smart, 8) Intrapersonal, or self-smart, and 9) Spatial, or picture smart (Vital, 2019). As much as all the nine bits of intelligence and skills are valuable and interesting to distinguish and link to the workforce's skills development, this research will only be underlining the following two bits of intelligences—the interpersonal & intrapersonal intelligence and skills. Interpersonal intelligence is one's ability to observe, comprehend and interact effectively with other people. Someone with interpersonal skills can use and conduct effective verbal and nonverbal communication with others while noticing differences among others. They have ability to display sensitivity to others' attitudes and personalities and consider multiple viewpoints generated with others during any conversation (Vital, 2019). Simply said, people with interpersonal skills have the ability to easily conduct communication and interaction with others and appreciate and understand people around them (Silberman, 2001). People with interpersonal intelligence and skills habitually work well in group and team settings and easily collaborate with others (Gardner, 2006). Intrapersonal intelligence is competencies and skills which form the groundwork of one's development and progress. They are known to be the fundamental assets and positive qualities of one's leadership competencies (Shek & Lin, 2015). Intrapersonal intelligence is another way to distinguish and explain self-awareness or introspection. Those with high intrapersonal intelligence and skills are most aware and in tune with their intentions, motivations, emotions, beliefs and are goal and outcome-oriented (Vital, 2019).

(ii) Sociological Perspectives of Work. Sociological fundamentals underline numerous themes. One of the themes contend that sociological standpoints incline to believe that the

environmental aspects could facilitate in simplifying or constraining one's action (Gray & Herr, 1998). "Thus, among other emphases, a sociological view is concerned with the structural factors that condition individual choices and their consequences about the network of roles in which work takes place, and who plays what roles and why" (Gray & Herr, 1998, p. 92). Contained and understood in the sociological perspectives of work, this view believes that work is a form of a social institution and social behavior. As such, the workforce is performing its roles and responsibilities within a network of social roles and responsibilities. Simply said, at any given time, every member of the workforce is interacting in a network constructed by other people, directly with their colleagues, managers, supervisors, or customers, and indirectly with shareholders and investors whom they neither see nor with whom they physically interact every day (Gray & Herr, 1998).

(iii) Family Influences of Work & Status Attainment. According to Gary and Herr (1998), several research findings pointed out and suggested that a family socioeconomic status is expansively relevant and linked to the career development, career selections and socialization of children. "The social status of one's parents affects the level of schooling one achieves, which in turn, affects the occupational level that one may achieve" (Hotchkiss & Borow, 1990, p. 267, as cited in Gary & Herr, 1998, p. 105). Socioeconomic variance in families is connected with variances in information one would obtain about work and working and about the sort of work experience one would have access to. Furthermore, a family's socioeconomic status has effects on one's progress of professional stereotypes which would affect the development of vocational interests. (Gary & Herr, 1998).

Other Relevant Issues. In addition to all the above theories and issues facing the workforce and employers, there are additional issues worth pointing out.

(i) The Aging Workforce. The growth of the aging population in the US is one of greatest challenges and also opportunities for the workforce and employers (Gordon, 2014). “A significant factor shaping the future demographics of the US population is the increase in older population cohorts” (Gordon, 2014, p. 295). In this regard Gordon (2014) mentioned that this situation is because of developments in public health matters and more effective medicine, accompanied with fast enhancements in technology, providing better and healthier lives for the US older population which subsequently increases their life expectancy as well. According to the Centers for Disease Control and Prevention (1999), the increase on the life expectancy for older adult Americans increases their desire to work longer than the retirement age of 65 (Gordon, 2014). Because of this phenomenon, professional researchers are finding that baby boomers are extending their employment and staying in their careers. This delay in retirement is affecting the increase in the level of an older workforce in today’s labor market (Toossi, 2012).

(ii) Closing the Skills Gap. According to Gordon (2014), many pieces of research (Reese, 2011; Shatkin, 2011; U.S. Chamber of Commerce Institute for a Competitive Workforce, 2012) suggested the existence of a skills gap between the skills which employers are desiring and the skills which the workforce possesses. “As of 2013, as many as 39 percent of people under 25 were either unemployed or underemployed, according to an article predicting a dismal jobs pictures for the newest members of the workforce (ManpowerGroup, Inc. 2013)” (Gordon, 2014, p. 389). In this regard, Gordon (2014) pointed at what Yang (2013) speculated, which is that at the current situation in the professional industries, more than half of the jobs and occupations did not exist 25 years ago. He asks: “How do you prepare students for jobs that don’t exist today?”

(Gordon, 2014, p. 389). According to Gordon (2014) a study report by Carnevale, Smith, and Strohl (2010) projected that US economy and industries will face a massive shortage of skilled workforce by 2018 and will be in need of at least 4.7 million skilled workforces with postsecondary certifications.

(iii) The Skills-Employability Paradigm. As Gordon (2014) has mentioned, by the end of the nineteenth century and the beginning of the twentieth century, all industrialized nations accepted the notion of a skills-employability paradigm which associated job training and development with individual self-sufficiency and social settlement. The power and positive influence of this paradigm cannot be exaggerated. The belief in the “skills-employability” paradigm is a major reason why workforce education—in this case, employment, and training programs—figures prominently in almost every social program worldwide (Gordon, 2014. P. 9). Noticeably, all around the world we can find workforce education in schools, in penitentiaries, in training for welfare programs, for a displaced workforce, and for disabled people (Gordon, 2014).

Conceptual Framework

A conceptual framework acts as a structure that the researcher(s) are confident can describe the accepted development of explaining the phenomenon or issue to be researched (Camp, 2001). A conceptual framework is related to the theories and concepts used in endorsing and systemizing the progress of knowledge adopted by the researcher(s) (Peshkin, 1993). It displays the researcher’s description of how the study’s phenomenon or issue would be explored. As Lieher and Smith (1999) pointed out, the conceptual framework displays an integrated model of looking at the research topic issues. From a statistical standpoint, the conceptual framework defines the connection between the key concepts of research. It arranges a logical structure to

assist in providing a visual display of how concepts on the research study link to each other (Grant & Osanloo, 2014; Imenda, 2014).

The following table (1.1.) distinguishes the differences between the theoretical framework and the conceptual framework:

Table 1.1.

The Distinction between Theoretical Framework and Conceptual Framework

#	Theoretical Framework	Conceptual Framework
1	It provides an overall and broader set of ideas where the study belongs.	It discusses a specific or narrower notion which researchers employ in their studies.
2	It is based on current theories in the related literatures tried and validated by other researchers.	It is grounded on the notions which are the key variables in research.
3	It is a model that hinges research with its advocates and the results of their researches.	It is a researcher's own or adapted model to use for explaining the connection among the main variables in the research.
4	It is well established, designed, and accepted among the research community.	It is not accepted. Nonetheless, it's a proposal to approach the defined research problems.
5	It is providing a central point for walking into the unknown study in a defined field of inquiry.	It is the framework that displays rationally how the research is commenced.
6	It contains theories which are interrelated with their propositions construed.	It contains the interconnected research concepts to describe the relations among them.
7	It is used to examine theories, to expect and control the conditions within the context of research.	It is intended to promote the growth and expansion of a theory that would be beneficial to practitioners in the field.

Note: Adapted from Dickson et al., (2018, p. 440).

Conceptual framework for a qualitative method for this Study. The following display (Figure 1.3.) represents the conceptual framework for this current study including the sequence of research categories from start to the end:

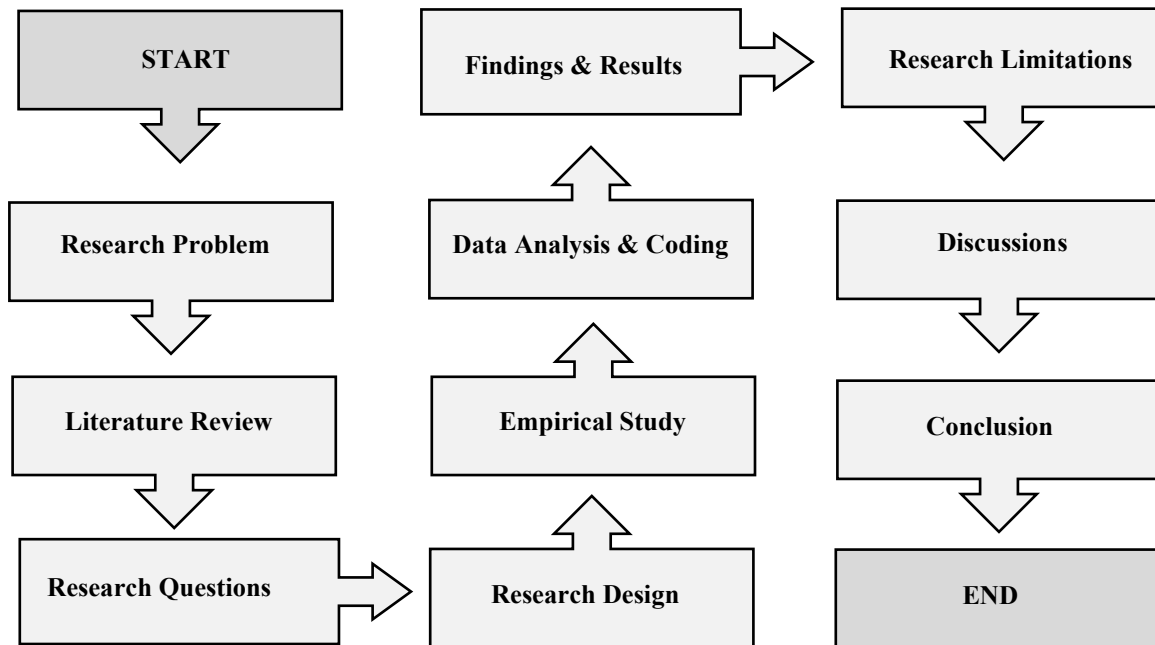


Figure 1.3. Conceptual framework for the current research

Operational Definitions. Displaying operational definitions assists readers to understand the intent of using such definitions in the study and research and will be able to help them understand the relevancy and connection among the definitions. However, according to Slife, Wright and Yanchar (2016), “The use of operational definitions, though examined philosophically, has not been sufficiently examined from a practical perspective” (p. 119). Furthermore, Slife et al., (2016) suggested that when using the operational definitions, researchers should engage in and implement the following three best practices to assist readers: a) clarification or what researchers focus on and echo on illuminating their operationalizations, b) specification or what researchers are specifying and then displaying the variance between the general perception and what was essentially researched through operational definitions, and c) justification or what researchers evaluate and measure to preserve the conversion validity of the research operationalizations.

Definition of Terms. The following table (Table 1.2) is displaying the general terms and definition of this study, using general public understanding of the terms plus some academic and scientific terminology to explain the terms further:

Table 1.2.

The Operational Definitions and Term in this Study

	Terms	Operational Definitions
1	<i>Qualitative Research</i>	The applied qualitative research method assists researchers in accessing research participants' feelings and thoughts, which naturally empower the researcher's understanding of the participants' meaning of the issues which are attributable to their experiences, and consequently their behavior and attitude (Sutton & Austin, 2015).
2	<i>Skills Gap</i>	The variance between skills that organizations/employers need and want from employees, and skills which their workforce possesses/offers (Cappelli, 2015).
3	<i>NEPA</i>	A region in Pennsylvania known as Northeast Pennsylvania bordering states of New Jersey and New York (Wikipedia, 2021).
4	<i>Study Participants</i>	Organizations or individuals who are participating in a study (Campbell et al. 2013). In this case selected private sector organizations in the Lackawanna County, NEPA.
5	<i>Interview Participants</i>	Volunteer interview participants from pool of business professionals (Campbell et al., 2013), such as CEOs, COOs, VPs, Presidents, Executives, Regional Managers, Senior Managers, Junior Managers, HR directors or Supervisors.
6	<i>Workforce</i>	The individuals who are engage working in a location, a company or an industry (Longmore et al., 2018). For the purpose of this study, the general employees who are working in the selected study participants/organizations
7	<i>21st Century 4Cs</i>	Known in the professional business industries as 4Cs, include critical-thinking, communication, creativity and collaboration (Tindowen et al., 2017).
8	<i>Critical Thinking</i>	Collection and analysis of facts to come with a judgment. This is a complex and multi-meaning terminology including being rational, being skeptical while conducting a research, providing unbiased conduct in analysis, or providing assessment based of factual evidence (Moor, 2013).
9	<i>Communication</i>	In general, the term communication is commonly referred to as transferring information from one person to another, in both personal or professional environments (Steinfatt, 2009).
10	<i>Creativity</i>	The typical definition of creativity is both originality, and effectiveness. Some might ask whether both are necessary elements. For sure, originality is essential to creativity (Runco & Jeager, 2012).
11	<i>Collaboration</i>	Collaboration gives rise to diverse opinions, expresses different views and helps to resolve issues faster than just one person's ideas (Ahmadi & Besançon, 2017).
12	<i>Soft Skills</i>	"important job-related skills that involve little or no interaction with machines and can be applied in a variety of job contexts" (Charopensap-Kelly et al., 2015, p. 155).

- | | | |
|----|--|---|
| 13 | <i>People Skills</i> | People skills are the interactive characteristics that illustrate an individual's relationships with other people (Robles, 2012). |
| 14 | <i>In-Depth Interview</i> | In-dept-interviews are one of the most acquainted strategies for gathering data in qualitative research. While vastly structured survey interviews and robust questionnaires used in the many services research, less formal and structured interview strategies are becoming more desirable to qualitative researchers (DiCicco-Bloom & Crabtree, 2006). |
| 15 | <i>Semi-Structure Interview</i> | In many cases, the semi-structured interviews are the singular data gathering basis for a qualitative study venture. They are typically scheduled in advance at an elected day, time, and location separate from an everyday business (DiCicco-Bloom & Crabtree, 2006). |
| 16 | <i>Multi-Sites</i> | Selecting more than one site to conduct the study. In this case, this research will cover at least ten sites (Khan & Vanwynsberghe, 2008). |
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Chapter Summary

In the above introductory chapter one, the researcher introduced all facets of the study needed to produce a likely need for researching the 21st Century 4Cs skills gap. The background of the study was discussed, as well as the purpose of the study while shedding light on the research problem. The researcher touched on the apparent issues caused by the lack of skills and competencies on 4C skills and related gaps. Furthermore, the theoretical and conceptual framework that reinforced the study was discussed. The research questions that would support this study were introduced. Also, it was essential to submit a list of research terminologies so that the reader may better navigate the process of study. Chapter Two will present a review of the literature for 4Cs skills gap in studies, while in Chapter Three, the researcher details the methodology chosen for the study. After that, the researcher discusses the findings in Chapter Four. The research will be concluded in Chapter Five with an overview and discussion of the study's findings, recommendations for future research, and final thoughts.

The next, chapter two will conduct a literature review on the issues and the problem of the skills gap among graduated students, current students and the workforce and will explore

many potential causes, both researched and reported by many scholars, educators, and professionals.

CHAPTER TWO

LITERATURE REVIEW

Introduction

This integrative literature review chapter two is designed to review the 21st century skills which are also known as the 4Cs of the 21st century skills: critical thinking, communication, creativity, and collaboration, in addition to and as part of a larger context called soft skills or people skills, such as socialization, motivation, empathy, self-awareness, and self-regulation. Torraco (2005) described an integrative literature review as a model of research that attempts to review, evaluate, critique and analyze literature related to the topic in an integrated fashion which would display the context and the viewpoint of the topic in the review. Contrary to a general misunderstanding of an integrative literature review as a more straightforward review or not as rigorous as other types of writing reviews, this approach is considered to be a sophisticated and insightful method of a research review (Torraco, 2005).

The Methodology of Literature Review

The following information pertains to the articles' selection strategy, selection criteria including types, publication dates, databases, and resources for selecting relevant articles and scholarly material for this literature review. Research for this literature review was conducted during February, March, and April of 2019.

Strategy, Criteria, and Result for Selecting Articles

Peer-reviewed articles were the primary resources of this literature review. During the resource selection process, the emphasis was placed on finding relevant materials, such as peer-reviews, empirical studies, and professional research that was done either by workforce education practitioners, human resources and development professionals, professional educators, doctoral students, learning organizations and institutions, and reputable business professionals,

conducted between 2009 and 2018 (not older than ten years). Research for relevant articles was conducted in three separate approaches. The initial research approach for locating peer-reviewed and scholarly resources started with the Lion Search and University Library, using keywords such as ‘21st century skills,’ ‘skills gap’ and ‘4Cs’. The selection of keywords was based on relevancy to the dissertation’s topic. In the following sections, this researcher has explained how he used other keywords to expand on his research for articles. This researcher created an Excel spreadsheet called “Literature Review Records” (see Appendix G) which tracks all the articles’ research activities, including date, keywords, search engines, databases, libraries, journals, titles, and bibliographies. In addition to the Excel file, all the selected articles have been saved on the Mendeley software for further use and analysis. Through the Penn State Library, the research was directed to databases such as ProQuest, ERIC, Sage Open, EBSCOhost, IEEE Xplore Digital Library, Gale Virtua References Library, Directory of Open Access Journals, and Taylor & Francis Online, which appeared as a result of searching for the keywords in the Lion Search and Google Scholar. Also, through attending many research classes at Penn State, this researcher received professional magazine articles, scholarly and peer review articles, and links to professional journals from Dr. William Rothwell, Ph.D., Dr. Wesley Donahue, Ph.D., Dr. Hyung Joon Yoon, Ph.D., Dr. Michael Harvey, Ph.D., Dr. Mark Threeton, Ph.D., Dr. Michele Newhard, Ph.D. and, Dr. Meredith Handley, Ph.D.

On the second approach, in order to narrow down the research and locate more direct and defining articles relevant to the topic, more defined and direct keywords such as ‘critical thinking,’ ‘creativity,’ ‘communication,’ ‘collaboration,’ ‘problem-solving,’ and ‘skills gap’ were used. At this time, in addition to Lion Search and University Library, other resources such as Google Scholar were utilized, which directed the research to additional databases besides

those mentioned above, such as Sage Journals, ASCE Library, and JSTOR. On the third approach, to add articles about the gap in soft skills relevant to the research, keywords ‘gap in soft skills’ were used through the Lion Search and University Library database. In the third search, Penn State directed the search to databases such as Sage Journals, ProQuest, JSTOR and John Wiley & Son publisher. The English language was selected as one of the research criteria for the above search terms in the articles’ titles or abstracts.

As a result of this article research within the above-mentioned 14 libraries and database sources, 32 peer-reviewed articles, journal articles, professional magazine articles, and books were selected from 24 journals and professional associations (see Appendix G). In addition to the above, 32 peer-review articles, there were four educational magazine articles used, which were written by professionals in the field of education and skills development among students and the workforce. Please refer to the “Literature Review Records” (Appendix G).

Research Organization

As previously mentioned, the search for articles were divided into three approaches, the first approach was on the Lion Search and the Penn State Library; the second approach was made using Google Scholar in connection with the Penn State Library and other databases, and the third approach was made using Lion Search and Penn State Library. Within the Lion Search and the Penn State Library, using the keyword ‘21st century skills,’ there were 207, 441 journal articles. The total of Scholarly & Peer-Review articles were 173,490 articles, and the total of only Peer-Review articles was 146,794 articles. After using the term ‘from 1/1/2009 to 12/31/2018’ in the publication date criteria, the number of peer-review articles came down to 86,850, of which 24,980 was in the discipline of ‘education’ and 9,446 was in the discipline of ‘business’. By adding the keyword, ‘4Cs’ to the 21st Century skills, the total of peer review

articles came down to just 50, with 33 in the discipline of ‘education’ and 5 in the discipline of ‘businesses’. From the 50 articles found in the first approach, 28 articles were selected to use in this literature review. The preliminary selection criteria among these 50 articles were based on reviewing the articles’ abstracts, introductions, findings, and conclusions, and also its direct relevance to the skills gap concern and the dissertation topic.

On the second approach, using the Google Scholar database, using the keyword ‘21st century skills,’ initially about 1,580,000 results appeared. By adding a date range of 2009-2019, the total results were reduced to about 583,000. By adding the keyword, ‘4Cs’ to the 21st century skills to a total of peer review articles came down to 16,200 results. By using the ‘Sort by Relevance,’ the results came down to 1,650 articles. By adding ‘peer review’ to the ‘21st century, 4Cs’ term, the results came down to 950 articles. By adding keywords ‘education’ and ‘business’ to the ‘21st century, 4Cs, peer review’ term, the results came down to 757 articles. After reviewing 30 articles, a total of 17 articles were selected.

On the third approach, the Penn State Library was used, by pinpointing the research to only one term, ‘gap in soft skills’. Out of 457,804 articles, using ‘peer-reviewed’ brought the search numbers down to 37,351. Furthermore, limiting article dates to the last ten years brought the search down to 21,255. After limiting the period to the last ten years and breaking down the research to ‘gap in soft skills’ in terms of ‘organization’ and ‘businesses,’ the search number went down to 985. From this large pool, 25 articles were reviewed, and ten articles which were relevant to the topic were selected. Similar to the first approach, the preliminary selection criteria among these 25 articles were based on reviewing the articles’ abstracts, introductions, findings and conclusions along with its direct relevance to the skills gap concern and the dissertation topic.

In addition to these attempts, in order to find academia definitions using Google Scholar and ProQuest databases, by applying the keywords ‘critical thinking,’ ‘communication,’ ‘creativity,’ ‘collaboration,’ and ‘problem solving,’ four more articles were selected. From a total of 55 selected articles from these approaches, the articles’ abstracts, findings, and conclusions were reviewed entirely while a general scanning was attempted to oversee the internal articles. In conclusion, approximately 89 peer reviews, scholarly articles, books, and professional magazine articles were selected to represent the introduction and literature review chapters for this research (Appendix G). In contrast, a total of 195 pieces of literature is used during the process of conducting this research.

Relevancy of 4Cs and Soft Skills to the 21st Century Economy

The 21st century economy has developed more quickly and vigorously than usually when compared to the 20th or 19th century economies (Tindowen, Bassig & Cagurangan, 2017; Soulé & Warrick, 2015). Swift development of technology, the fast pace of the global economy, and fierce competition both nationally and internationally have altered the fabric of social and economic lives of the workforce and organizations (Soulé & Warrick, 2015). Regarding the nature of changing work environments, Soule and Warrick (2015) stated that “The world we live in today has changed dramatically in the last several decades, presaging even more dramatic changes for what our world will look like when today’s students enter the workforce” (p. 178).

To this point, 21st century readiness among the workforce is becoming a vital element and the center point of such growth and development which would allow for any organizations’ healthy growth and sustainability (Soulé & Warrick, 2015). Twenty-first century jobs need 21st century skills and competencies to be able to provide products and services that would support organizations in their survival and expansion (Soulé & Warrick, 2015). Whether it is

strengthening the economy, developing a new line of goods for production, implementing a national health care system or expanding on alternative energy, our national and international economy need a workforce developed and armed with 21st century skills and competencies (Soulé & Warrick, 2015). This vital need will provide challenges for current and future generations and education systems to build necessary skills and bring our workforce to the level of excellence that we have not seen before (Soulé & Warrick, 2015).

Tulgan (2015) argued that soft skills might be perceived as less palpable and not as easy to describe and measure as hard skills. However, soft skills are categorically vital to personal and professional success or failure in the workplace, which indirectly influence organizations, cost, employee's growth, and stability. Furthermore, Tulgan (2015) expressed concern that by the time the younger generation became part of the workforce and employers figured out their lack of soft skills, it would be too late to address and develop. It is a prevailing attitude among most managers that they have no time and desire to train the young generation in necessary soft skills (Tulgan, 2015). Therefore, the gap in workforce soft skills is growing larger, regardless of the cost and damage to the organization, and in turn, to the local and national economy (Tulgan, 2015). However, it seems as if there is a large gap between where our students are and where we want them to be. In this regard, as stated in *Institute of Education Sciences (2011)*, Soule and Warrick (2015) pointed out to some domestic education statistics which, on the one hand, according to recent trend data, display some improvement but overall point to a large gap between where students are and where they need to be—a generation of a highly educated population. The following statistics and percentages break it down by race, comparing white, black, and Hispanic students' proficiency in the fourth and eighth grades (Soulé & Warrick, 2015): (A) **Fourth grade:** 1) Reading— 33% of whites, 14% of blacks, and 16% of Hispanics; 2)

Mathematics– 48% of whites, 16% of blacks, and 22% of Hispanics. (B) **Eighth grade:** 1) Reading–38% of whites, 14% of blacks, and 18% of Hispanics; 2) Mathematics–33% of whites, 12% of blacks, and 18% of Hispanics; 3) Science- 43% of whites, 10% of blacks, and 16% of Hispanics students.

The skills gap as an issue is not only relevant in the United States and other nations individually, but it is a global issue as well. There are many other nations in which their society is suffering because of a lack of education and ultimately the lack of a skilled workforce. Education is one of the most significant elements of a workforce's progress and a thriving economy in any nation, especially in third world countries (Soulé & Warrick, 2015). As the fast spread of advanced communication technology and economics become more global, the development of skills, education, and competencies are becoming more and more essential for surviving the 21st century economy (Tindowen et al., 2017; Soulé & Warrick, 2015). This concept is not just for developed nations, but also essential for developing countries. The challenge of education on 21st century skills is becoming much more vital for students in high schools and colleges. One of the most challenging realities for understanding the relationship between education and economic success is a recognition that most third world countries support populations in which formal education is a rarity (Tindowen et al., 2017).

The population in these third world countries faces difficulties understanding and implementing the 21st century skills, that would prepare it for the 21st century economy and its related challenges in the face of global competition (Tindowen et al., 2017). To address this social dilemma related to workforce competencies and education, the Alternative Learning System (ALS) was offered in developing countries, such as the Philippines to assist people by educating them via this nonformal education system (Tindowen et al., 2017). Life in the 21st

century requires an integrated recognition that skill sets such as the 4Cs are as necessary for both individual and corporate success as is an understanding of the task requirements of a set job (Tindowen et al., 2017). These skill sets embrace problem-solving ability, conducting critical thinking, delivery of effective communication, and collaboration with others. These are necessities of a successful life and profession (Tindowen et al., 2017). Robles (2012) pointed at the principle of soft skills and its universal application and the fact that soft skills are usable in any industry and profession and life in general. “Unlike hard skills, which are about a person’s skill set and ability to perform a certain type of task or activity, soft skills are interpersonal and broadly applicable” (Robles, 2012, p. 457).

Role of Competencies and Skills

These days in the global economy, with its fears of competition for the market share among national and global organizations, the value and importance of exhibiting new and developing competencies and skills, including the 4Cs in workplaces are very present. As a matter of fact, competencies and skills are crucial for identifying any profession, because they provide a common language to define the set of performances for the workforce that points at the necessary knowledge, skills, and behaviors that workers, technicians, or practitioners need in order to be successful on their jobs. This set also includes knowledge in 4C Skills (Arneson, Rothwell & Naughton, 2013).

More and more, organizations realize the importance of competencies and skills and their role in hiring, recruiting, and retaining strong employees that would directly impact their business growth and success. Because of this realization, educational establishments are paying more attention to developing competency-based learning and development to support the needs of a competency-based workforce for the present and future needs of the workforce market

(Donahue, 2018; Rothwell, Stavros & Sullivan, 2016; Cummings & Worley, 2015). Many organizations are now using competency-based assessments in addition to already existing methods for evaluating employee knowledge, skills, and abilities (KSA) in addition to the 21st century 4Cs. Competency-based assessment is establishing its place in organizations as a valuable and useful way to assess and design development programs for their employees and implementing necessary competencies and skills in employees' work responsibilities and job descriptions (Donahue, 2018; Rothwell et al., 2016).

In this regard, the world of Organization Development (OD) or Training is not different from any other industry. Regardless of industries, any professional Organization Development (OD) practitioner, Workplace Learning and Performance (WLP) professional, Training, Training and Development (T&D) professionals, Appreciative Inquiry (AI) coaches and facilitators, or professional coaches and consultants of any kind, all excel in developing their knowledge, skills and abilities (KSAs) in their careers and in recognizing necessary competencies and skills to develop or fine-tune the existing competencies and skills vital to conducting a professional delivery and implementing programs, interventions, or training for themselves and for the workforce.

Defining Skills, Competencies and Training

In this section, this paper explores definitions and descriptions of several key terminologies on the context of professional business and organization development and training which assist readers to better understand the differences among the terms, especially in relation to the developing 4Cs through conducting training:

Skills. Skills are the talent and expertise required to conduct a job or performance a task. Skills are what make individuals confident in their pursuits essential for success. As much

as developing skills require willpower and practice, almost any skill can be learned, developed, and improved (Donahue, 2018). Rothwell (2015) defined skill as the ability to execute an action or task with established results within a time frame.

Skillset. A skillset is the mixture of personal qualities, knowledge, and abilities that individuals developed through their lifespan personally and professionally. It typically included two types of skills: i) soft skills, and ii) hard skills:

(i) Soft skills cover interpersonal skills or people skills. It is difficult to quantify these skills, however, in a general view, they are an individual's personality and ability to work with others. These skills include being detailed-oriented, using critical thinking, being a problem solver, possessing good communication skills, listening without prejudice, displaying empathy, and many more ("The balance career", n.d.).

(ii) Hard skills are tangible, quantifiable skills. They include some specific technical and profession-related knowledge and abilities that are required for conducting a job or task. Hard skills could be accounting, computer programming, mathematics, or data analysis ("The balance career", n.d.).

Competency. Very commonly, the term competency has been used without clear awareness of its meaning or the context in which it was used. In the context of business and education, the term competency describes a degree of individual proficiency, such as knowledge, skills, attitudes, and behaviors against a set of guidelines and established standards (Donahue, 2018). Donahue (2018) defined competency as "measurable and observable knowledge, skills, attitudes, and behaviors (KSABs) critical to successful job performance. Competencies refer to the specific KSABs that a person can readily show. They include not only technical skills but also what are known as soft skills" (p. 21).

Often, competency and competence are used interchangeably in some literature in the past. Organizations depend on the qualifications of their workforce; however gradually, there were signs of a shift in workplace learning, which underscored the individual competence as well as the organization competencies (Newhard, 2010). Newhard (2010) mentioned different definitions and characteristics of competencies in the available literature when competency symbolized “an underlying characteristic of an individual that is causally related to criterion-referenced effective and or superior performance in a job or situation, where ‘criterion-reference’ indicates that competency will predict performance” (Spencer & Spencer, 1993, p. 9). Boyatzis (1982) defined competency as “certain characteristics or abilities of the person [that] enable him or her to demonstrate the appropriate specific actions” (p. 12). More simply, McLagan (1988) defined competency as “a personal capability that is critical to the production of a quality output or outputs” (p. 374), where the outputs are quantifiable results for the organization or customer (Rothwell, 2002). In Newhard (2010), Spencer and Spencer (1993) mentioned the work of McClelland (1973) on ascertaining the following five characteristics of competencies that can guide individuals to a better understanding of the concept of competency:

1. Motives. The things a person consistently thinks about or wants that cause action. Motives “drive, direct, and select” (McClelland, 1971) behavior toward certain actions or goals and away from others.
 2. Traits. Physical characteristics and consistent responses to situations or information.
 3. Self-Concept. A person’s attitudes, values, or self-image.
 4. Knowledge. Information a person has in specific content areas.
 5. Skill. The ability to perform a certain physical or mental task.
- (pp. 9-11).

Training. In the professional industries, the term training has been defined in several fashions. According to Rothwell and Sredl (2014) one of the relevant definitions to the world of OD is from “learning, provided by employers to employees, that is related to their present jobs” (Nadler & Nadler, 1989) (pp. 9-10). Furthermore, Rothwell and Sredl added that Lawrie defined it as a “change in skills” (Lawrie, J. 1990). Others claim that its major focus is providing basic knowledge and skills for familiar tasks tied to present jobs (Bartz et al., 1989) (pp. 9-10).

Training is also described as a short-term learning intervention, with the intention to construct people’s knowledge, skills, and attitudes to assemble their work requirements at their jobs. In this particular business and organization context, knowledge is referring to the realities, facts, standards, and information essential for executing a job or task while skills are the individuals’ abilities linked to a successful performance at work; and individual attitudes are referring to their feelings and emotions, as being expressed by the individuals (Rothwell & Sredl, 2014). “Training helps individuals meet minimally acceptable job requirements or refine, upgrade, and improve what they presently do. When employees finish their training, they should be able to apply it immediately (Rothwell & Sredl, 2014, p. 9).

Competency and Performance Gap

The competency gap is characterized as the disparity between the individuals’ current competency levels and the organization’s required or needed competency level (Donahue, 2018). In the same view, the performance gap is a discrepancy between what is happening at the moment and what should be happening or expected to happen. A performance gap can also be considered as a disparity between the way things are at the present time and the way they are required, desired, plan or anticipated to be (Rothwell, 2015).

Identifying competency and performance gaps. This process is very much like Training Needs Assessment (TNA); however, some key differences exist among them. 1) The emphasis of identifying competency or performance is not limited to revealing only knowledge, skill, or attitude defects when TNA identifies any insufficiency or competence affecting workforce performance. 2) The focus of the competency and performance gap need not be limited to the past or present performance, which is habitually the case with TNA (Rothwell, 2015).

Needs Assessment for Developing Competencies and Skills

According to Sleezer, Russ-Eft, and Gupta (2015) “Needs assessment is a process for figuring out how to close a learning or performance gap” (p. 17). In the fields of OD, WFED, WLP, and performance consulting, understanding and learning or performing disparity among the existing condition and the preferred condition is known as a need (Figure 1). The process of need assessment could be easily used to determine the level of 4Cs in employees and determine the needs for their training. The bottom line is that the needs assessment is a form of evaluation, which is influenced by how the data is collected and analyzed (Sleezer et al., 2014).

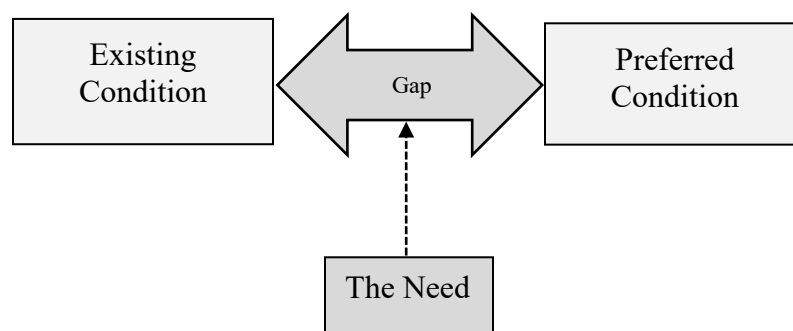


Figure 2.1. Description of need. Adopted from Sleezer, Russ-Eft & Gupta (2014, p. 17).

Training Needs Assessment (TNA)

Unlike OD related needs assessments, which examines an organization-wide standpoint, the TNAs are only partial to the employees' improvement of knowledge, skills, and abilities (KSA) relevant to how they are performing on their job, work and tasks, and how their behaviors and attitudes are influencing their performance (Sleezer et al., 2014; Rothwell, et al., 2010). This particular need statement approach can also be easily used for assessing the needs for 4Cs.

Purpose of Training Needs Assessment

This analysis is designed to detect the performance gaps, which can be resolved by conducting training sessions as the solution to the gap (Rothwell, Stavros & Sullivan, 2016; Sleezer et al., 2014). According to the U.S. Office of Personnel Management, the primary purpose of TNAs is to ascertain a) organization, occupation and individual performance requirements and b) the knowledge, skills, and abilities (KSAs) needed by an organization workforce to accomplish their work, job and tasks requirements. A well designed and effective TNA will assist directing proper resources to areas of organizations which are in need of appropriate trainings. "The assessment should address resources needed to fulfill the organizational mission, improve productivity, and provide quality products and services. A needs assessment is the process of identifying the gap between the performance required and the current performance" (para. 1).

Levels of a Training Needs Assessment

Training needs assessments are being used to determine the needs for training and development on three levels related to an organization's growth, productivity, and successful operation: a) Organization level assessment, b) Occupation level assessment, and c) Individual level assessment (Figure 2) ("U.S. Office of Personnel Management" n.d.). As you can notice on

the figure 2.2, the importance of good understating of 4Cs and the role of them on both Occupation and Individual levels.



Figure 2.2. Levels of training needs assessment (TNA). Adapted from “U.S. Office of Personnel Management” (n.d.).

Significance of Competencies and Using Them by Organizations

To begin this valuable inquiry, this paper starts by looking at the significance of competencies and the use of them by businesses and organizations. Rothwell and Grabber (2010) underlined the significance of competencies and their role in businesses and organizations, as more sustaining and lasting than job-related tasks. “Competencies focus on the characteristics of people who are successfully performing the work. Competencies are part of people, not the work they do. Competencies do better in pinpointing the unique characteristics of people that lead to success” (Rothwell & Grabber, 2010, p. 9). This important distinction has been neglected and

overlooked or at best, inadequately recognized in most conventional job descriptions used by businesses and organizations, which commonly just use a shortlist of necessary knowledge and skills related to the profession or job tasks included in the 21st century 4Cs. (Rothwell et al., 2016; Rothwell & Grabber, 2010).

The use of competency modeling is progressively increasing among organizations, due to its workability and its ability to produce more long-lasting results among their workforces. More and more, professionals and practitioners who are working with the front-line workforce and their supervisors and managers on the learning and performance topics are using competency-based performance or competency modeling in their undertaking (Cummings & Worley, 2015; Rothwell & Grabber, 2010). In regard to the importance of workplace-competencies and attempts in matching people's competencies with their necessary job competencies, Rothwell and Grabber (2010) pointed out to many kinds of research that have indicated that some people at their workplaces may be twenty times more productive than other people at the same department or people who are conducting the same work or job. The fact is, competency learning is not promising a 20-fold surge in the workforce productivity, but if it is implemented well, and practiced by the workforce, it will move employees in the right path (Rothwell et al., 2016; Cummings & Worley, 2015; Rothwell & Grabber, 2010). Furthermore, regarding the importance of using a competency-based model and its significance, Rothwell and Grabber (2010) stated, "Competencies are not about duties, they are about people. In that respect, they are different from a job analysis (a process) and its traditional output (a job description)" (p. 8).

Research on the Competencies for Success in OD

In this segment, this paper looks at a brief history and the research in regard to the development of competencies and the use of them in organizations and industries. These studies

have assisted in the development of the competencies' practice, informed the academic professionals, and offered a scholarly contribution to the field of OD, training, and other related fields (Newhard, 2010; Rothwell, 2005; Rothwell, Sanders, & Soper, 1999). Rothwell et al. (2016) talked about what they described as a groundbreaking article published by McClelland (1973) about focusing on testing for an individual's competence instead of IQ test for intelligence. In the '70s, the leading agreements among professionals were to test for intelligence, especially as projected school grades, with the primary assumption that intelligence will lead individuals to higher performance in their work. This concept was challenged by McClelland by discussing people's motivation for personal and professional accomplishment, and second, by examining and researching what really foresees an individual's performance (Rothwell et al., 2016).

Concerning research on the use and effect of competencies in the field of OD, Cummings, and Worley (2015), pointed at two research projects that have attempted to define, classify, and arrange the skills and knowledge required for OD professionals and practitioners.

On the first project, a wide-ranging trio of well-recognized OD practitioners and researchers were tasked to review, examine, and update a list of competencies for OD practitioners. This research survey resulted in the development of 187 statements in the following nine areas of OD practice: 1) entry, 2) start-up, 3) assessment and feedback, 4) action planning, 5) intervention, 6) evaluation, 7) adoption, 8) separation, and 9) general competencies. (Cummings & Worley, 2015). To understand and comprehend the significance of this list, it should be noted that the researchers gathered data from 364 OD practitioners and professionals, with the following criteria, 1) having an average of eight years' experience in the field of OD, 2) having a master's degree, and 3) being from the United States. The results created a list of

twenty-three competencies that exhibited necessary knowledge and skills for conducting a planned change method and, most importantly, the individual characteristics required for being an effective OD practitioner. (Cummings & Worley, 2015). You can see this list further down in the section that is discussing the required competencies for a successful OD.

The second project was sponsored by the “Organization Development and Change Division of the Academy of Management” (Cummings & Worley, 2015, p. 48), wanting to create a list of competencies for guiding curriculum development in graduating students for OD programs. According to Cummings and Worley (2015), more than 40 OD professionals and researchers worked together to create the two competency lists for knowledge and skills required for successful OD practitioners (see pages 13) including experience and knowledge from areas of organization behavior, organization theories, group dynamics, psychology, management, research methods, and practices in the professional business domains.

Leadership Competency Model

It is important to point at a powerful context before getting into a discussion about required competencies for OD, WFED, WLP, and Training. That context is ‘Leadership’. Regardless of what type of practitioner or professional, or what kind of change intervention is being implemented, there is a need for leadership and professional competencies and proficiencies for designing and implementing any change intervention or leading individuals, teams, departments or organizations to a successful implementation of any business operation or change intervention.

Donahue (2018) described competencies as a combination of a quantifiable and observable collection of knowledge, skills, attitudes, and behaviors (KSABs) that support individuals to perform better at their work and achieve their personal and professional goals.

Donahue (2018) described 35 competencies under five categories across all industries that help developing individuals in their leadership role and positions and help managers or supervisors to identify and measure the current level of employees' proficiency and evaluate what competencies they need to develop.

Required Competency for Successful Training. Another use of a competency model is assistance for discovering needs for future training needs, including those for developing 4Cs skills. Competencies are recognized as necessary performance needs for a specific area, job or tasks, that would be incorporated by an organizational into their training curriculum (Rothwell et al., 2016). In this matter, Rothwell et al., (2016) stated, "To be assessed as competent, a person must demonstrate the ability to perform a job's specific task and develop employee training programs to teach people to understand, model, and exhibit competencies that lead to competent employees" (p. 119).

In the *ASTD Competencies for the Training and Development Profession* Naughton and Rothwell (2013) presented a competency model for necessary knowledge and skills for successful implementation of training by a knowledgeable and skillful trainer to be able to deliver formal and informal learning platforms as follow:

- Manage the learning environment
- Prepare for training delivery
- Convey objectives
- Align learning solutions with course objectives
- Align learning solutions with learner needs
- Establish credibility as an instructor
- Create a positive learning climate

- Deliver various learning methodologies
- Facilitate learning
- Encourage participation
- Build learner motivation
- Deliver constructive feedback
- Ensure learning outcomes
- Evaluate solutions

Team Competencies. Besides the individual competencies, team competencies are also very important. The team competencies concern the team and its members' ability and competence to deal with a variety of issues and conflicts and how they resolve the problems, make decisions, and deal with issues in front of them. Team competencies are about the team's ability to collectively work together to accomplish their team's goals and to keep the team members motivated and focused on their desired outcomes (Dyer et al. 2013; Rothwell et al., 2016). According to Donahue (2018), the term *competency* has become something like a buzzword people are throwing around as something pointless. On the contrary, in today's organization development efforts, competency-based development and education are regarded as the pathway to the future of education/learning, team building, and organization development. "Competencies are the measurable and observable knowledge, skills, attitudes, and behaviors (KSABs) critical to successful job performance" (21).

There is a Problem Called the Skills Gap

Cappelli (2015) categorized the arguments related to the existing problems about the availability of skills in the labor market into three elements as follows: 1) *Skills Gap*. The biggest complaint is the notion that extensive shortfall of labor with the basic skills is related to the new

employees and not to the existing labor force. People who support this argument attribute this shortfall to the problems and breakdowns of the current education system, especially issues related to K-12 public education (Cappelli, 2015; Soulé & Warrick, 2015; Boyles, 2012). 2) *Skills Shortage*. The complaint emphasizes job and task-related skills related to specific occupations, for example, a complaint about the shortage of engineers and Information Technology professionals in the United States (Cappelli, 2015; Soulé & Warrick, 2015; Boyles, 2012). 3) *Skills Problems*. This is a concern which is mostly expressed outside the United States. People who are complaining about this issue are claiming that at any given time the supply and demand on skill labor could swing in either direction, as either oversupply or undersupply (Cappelli, 2015). This issue commonly occurs in a specific labor market related to educational credentials and the country's level of development (Cappelli, 2015).

In the world of business and productivity, skills like critical thinking, communication, creativity, collaboration, or teamwork are not new to the world of working and organizations. They are, however, much more sought out in new hires of the 21st century (Soulé & Warrick, 2015). In the highly technical and fast-paced work environment, the ability to perform a set of nonroutine tasks is very much encouraged and desired by employers who are looking for prospective workers who can do more than just a routine job or task. (Soulé & Warrick, 2015; Boyles, 2012). Having competencies in these skills is becoming the norm and expected as a basic necessity for individual success as well as in teams and organizations as a whole (Soulé & Warrick, 2015; Boyles, 2012). Given the desire of organizations to hire recruits armed with 21st century 4Cs, it is vital for high school graduates to have a basic understanding of these crucial skills. Regardless of their interest to attend college, vocational school, a university or directly join the workforce after high school, they must get used to thinking critically about their future

planning and communicate effectively and skillfully during their hiring or administration interviews (Soulé & Warrick, 2015; Boyles, 2012). If students learn the collaboration as a skill, they have a better chance to compete for jobs in the market (Soulé & Warrick, 2015).

Furthermore, Soulé and Warrick (2015) called critical thinking and problem-solving survival skills not only for professional or career success but also for personal and social life survival.

In their article about the framework of *Partnership for 21st Century Learning* or *P21*, Soulé and Warrick (2015), pointed at what they called a “widespread consensus” regarding how the education system has failed to prepare students for critical 21st century skills needed to succeed in school and work, and also in life and citizenship in general. “Low performance across core content areas persists according to data for fourth and eighth graders for the 2011 National Assessment of Educational Progress” (Soulé & Warrick, 2015, p. 178). Soule and Warrick (2015) described the Partnership for 21st Century Learning (P21), as a leading nonprofit organization which is committed to creating collaboration with the educational system, educators, organization leaders and policymakers to come up with approaches and policies that would prepare and develop students to meet the increasing global demand for a skillful workforce and citizens trained with 21st century skills. “P21 is a coalition of education, business, community, and government leaders working to help build a broader awareness of the importance of a 21st century education system” (Soulé & Warrick, 2015, p. 178). Soulé and Warrick (2015) reported from *Institute of Education Sciences (2011)* that only 34% of students in fourth and eighth grades scored as proficient in reading performance, while 40% of students in fourth grade and 35% of students in eighth grades scored proficient in math. Similarly, only 32% of students in eighth grade were appraised as skilled in science classes (Soulé & Warrick, 2015). The concerning fact is that unfortunately there is not a dramatic change in the data during the last

ten years (Soulé & Warrick, 2015). The troubling concern is to know that the data was only based on elementary competencies, which demonstrate future struggles for these students in their advanced education programs or today's high demand and interest on the skilled workforce in all industries (Soulé & Warrick, 2015).

Hirsch and Alliance (2017) also underlined this issue when mentioning that there is a large push to get high school students to go to college. Supposedly, a college education will increase the students' supply of knowledge, skills and intellectual abilities, and prepare them for prospects of well-paying occupations (Hirsch & Alliance, 2017). However, not many students enter college or complete their degrees. According to Hirsch and Alliance (2017), based on findings of a nationwide analysis of study data related to Black and Hispanic students, only 30% of them will register for college within the first two years after high school graduation, and around 20% of them will obtain an associate degree or higher college degree by the time they are in their 20s. Furthermore, Hirsch and Alliance (2017) specified that in today's high schools, the majority of efforts for preparing students for future jobs take place in career-technical programs. Regardless of efforts to integrate career-technical courses and academic learning like 'career academies,' high schools still focus on trade skills as a mean to future job opportunities. "Students in academic tracks receive little or no job preparation. In part, this reflects the enormous cultural gap between academic and career-technical tracks. Those who teach traditional academic courses often don't see a fit with trade skills" (Hirsch & Alliance 2017, p. 13).

The above concern was also indicated by Martz et al., (2016) who voiced their concern with the findings of current studies on lack of skills in students and workforce and underlined the findings' inconsistency with an urgent call for the necessity to teach students critical thinking

and problem-solving skills. Furthermore, Martz et al. (2016) denoted two studies that display the skills gap and needs for skills training among students and workforce. The *Skills Requirements for Tomorrow's Best Jobs* study was conducted in 2013 by IDC. In this study, the researchers analyzed 14.6 million job placements, in which employers were looking for people with skills to fill high-growth and high-wage positions (Martz et al., 2016). IDC recognized problem-solving skills as “cross-functional” competencies required by over 50 percent of the high-growth, high-wage reviewed positions (Martz et al., 2016). And in 2015, *America's Skills Challenge* conducted the Educational Testing Service's study, comparing 16 to 35-year-old Americans to the same age groups in different countries (Martz et al., 2016). The result reported by ETS showed among a total of 21 sets of groups from different countries, the American group was ranked 20th in critical thinking and problem-solving skills readiness (Martz et al., 2016).

There are more survey and research results about the organization's interest in 21st century skills; Robles (2012) conducted a study to understand the needs of employers regarding vital soft skills among their workforces. The professional business and career development educator can design and include these into their curriculum. For his study Robles (2012) used 45 students of a junior-level business communication class and asked each of them to interview two business executives, and after completing the interview, send the executives, a “Thank You” card, and an evaluation survey designed by the course faculty. Also, for the executive's convenience and to make sure they would receive the survey back, the students included a self-stamped return envelope. Besides asking executives to comment on student's interview process performance, the survey asked the executives what they believed to be the essential topic of study for business school graduates and to list the top 10 essential and desired soft skills they wished to have among the workforce in their organizations (Robles, 2012). From the total of 90

business executives, 49 of them (54%) returned the survey. Out of the list of 517 reported soft skills (some executives reported more than ten soft skills), and after removing repeated skills, 490 of them were collected. After coding with like terms and themes, 26 soft skills were chosen as the final selection. The top 10 soft skills selected by the business executives are as follows: “integrity, communication, courtesy, responsibility, social skills, positive attitude, professionalism, flexibility, teamwork, and work ethic” (Robles, 2012, p. 454).

Robles (2012) argued that soft skills are as significant as cognitive skills. Students who have developed soft skills have a much better chance of being hired in their desired field. Lack of soft skills can severely damage opportunities for students with technical ability and professional skills but no people skills. Robles (2012) continued by explaining that successful managers who received promotions and continued growth in their organizations possessed both hard skills and soft skills, especially the disposition and aptitude to work positively and in coordination with others. Robles (2012) mentioned, according to the National Union of Students in the United Kingdom, that a lack of soft skills among high school graduates in the workplace is becoming a big concern for businesses’ and organizations’ executives nationally. According to Robles (2012), a survey conducted in 2007, with 400 participants from managers of United States organizations, revealed that 70% of high school graduates lack work ethic and professionalism in the workplace. Furthermore, Robles (2012) pointed to another report from the US Department of Labor which indicated while business managers are interested in, and value interpersonal skills, they are not receiving such values from new employees, new college graduates and labor they are hiring. The lack of soft skills continues to be employers’ concern.

Twenty First Century Teaching and Learning Environment Can Help

In 2016, Mr. Matsuda, the Superintendent of Anaheim Union High School District (AUHSD) in California shared his experience about interviewing potential administrators for their district. He mentioned that one of the most important questions they ask of applicants is “Can you please describe a 21st century learning environment?” (Matsuda, 2017, p. 26). Matsuda (2017) continued by pointing out that the majority of applicants who were interviewed for potential administrator positions, related the concept of 21st century teaching and learning to the areas of information technology, electronic devices, internet use, and communication methods via smart devices. Matsuda (2017) called this phenomenon an urban educational myth, which needs more illumination and discussion. Candidates occasionally point at pedagogy as a tool to teach 4Cs, where technology should be considered as a tool and avenue to improve and develop skills such as reading, writing, listening, and speaking in addition to the 4Cs. However, those candidates typically missed the greater characterization of 21st century education, teaching, and learning environment as it has been defined by the “Partnership for 21st Century Learning”, or what is known as P21 program (“Partnership for 21st Century Learning”, 2016; Matsuda, 2017).

Concerning the credibility and workability of P21 (2016) programs, Matsuda (2017) mentioned how P21 programs challenge 21st century educationalists to reflect on the purpose of American K-12 education in a global environment troubled with ambiguity and confusion regarding many global issues such as climate change, geopolitical conflicts, alternative energy to fossil fuel, health care and workable economies as a few examples (Matsuda, 2017). P21 (2016) is challenging educators to confront intriguing questions such as “How are we going to prepare the next generation of Americans to meet the challenges of an increasingly complex and interconnected global society? What are the skills, dispositions, and knowledge needed to get

there?” (Matsuda, 2017, p. 26). Emphasizing critical thinking, creativity, communication, and collaboration are becoming the pillars of the P21 programs (Jones, 2015b). Therefore, the P21 program foundation is underlining the vital position of the 4Cs skill education in the day-to-day pedagogy and instruction in School systems (Matsuda, 2017). P21 is promoting students’ access to a much larger curriculum, including math, arts, language, music and more, not just testing, assessments and passing exams. P21 is pushing for the inclusion of 4Cs in current education curricula (Matsuda, 2017).

At the same time, Schweppe and Geigel (2011) pointed out the increasing value and recognition of soft skills in recent years. For example, many international academic institutes have recommended integration of soft skills into technical programs and classes such as accounting, engineering, computer graphics, and information technology, to increase students’ readiness for the real business world (Schweppe & Geigel, 2011). Charoensap-Kelly et al. (2015) stated that from a Human Resource Management standpoint, this integration of soft skills among the workforce would help all personnel, such as managers and coworkers to work together in harmony and with more effectiveness. Learning, applying and practicing soft, practical skills and social competencies create a friendly and safe environment which allows an increase in productivity in the workplace and helps people to shine at work (Charoensap-Kelly et al., 2015). Per Hirsch and Alliance (2017), the potential for the development of soft skills among students starts from the teachers. “Teachers may not realize that they’re teaching a variety of valuable soft skills in their classes” (Hirsch & Alliance, 2017, p. 17). Implementing Professional Development Sessions would help teachers identify the needs of hard skills, as well as the soft skills at work, and consequently teach the same skills to their students in the classrooms (Hirsch & Alliance, 2017).

Strategies Educators Can Employ for Integration of the 4Cs and Soft Skills. In an article based on a literature review done by Levin-Goldberg (2012) called “Teaching Generation TechX with the 4Cs: Using Technology to Integrate 21st Century Skills,” the author suggested some pedagogical ideas and strategies that can be implemented by teachers and educators to become the conduit to provide the 4Cs in conjunction with other vital skills such as problem-solving and innovation into their school’s curriculum. These strategies accompanied by technology, can generate a more comprehensive teaching and learning environment and create a space for fostering the learning of 21st century skills (Levin-Goldberg, 2012). According to Levin-Goldberg (2012) the following approaches will best represent a set of holistic, organic, and authentic illustrations for 21st century readiness: “(a) becoming cognizant and literate in Web 2.0 tools; (b) assigning real-world problems and issues for students to resolve using technology; and (c) creating collaborative problem-based learning experiences utilizing the resources available via the Web” (Levin-Goldberg, 2012, p. 61). As Levin-Goldberg (2012) explained, this finding was part of the overall findings of a survey steered by a coalition of several organizations, such as the Corporate Voices for Working Families, The Conference Board, the Partnership for 21st Century Skills, and the Society for Human Resource Management of over 400 organization executives, on the importance of 4Cs to their organizations and their desire to hire a workforce with the 4Cs skills. Participants reported that almost 50% of recent graduates had a deficiency on a) both writing and oral communication skills, b) work and workplace ethics and professionalism, and c) critical thinking and problem-solving skills.

Furthermore Levin-Goldberg (2012) added that in addition to this survey, there was a poll conducted by the American Society of Training and Development in 2009 with some executives and higher managers, which revealed 50% of participants ranked leadership skills such as

decision making, goal setting, ethical judgment, motivation and team building as the most insufficient among their workforces. In the same poll, 46% of participants ranked basic skills, such as problem-solving and creative thinking as the most compatible with the skills they are looking for among their workforce or their new hires. Additionally, in 2011, The Conference Board reported that 97% of employers who participated in a survey about employees' skills reported that from their point of view, creativity is increasingly becoming one of the most desired skills among executives when it comes to talent recruitment (Levin-Goldberg, 2012).

Teachers are striving to cover the necessary topics in their educational curriculum (Robles, 2012). Asking teachers to add another topic, such as soft skills to their class schedule can be a troublesome proposition, given that most teachers are already dealing with a constricted program schedule (Robles, 2012). That being said, what can schools do to prepare students for high-tech/high-paid jobs (hard skills), as well as inner-personal professional relationships and office jobs (soft skills) (Robles, 2012)? Robles (2012) proposed ways to include soft skills in the already busy school curriculum by distributing the content throughout the semester, and teaching students: a) basic people skills, so students learn how to get along with others. b) simple, but critical customer service skills. c) understanding of problem-solving process and discussion by practicing real-life scenarios. d) working with others by displaying how the people skills they learned can be used in a business situation (Robles, 2012). In order to get these skills developed among students, a development program for teaching soft skills is essential for developing students to apply their learning skills at work, as well as at home and in society. "Research indicates that the typical learning styles of all students are not necessarily suited to the acquisition of generic skills" (Robles, 2012, p. 462).

Developing the 4Cs and Soft Skills with a Student-Centered Approach. There is no doubt about the importance of teaching the 4Cs skills and soft skills in today's classrooms (Robb, 2017). Presenting students with actual practices would enhance their experience of learning these vital skills (Robb, 2017). Robb (2017) mentioned the importance of this approach by underlining that while students are in school, everything they do should have something to do with 4Cs development. This approach would help with building interpersonal and analytical skills to mold their minds to solve problems in their immediate environment and also in national and international issues, such as clean water, clean air, climate change, immigration and many more issues facing humanity (Robb, 2017; Soulé & Warrick, 2015). Schools can design the 4Cs' curriculum with a student-centered approach, by facilitating learning through debates, discussions, and reflection rather than a controlled class environment with tests, homework, quizzes, and presentations of questions with only one correct answer (Robb, 2017). Open discussions led by students and facilitated by trained teachers can be a part of everyday lessons in classes (Robb, 2017). Students who are graduating from college assume they are developed and armed with skills which would prepare them for employment and for being part of the professional workforce. However, when it comes down to soft skills, this hypothesis might not be accurate. Several reports (Anthony & Garner, 2016; Charoensap-Kelly et al., 2015; Stewart et al., 2016) have underlined that many colleges graduates, and in some cases, MBA graduates have displayed a lack of important soft skills in their written and verbal communication and interpersonal relationships with their coworkers.

In support of students' effectiveness in communication skills, Robb (2017) suggested that in these types of learning environments, students will form a collaborating group or select one or more partners to comprise a discussion by forming questions or inquiries. Usually, the group or

partners establish the discussion timeline, appoint their student facilitator who is in charge of maintaining order during the discussion, and make sure the debate is moving in a productive fashion (Robb, 2017). Furthermore, Robb (2017) added that in the process of discussions, students are in direct communication among themselves. They are the ones who shape the conversation and showcase their ideas in a way that their classmates would relate to, listen to, and comprehend (Robb, 2017; Soulé & Warrick, 2015; Moore, 2013). These expressive conversations, plus the meaningful and authentic learning environment will lead students to remember details of their discussions and what other students convey during the dialogue and to quote evidence that would support their trend of thinking and expression of their ideas (Robb, 2017).

Models for Supporting and Evaluating Students and Employees

Several reputable reports, research and methods are available to support and evaluate students before they walk into the labor market and for the existing workforce to determine their level of readiness and possession of competencies skills. These models also support students, present employees and the workforce for developing professional competencies and skills that would help them through their current and future professional work.

SCANS Report – 2000

Given the relevancy of developing the 4Cs skills among the younger generation before their entry to the labor market, in this section, this research is looking into the comprehensive skills, competencies and training report developed in 1999, called SCANS Report-2000. In June 1991, the Labor Secretary's Commission on Achieving Necessary Skills (SCANS) was requested to investigate the requirements of the workplace in the USA and whether our nation's younger generation is efficient in meeting those workplace demands. Particularly, the Commission was

instructed to inform the Labor Secretary on the levels of skills necessary for the high school graduates to enter the labor market and employment opportunities (Scans, 2000, p.10).

Workplace Know-How. The SCANS report recognized what they called *Workplace Know-How* made up of a combination of five competencies and a three-elements foundation of skills and personal traits that are needed for solid job performance. Workplace Know-How is included (SCANS, 2000):

A. Competencies. An effective workforce can effectively and productively use the following in their work:

1. Resources. Ability to use what the organizations allocated, such as budget, time, materials, physical space, and an adequate number of staff.

2. Interpersonal Skills. Ability to work with groups and teams, developing and teaching others to add their jobs and tasks, serving customers, leading teams, negotiating positions or contracts, and working effectively with others from different backgrounds and cultures.

3. Information. Ability to obtain and evaluate data and information, arrange, and maintain documentation and files, interpret information and communicate effectively, and use computers and other electronic devices to process information.

4. Systems. Ability to understanding organizational, technological, and social systems and examine, evaluate and correct one's performance or improve systems.

5. Technology. Ability to select tools and equipment and apply accurate technology to specific tasks, while maintaining and troubleshooting with tools and technologies.

B. The Foundation. These competencies require some foundations, such as the following:

1. Basic Skills. Such as reading, writing, mathematics, arithmetic and speaking well, and listening effectively.

2. Thinking Skills. Such as critical thinking, creativity, decision making, problem solving, having foresight, reasoning, collaboration, and knowing how to learn.

3. Personal Qualities. Such as individual responsibility, integrity, self-esteem, self-regulation, and sociability.

(SCANS, 2000)

It is important to underline the fact that the SCANS competencies and skills are not intended for special tracks labeled “general” or “career” or “vocational” education. All teachers, in all disciplines, are expected to incorporate them into their classwork (SCANS, 2000, p. 18). The challenging issue is to teach the *know-how* that high school kids need to learn as a critical aspect of learning across the curriculum, including the five core topics. According to SCANS (2000), using the five competencies in relation to the three foundations (figure 2.3), a) students will discover the learning content to be more relevant and challenging, b) teachers discover that their classes are more attentive and interested, and c) workers and college administrators will be pleased with the outcomes given that the teaching curriculum will be interwoven with sets of real issues in the real world.

Furthermore, SCANS (2000) pointed out the responsibility of every teacher to define the *know-how* in every curricular and extra-curricular area. According to SCANS report, these competencies and skills should be developed in “the five core courses, in art and music, in foreign languages, in vocational education, on the school newspaper, or on athletic teams” (p. 18). Clearly, developing these competencies and skills are providing opportunities for high school students to learn more about 4Cs skill and to start developing them during their high school years and be prepared to apply them in their future places of employment.

The following display (figure 2.3) on page 66 shows the relationship among workplace know-how and what is required by schools.

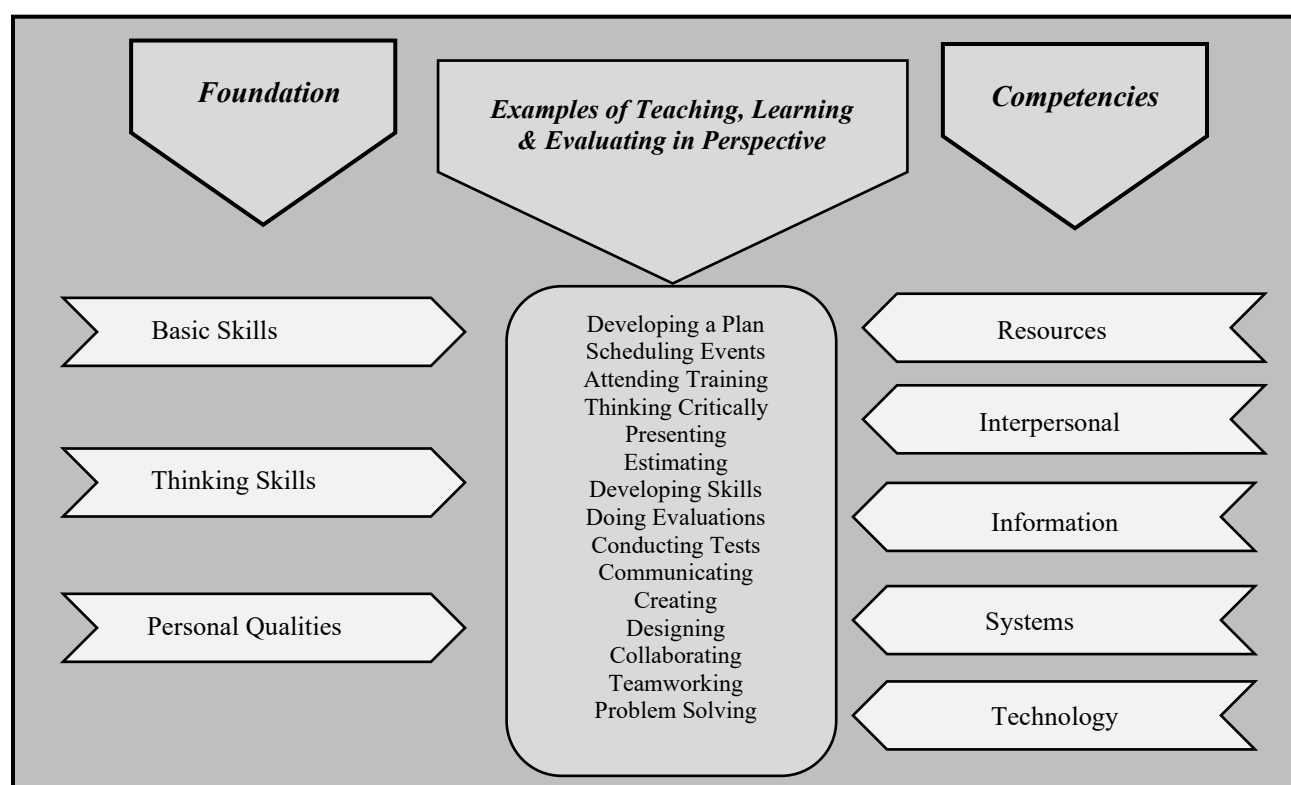


Figure 2.3. Workplace Know-How and what work required of schools. Adapted from (SCANS Report, 2000, p. 18).

The ACT WorkKeys Assessment

In today's business and education environment, the concern about college and career readiness is alive and in the center of interest in growing productivity. Employers are very much interested in and demanding of the basic academic and educational skills for any entry-level workforce; and as this research has represented this concern throughout this chapter, organizations are holding educators and educational system accountable for student progress and readiness achievement in educational and academic areas (Schultz & Stern, 2013). Relating to this concern, Schultz and Stern (2013) underlined the use of WorkKeys, "In this environment, WorkKeys has emerged as a set of assessments that could respond to the needs of both employers and educators and signal to test takers their readiness for further education or a career" (p. 157). To date, the notion of 'Person–Occupation Fit' is mainly utilized in the domain of career and vocational counseling. This approach to developing career readiness triggers the rationality of most available assessments used by educators and academia for career planning when the discovery of individuals fits certain occupations which would assist career development professionals in concentrating on relevancy and managing a set of personality options (Swaney et al., 2012).

The ACT WorkKeys Assessment System is an all-inclusive procedure for ascertaining, communicating, and improving the skills essential for an individual's success in the workplace. The ACT WorkKeys is assessing an individual's ability as well as actual job requirements (Williams, 2015). By properly using and implementing a well-suited fit, a comprehensive link would be applied among the required and needed basic skills for a successful operation in any position, job, career and individuals who retain those needed skills (Williams, 2015). "Nationwide, all 50 states are currently using the ACT WorkKeys Assessment" (Williams, 2015,

p. 28). According to Williams (2015) the ACT WorkKeys offers evaluation in the following ten areas: 1) Reading for Information, 2) Applied Mathematics, 3) Locating Information, 4) Applied Technology, 5) Business Writing, 6) Writing, 7) Observation, 8) Teamwork, 9) Listening, and 10) Listening for Understanding (Williams, 2015, p. 28). The majority of studies on WorkKeys have been performed for confirmation of the validity of WorkKeys tests and assessments, basically, to make sure it measures what it is intended to measure. There are not many outside studies showing the link between students' test scores and their potential future success in particular careers, jobs, or tasks (Sawchuk, 2018).

As it has been displayed in figure 2.4, the Center for Energy Workforce Development's website listed four elements of ACT WorkKeys: 1) Job Profiling, 2) Assessment, 3) Training, and 4) Research (Center for Energy Workforce Development, n. d.).

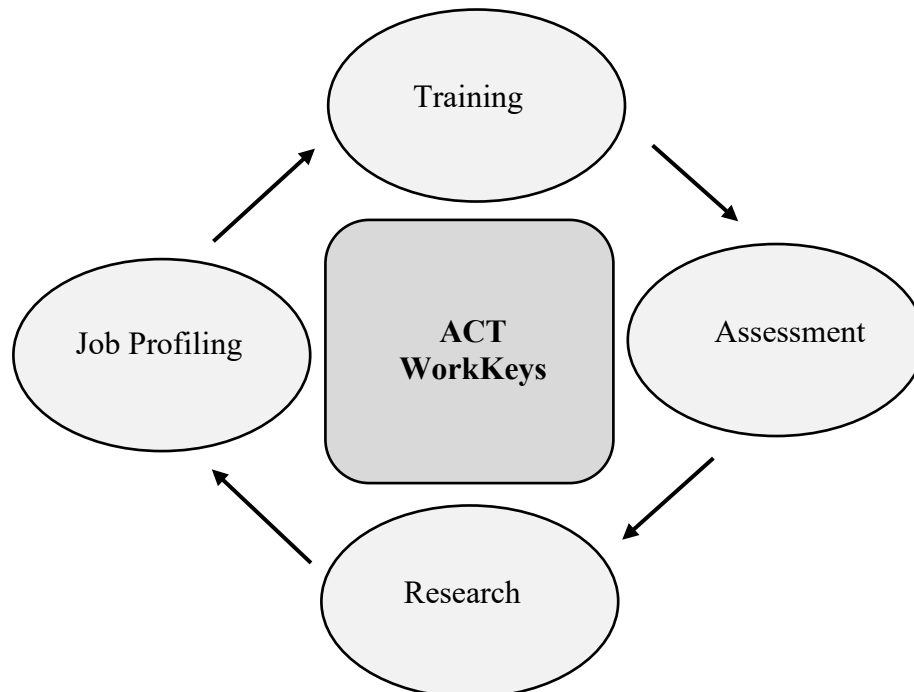


Figure 2.4. Major components of the ACT WorkKeys system. Adapted from (Center for Energy Workforce Development, n.d., n. p.).

Job Profiling. This is defining individuals' basic skills necessary for occupational jobs and careers.

Assessment. This is measuring individuals' existing basic skills that could pertain to workplace conditions.

Training. This is a curriculum standard from the ACT Level 1 publisher intended to enhance individuals' existing skills in order to be successful in the jobs of their selection.

Research. This is ACT's broad research and authentication attempts that produce an instrument which could be utilized with a high degree of reliability and certainty to a broad range of education and employment, in addition to workforce development.

(Center for Energy Workforce Development, n.d.).

Strada Education Network

Through their influences and engagements, Strada Education Network impacts a distinctive mixture of elements of empowering and directing education and employment pathways, such as research, investments, philanthropy, involving policymakers, and resolutions to benefit and assist people connecting their education to desirable, meaningful, and fit careers. As it has indicated on the Strada Education Network, creating an 'education-to-employment' system that strengthens and supports all Americans won't be a simple or easy undertaking. ("Stradaeducation.org", 2020). "Our mission is to improve lives by forging clearer and more purposeful pathways between education and employment" ("Stradaeducation.org", 2020, n. p.). Strada Education Network directly contacts and engages states governors and other policymakers who are involved or have an influence on making policies to link education and employment, assisting them in developing a competent and skillful workforce aligned with their states' commitments to career pathways for their states' populations. Strada conducts

their mission and commitment through what they call *Lifelong Learning Cycle* (see figure 2.5) using 1) Education and Career Planning, 2) Student Success and Support, and 3) Career and Workforce Transition for helping students and the workforce to come to *Completion with a purpose* (“Stradaeducation.org”, 2020).

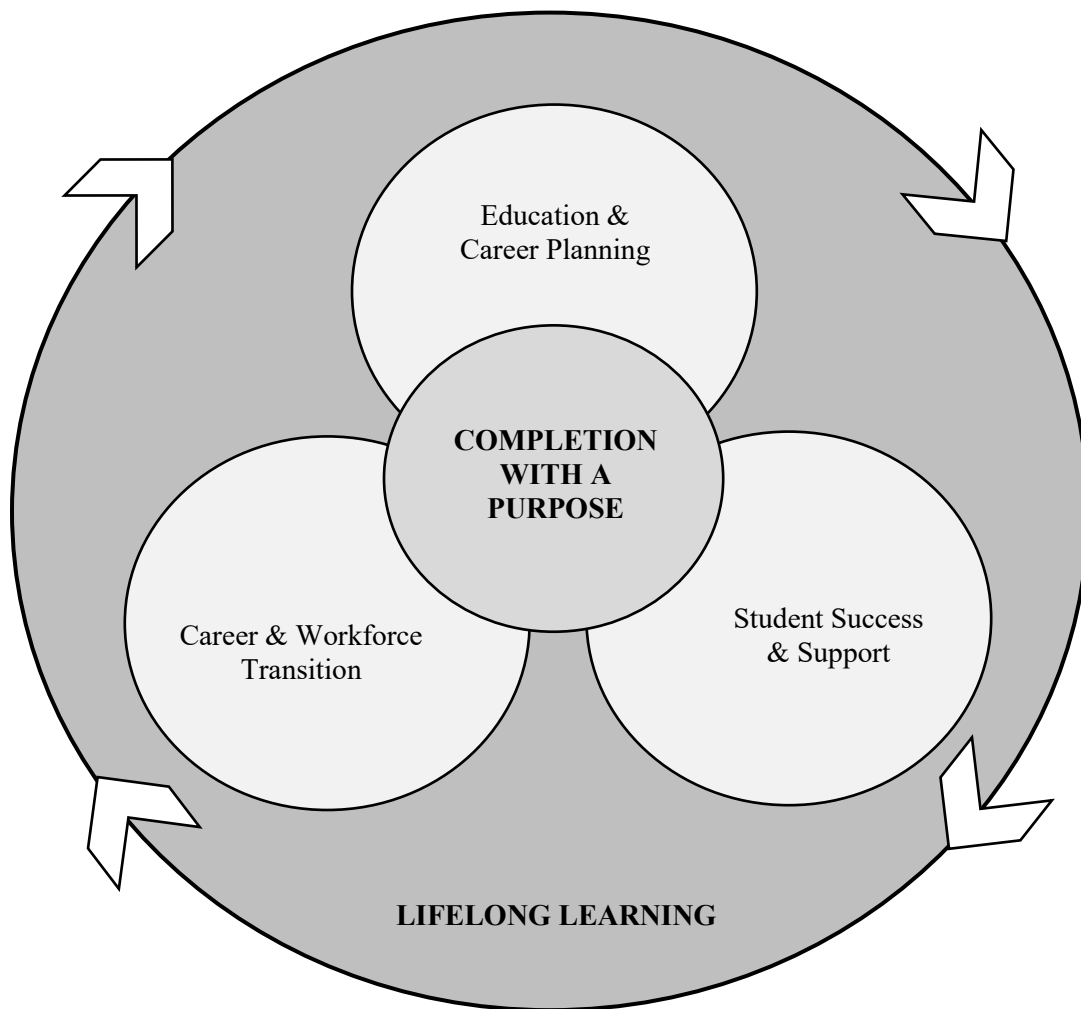


Figure 2.5. Lifelong Education Cycle. Adapted from (“Stradaeducation.org”, 2020, n. p.)

While mergers and acquisitions are customary strategic moves by the private sector organizations, a scaled effect in the public sector is rarely attained by merging forces. Strada Education Network focuses on essential college-to-career challenges via strategic philanthropy,

investigation, studies and mission-aligned partners, such as the following seven organizations who are operating in partnership and as extensions of the Strada Education Network (“Forbes”, 2020):

- 1) **CAEL.** Council for Adult and Experiential Learning offers adult career counseling and directing progression services.
- 2) **College Confidential.** This organization generates conversations, discussions, and debit forums and resources that inform and advise for colleges and career options.
- 3) **Dxtera.** A conglomerate devoted to transforming student and organizational results in higher education.
- 4) **Education at Work.** An organization that is supporting college students by providing paid work prospects, helping them to graduate with less debt and developing needed skills for obtaining post-graduation careers.
- 5) **Emsi.** This organization provides wide-ranging labor market analytics for informing people who are searching for a good and fit jobs.
- 6) **InsideTrack.** An organization which provides adaptive mentoring and coaching resolutions to postsecondary establishments or foundations.
- 7) **Roadtrip Nation.** This organization interviews students and employees in a variety of jobs to deliver effective career guidance.

(“Forbes”, 2020)

Strada Education Network research and investments emphasizes partnerships with various employers, organizations, community supporters, local politicians and educators in order to leverage competencies, abilities and expertise in providing a curriculum based on developing skills, mentoring students and workforce, providing professional networking and opening doors

for internships that would end with employment. They focus particularly on underrepresented populations, adult learners, low-income people and first-generation college students to support them as they prepare and organize for jobs in high-demand career paths (“Forbes”, 2020).

Change on the Nature of Working and Employment

According to Ahmadi and Besancon (2017), the top two competencies which gained more attention among schools during the last several years are creativity and critical thinking. The authors attribute this attention to the needs for developing a deeper understanding and innovation in communication and information technology (Spies & Xu, 2018; Ahmadi & Besancon, 2017). At the same time Spies and Xu (2018) pointed at two other vital competencies needed for 21st century learning—communication and collaboration. According to Spies and Xu (2018), to develop these skills, the national standards for speaking and listening has been increased to a higher level among schools to support this national need. These vital skills are the foundation of oral communication which is the base for communication and collaboration and are essential skills for students’ academic achievements (Spies & Xu, 2018; Ahmadi & Besancon, 2017). Simply said, without communication skills, there is no instrument for delivering a message to collaborate, express creativity and conduct a critical thinking process (Jones, 2015a). Besides verbal and writing skills, today’s students need to develop skills in digital applications of symbols, images, and other digital means to be able to communicate effectively with others (Jones, 2015a). Digital communication is thus becoming increasingly important to workability and effectiveness in teamwork and collaboration with others.

Soulé and Warrick (2015) reported that, according to a recent administration of the Program for International Student Assessment (PISA), in addition to some other international evaluations, American students’ educational performance ranks poorly in comparison to their

counterparts in other countries. Also, the P21 program presents research conducted by Sandford University, underlining that these types of comparisons and results are not only educationally noteworthy but also of vital economic importance (Soulé & Warrick, 2015). To support this claim, Soule and Warrick (2015) continued to mention that nations who performed well on the PISA, which directly measures skills such as problem-solving and critical thinking as part of 21st century skills training, have demonstrated higher rates of GDP (Gross Domestic Product) compared to nations who have not participated in the PISA (Soulé & Warrick, 2015). Current scholarships highlight efforts of these countries who are not just interested in succeeding in standard and traditional measures against test scores but also on efforts to implement 21st century skills into their current education systems as essential skills' development of their future workforce in order to compete in a global economy (Soulé & Warrick, 2015), (Moore, 2013).

As to raising a national interest related to the above, Soule and Warrick (2015) directed our attention to an economic concern: The United States is facing the following facts: 1) Other nations are increasing investment in education and developing 21st century skills, 2) American organizations are experiencing more competition in a fast-expanding global marketplace, and 3) Organizations are transitioning the nature of USA economy from manufacturing to information technology. During the last several decades, the manufacturing-based industrial economy in the USA has shifted to a service economy, especially with jobs in well-paid information technology services that have been motivated and pushed by information, creativity, innovation, and knowledge (Soulé & Warrick, 2015). These factors have restructured and redesigned US organizations and the fabric of work in America in which more than 80% of jobs are in the service sector (Soulé & Warrick, 2015). The job market is shifting from manufacturing to services, especially with employment in well-paid information technology services (Soulé &

Warrick, 2015). In 2009 the US Department of Labor & Bureau of Labor Statistics reported that “The employment of professionals and related occupations is expected to increase by nearly 16.8%, growing by over 5.2 million jobs” (Soulé & Warrick, 2015, p. 179). According to Soule and Warrick (2015) as reported from U.S. Bureau of Labor Statistics (2012) these projections were on the mark in 2012, with the service segment receiving the most progress and hiring in manufacturing jobs. To underline this progress, according to the U.S. Bureau of Labor Statistics (2019, March), the national unemployment rate of professionals and related occupations in March 2019 decreased to 1.9 from 2.1 compared to March 2018. At the same time, more high-end occupations such as engineers, physicians, attorneys, and marketing consultants are in high demands for job openings in the service sector which is in much more stable growth (Soulé & Warrick, 2015). Currently, there is a high demand around the world for knowledgeable technicians who have a wide range of skills and education, including technical and 4Cs training (Soulé & Warrick, 2015). This demand on skilled technicians is happening in conjunction with the brutal fact that the most skilled generation, people with knowledge and ambition, the baby-boomers, is leaving the labor market in a large number, due to their retirement age (Soulé & Warrick, 2015). In this regard, Tulgan (2015) reported, the post-baby-boomers generation shift is another element of the soft skills gap. The older and more experienced workforce is retiring and therefore making more room for the new generation to fit in. With the new generation comes a lack of conforming maturity, interpersonal-relationship, and patience (Tulgan, 2015). This causes friction between the old generation’s adult and professional attitude and the energy and enthusiasm of the younger generation with less professional and apparent soft skills (Tulgan, 2015). Furthermore, Tulgan (2015) explained that by the year 2020, over 80 percent of the

workforce population would be post-baby-boomers, who will be subjugated to figures, society norms, public standards and values by Generations X, Y, and Z.

High Demands on New Skills

Given the fundamental fluctuations in the national and global economy, organizations are demanding new skills during their hiring periods (Soulé & Warrick, 2015). Employers are looking for a workforce which can perform nonroutine tasks, be creative in their jobs, and be able to communicate effectively as a member of a collaborative team (Soulé & Warrick, 2015). Autor, Levy and Murnane (2003) pointed out that at the beginning of the 1970s in the US, the routine cognitive labor and manual tasks started to deteriorate and began giving room to increasing nonroutine, diagnostic and collaborative trades. Organizations began to use technology, automation and computer systems to take the place of manual laborers who were performing on-routine tasks (Autor et al., 2003). They began encouraging laborers with abilities to perform nonroutine tasks and to use problem-solving techniques. This major shift to a computerized work environment demanded more comprehensive skills involved with critical thinking, problem-solving and communications tasks, like resorting to inconsistencies, improving the production systems and processes, and supervising, managing, and coordinating other people's tasks, activities, and performances (Soulé & Warrick, 2015; Moore, 2013).

Additionally, in today's labor market, employers are giving much more attention to soft skills, such as professionalism, social and people skills, and interpersonal skills. These are skills which employers are regularly reporting as skills which are lacking among their employees (Hurrell, 2015). In this regard, Hurrell (2015) pointed at what he called the 'blame game' in which the blame for soft skills deficiency is often put on the individuals, their families, the educational system, and the government. At the same time, there is some concern that one reason

employees are not utilizing their soft skills is their resentment and dissatisfaction with their employers (Hurrell, 2015). Regarding the mentioned 'blame game,' Hurrell (2015) also mentioned the businesses themselves for not regularly and systematically including training and development of soft skills for their workforce. In a study conducted on 57 executives by Robles (2012) on the topic of the importance of soft skills at work, 100% of those executives mentioned integrity and communication as their top two needed soft skills for their work as well as essential skills for today's workforce. Also, 84.2% of executives selected courtesy as an extremely vital skill at the workplace, while 71.9% stated that responsibility and 61.4% selected interpersonal skills as essential skills for the workplace (Robles, 2012). These studies and research findings reiterate the importance of establishing early training and development on 4Cs and soft skills for students as well as their teachers and instructors.

Building up Workforce Skills for the 21st Century Employment

There is no uncertainty that there is a demand by organizations for a workforce with the ability to apply a set of functional skills. Experts in workforce development emphasize the importance of these skills by referring to them as the Survival Skills of the new economy (Soulé & Warrick, 2015). These experts have understood and recognized that higher-order thoughtfulness over the even deeper level of information technology knowledge is no longer a luxury to a person or an organization (Soulé & Warrick, 2015). It might seem obvious to make changes in technological approaches in order to create opportunities for young professionals to outshine their older peers or overall work population in the organization; however, unexpectedly, this is not true (Soulé & Warrick, 2015). Edward E. Gordon (Gordon, 2009), the author of *Winning the Global Talent Showdown*, mentioned the existence of what he called a significant technology paradox. Although in general, the younger generation of workers is what we think of

as tech junkies, but they lack the aptitude, experiences, interest or curiosity in careers such as IT, designing, building, fixing, or managing numerous 21st century machinery and technologies (Gordon, 2009). Boyles (2012) added to this context and mentioned that in the face of this discrepancy in the workforce's interest and knowledge, and to assure the U.S. workforce's abilities to strive in their competition for their share of the global economy, a wakeup call has been sounded for educational systems, educators and teachers. There is a need to recognize this challenge and to create openings in current educational programs to ensure the development of American students in 21st century skills and competencies, such as self-direction, flexibility, innovation, collaboration, communication, creativity, problem-solving and critical thinking (Boyles, 2012). American students need to be educated and armed with 21st century skills to be ready for 21st century careers in 21st century organizations (Boyles, 2012).

According to Charoensap-Kelly et al. (2015), in recent years, organizations recognized the value of soft skills training, and employers have gradually devoted more time and capital in soft skills training for their employees. Unlike hard skills, measuring and evaluating the effect of soft skills are not easily obtainable (Charoensap-Kelly et al., 2015). Several elements such as characteristics and the trainer, format, content of the training, and the degree of organization support can affect the outcome of soft skills training and development (Charoensap-Kelly et al., 2015). Regarding the importance of soft skills, Levasseur (2013) mentioned the presence and application of soft skills in many diverse industries and disciplines such as operational systems, management systems, accounting, finance, leadership, project management, medicine and more. Stewart, Wall, and Marciniec (2016) pointed to the false confidence of college students on their soft skills competencies. A soft skills survey (standard, Likert 1 to 5 scale rating) conducted in 2016, by Stewart et al., (2016), on a group of students using the guidance of "the NACE, Hart

Research Associates, and SHRM studies” (Stewart et al., 2016, p. 280), revealed that those college graduates rated their soft skills’ confidence as 87.9% in problem-solving, 84.1% on written communication, 83.6% on teamwork, and 72.4% on verbal communication (Stewart et al., 2016). With this high level of confidence on possession of soft skills among these graduates, why are organizations still complaining about lack of soft skills among their college graduate hires?

Based on the above literature review process and findings, the following display (Figure 2.1.) represents the elements of hard skills, soft skills, 4Cs skills and educational skills in developing a 21st century workforce to be part of success and growth of a 21st century organization:

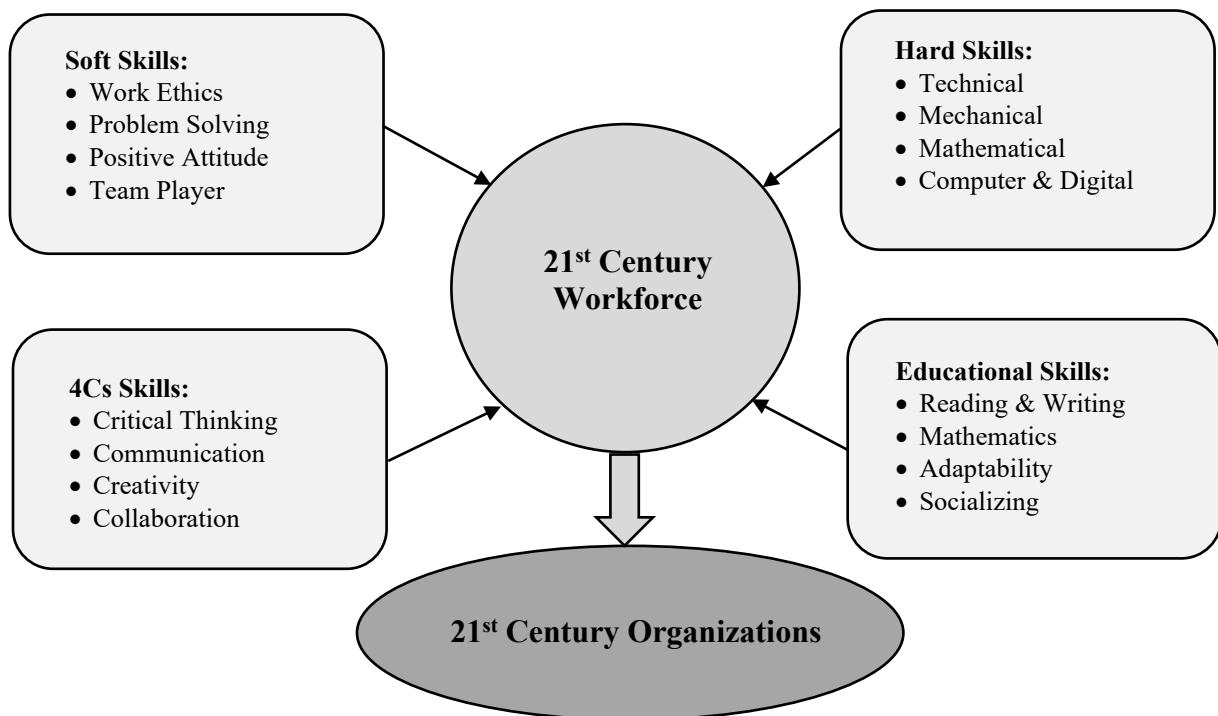


Figure 2.6. Model for developing skilled 21st century workforce for 21st century organizations.

Literature Review Discussion, Findings, and Implications

Based on what has been reviewed in this literature-review process, it is clear that the 21st century economy is demanding that the workforce have 21st century skills and competencies (Longmore et al., 2018; Martz et al., 2016; Soulé & Warrick, 2015). The skills desired are not limited to technical knowledge, mechanical abilities, trade knowledge and experience, task-related skills, or 4Cs (critical thinking, communication, creativity, and collaboration) but also skills such as problem-solving, innovation, soft skills, and cross-functioning competencies which is all other technical skills or other competencies they possess or practice (Martz et al., 2016; Soulé & Warrick, 2015). The shortage of workforce with the above-mentioned skills goes beyond the local or national level and has spread all over the world among almost all nations. Having immediate access to a skilled workforce is becoming a hard task to find on demand (Tindowen et al., 2017; Soulé & Warrick, 2015). Research has frequently revealed the vital needs and necessity of application of 21st century skills programs at schools and the workplace. Twenty-first century skills applications are essential in training students with the critical skills which will support them in their current and future endeavors and successes in their academic studies as well as in their careers (Tindowen et al., 2017; Soulé & Warrick, 2015; Levin-Goldberg, 2012; Boyles, 2012).

Several questions remain. What are the causes of this skills gap among high school and college graduates and what are employees looking for? Do high school and college graduates understand the 21st century skills and soft skills which employees are seeking? (Stewart, Wall & Marciniac, 2016). Digging into this inquiry, we can find many more questions, which shed light on the persistence of this gap issue. What would be the self-evaluation method or technique for measuring the competency level of 21st century skills and soft skills? Is the educational

system (high schools and colleges) providing satisfactory opportunities for students to learn 21st century skills and soft skills? What are the employers' recruiting approaches for seeking 21st century skills and soft skills during the hiring process? (Stewart et al., 2016). These types of questions will illuminate the path to understanding the skills gap and how to minimize it by providing training and development for the existing workforce as well as for the future workforce still in high schools and colleges.

According to Stewart et al. (2016), to get to the root cause of the soft skills gap, first, we need to understand and determine the most important soft skills among employers. Research has revealed (Stewart et al., 2016; Anthony & Garner, 2016; Charoensap-Kelly et al., 2016) that the most important and desired soft skills exist in wide classifications such as interpersonal relationships, professionalism, communication, critical thinking, problem-solving, ethical behavior, diversity awareness, cultural sensitivity, and leadership. These soft skills and their subclasses are believed to be vital for the success of individuals and organizations. These soft skills should be required during the recruitment and hiring process, side by side with hard skills and other professional requirements (Stewart et al., 2016).

There is a need to look at the most obvious for implementing these 21st century skills and competencies, which is the fact that training must begin in K-12 and continue through higher education such as in community colleges, technical schools, and universities. Another angle of this global issue which was mentioned by many researchers is the lack of a 21st century learning and teaching environment (Tindowen et al., 2017; Soulé & Warrick, 2015; Levin-Goldberg, 2012; Boyles, 2012). One can blame students for not being interested in learning; however, providing students with a learning environment is the duty of local and national governing bodies. Furthermore, Levin-Goldberg (2012) stated that one must hold educators to their

academic and civic responsibility to make sure to provide information and to teach their students the 4Cs skills and prepare young learners for their local, national and global responsibilities (Levin-Goldberg, 2012). The global market is moving from the needs of the workforce with just mechanical, task-oriented, routine-action oriented skills to urgent needs for the workforce who have additional skills above and beyond the obvious needs of their positions (Levin-Goldberg, 2012). The global labor market is looking for a workforce armed with 21st century skills, such as creativity, effective communication, critical thinking and the ability to collaborate with others. Levin-Goldberg (2012) also pointed to the responsibility of teachers and instructors to attempt to teach students the concepts and steps of critical thinking by creating an environment for advanced levels of thinking to approach not only professional issues but also general life issues as well. This approach can be done by implementing role-playing games with suitable language and communication skills focusing on promoting and encouraging students' creativity and novelty. These innovative ideas accompanied by encouragement will expand students' ideas and artistic expression (Alismail & McGuire, 2015). The 21st century skills support current and future students to help them prepare for higher education, their professional careers and their lives as a whole. Many possibilities can arise from integrating 21st century skills with digital tools and systems with the foresight to create a positive learning environment which would help educators to implement 21st century curriculum learning and structure for students (Alismail & McGuire, 2015).

Many studies have stated that teachers overwhelmingly indicate that the greatest influential learning experiences happen in an integrated learning environment. When teachers fundamentally link 21st-century skills teaching to their class curriculums, they can be much more effective in their teaching approach and in turn create a more effective learning environment

(Urbani et al., 2017; Tindowen et al., 2017; Soulé & Warrick, 2015; Levin-Goldberg, 2012; Boyles, 2012). The integrative teaching and learning process also allows teachers to advance 21st century skills personally and experience the learning environment as they apply them to their students. Many scholars have argued for the necessity of establishing robust and powerful “teacher education curricula” that would train and develop teachers in 21st century skills during their careers (Urbani et al., 2017; Tindowen et al., 2017; Soulé & Warrick, 2015; Levin-Goldberg, 2012; Boyles, 2012). Urbani et al. (2017) argued the importance of educators to improve and develop their own 21st century skills so they can transfer these skills to their students.

Implications of Literature Review Findings

Having communication skills and the ability to deliver the intent of the message effectively is more vital than ever (Jones, 2015). With the overflow of digital and electronic messages in society and at work, students and the workforce need to develop sharper skills to distinguish appropriate and professional ways to communicate effectively. Educators and teachers, or organizational management cannot assume that students or the workforce will develop these 21st century skills and competencies on their own (Jones, 2015). Martz et al. (2016) brought up another imperative skill for students and the workforce creative problem-solving techniques. The problem-solving skill can assist in risk-control strategies for the existing workforce as well as for students who are the future workforce. It is essential for students to have a solid education in concepts of group problem solving and to understand, contribute and follow these concepts when the procedures are applied in their groups (Martz et al., 2016). Educational systems, hand in hand with organizations, can provide recurring well-planned opportunities for

students and the workforce to practice these skills and improve their 21st century skills for their future success, individually and nationally (Jones, 2015).

Guo and Woulfin (2016) mentioned ways to implicate some of their research findings; educators should cautiously construe the teaching and learning standards and recognize how to embrace principles of creativity into the current teaching and learning structures and procedures within their classrooms and their schools' policies. For example, school principals can review the course structure and modify the course curriculum offerings in a way that all students have opportunities for admission to classes that teach 21st century skills (Guo & Woulfin, 2016). In addition to reviewing the class and implementing 4Cs skills in the classes, school administrators and teachers can create approaches and develop ways for students to conduct a peer-review and evaluation for their classmate's progress in developing 21st century skills. This approach will create an environment of appreciation and collaboration among students and their peers (Guo & Woulfin, 2016). Furthermore, Gue and Woulfin (2016) stated that it is essential for teachers to also develop 4Cs and 21st century skills to be able to challenge students by designing systems and creating goals to motivate and encourage them. In summary, it is vital that teachers and administrators raise their level of 21st century knowledge and skills to be able to positively challenge their students to achieve excellence.

Data Saturation

This research will underline and explain the concept of data saturation in more detail in chapter three, but it worth mentioning the possibility of early data saturation in this study, given the relatively small size of the selected samples (ten to twelve) and possibility of receiving many similar inputs from the participants. Given the nature of qualitative research, there is always a concern that the research arrives at early saturation and causes the research to slow down on its

collecting data process. On the other hand, breakdown to attain data saturation has an effect on the validity and quality of the research (Fusch & Ness, 2015). In the case of small research, like this one, the saturation point is rising faster than that of a larger research (Fusch & Ness, 2015). As Guest et al. (2006) explained, data saturation reaches a particular point during the researcher's data gathering and data analysis when collecting new data produces the same type or similar codes.

Literature Review Summary

Researchers who were represented on this literature review (chapter two) and have conducted research and study on the importance of the 21st century skills, 4Cs, and soft skills are aligned that these skills are essential to the growth of individuals and organizations. The literature is pointing at the importance of a workforce with 21st century skills, and soft skills to develop organizations as successful and productive and which have a direct impact on a healthy and thriving local, national and global economy. There is overwhelming evidence on how the gap in 21st century skills and soft skills is not only damaging the future of individuals when it comes to employment and career longevity but also damaging the fabric of society and stability of a nation's economy and its competition in the global market.

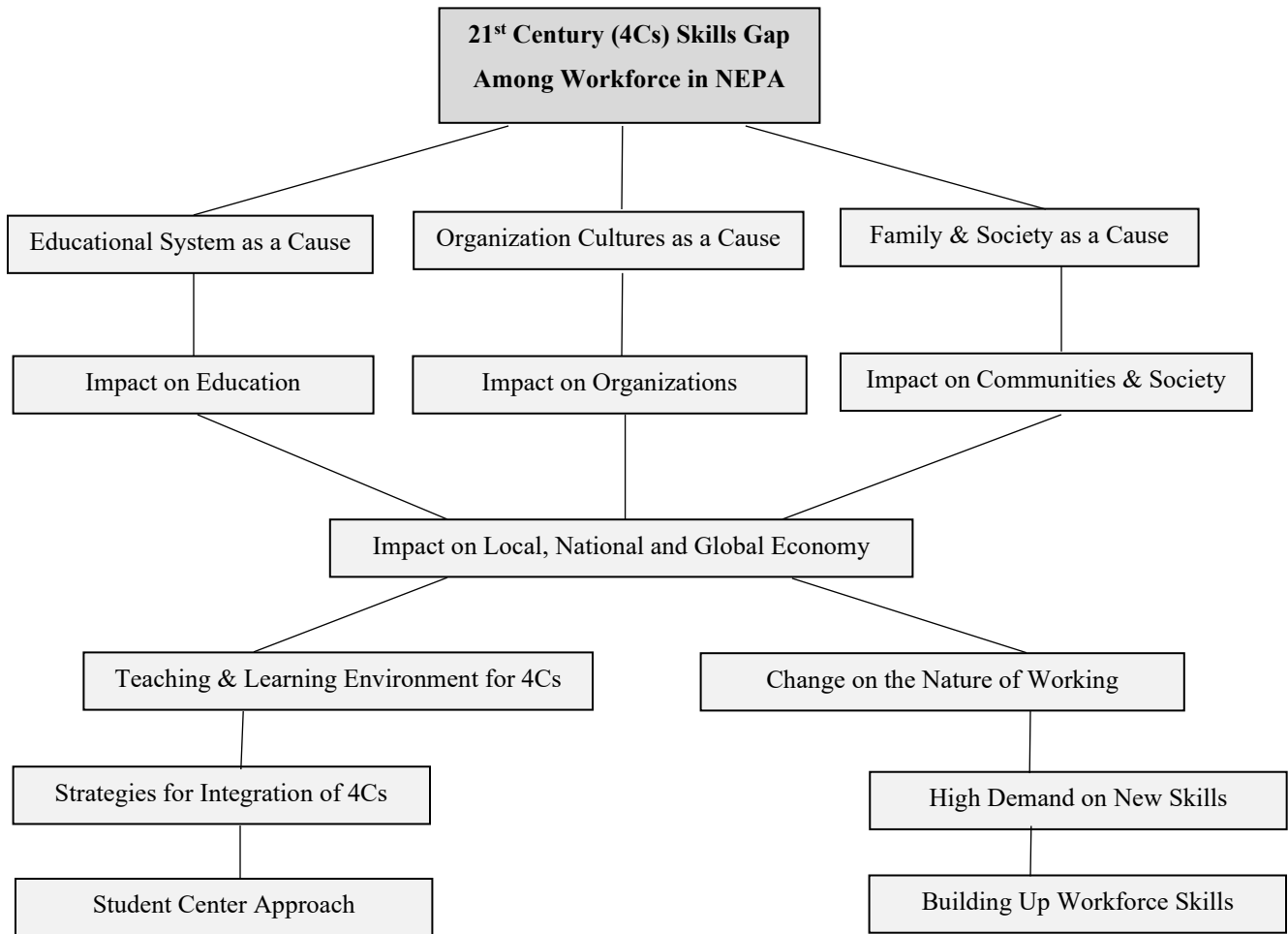


Figure 2.7. Display representation of the literature review summary.

Also, there is a widespread agreement among researchers that one of the most influential elements of 21st century skills development is education and school systems. There is an alignment regarding schools failing to provide a sufficient and systematic approach to training and development of students on these essential skills which have a direct influence on the students' personal and professional future. Researchers in the selected literature point at the family as the first platform for developing the young generation to understand and show interest in knowing these skills. After family, the researchers are holding schools and educators accountable for continuing to develop and increase the training of students on critical thinking,

communication, creativity, collaboration while displaying the importance of possessing a variety of soft skills for personal success and professional development.

Above all these, researchers point at the business community and organizations who have a direct interest in a workforce armed with 21st century skills and soft skills. These are organizations who are willing to invest in the future of their establishment as well as the future of their nation and global wellbeing. The organization can be a big part of this national and international development of the workforce to understand the importance of having these types of skills to be able to thrive and to teach a new wave of a workforce what is possible when the skills gap closes.

Researching the Impact of 4Cs Exclusively

As you have experienced during the reading of the introduction, background and literature review, soft skills are broad concept that includes many variables and elements, which would make researching all the reported elements of soft skills very difficult. Table 2.1. displays the vast variables and elements of soft skills. Given the purpose and intention of this research, the study will only investigate the four elements of 21st century 4Cs, (critical thinking, communication, creativity, and collaboration). As you can see in Table 2.2. the four elements of 4Cs skills have been represented many times by scholarly and peer-review articles, which were researching the elements of soft skills. This was a clear illustration of the elements of 4Cs skills being included under the larger umbrella of soft skills.

Table 2.1.

Elements of Soft Skills as Represented on the Literature Review

Literature	Elements of Soft Skills Reported in the Literature										
	Empathy	Cooperation	Teamwork	Listening	Civility	Professionalism	Etiquette	Motivation	Social Intelligence	Ethics	
Anthony & Gardner (2016)			Teamwork	Social Skills	Flexibility	Courtesy	Positive Attitude	Professionalism	Responsibility	Ethics	
Robles (2012)	Integrity	Communication	Teamwork	Social Skills	Motivation	Self-Awareness	Problem-Solving	Customer Service	Self-Regulation	Work Ethics	
Chang and Kelly et al., (2016)	Empathy	Communication	Teamwork	Social Skills	Motivation	Self-Awareness	Problem-Solving	Customer Service	Self-Regulation	Work Ethics	
Tulgan (2015)	Positive Attitude	Communication	Teamwork	Critical-Thinking	Personal Responsibility	Decision Making	Problem-Solving	Service	Self-Evaluation	Work Ethics	
Stewart et al., (2016)	Leadership	Communication	Professionalism	Critical-Thinking	Diversity Awareness	Interpersonal Relationships	Problem-Solving	Ethical Behavior	Cultural Sensitivity		
Boyles (2012)	Flexibility	Communication	Collaboration	Critical-Thinking	Innovation	Creativity	Problem-Solving	Self-Direction			
Longmore et al., (2018)	Agility	Communication	Adaptability	Critical-Thinking	Innovation	Collaboration	Problem-Solving				
Ibrahim et al., (2017)	Behaviors	Social Skills	Qualities	Good Habits	Attitudes	Personality Traits					
Levasseur (2013)	Leadership	Communication	Self-Awareness	Interpersonal Skills	Collaboration						
Hurrell (2015)	Professionalism	People Skills	Social Skills	Interpersonal Skills	Interpersonal Skills						

Table 2.2.

Elements of the 21st Century 4Cs Skills

Skills		Elements of the 21 st Century 4Cs Skills		
21 st Century 4Cs	Critical Thinking	Communication	Creativity	Collaboration

Chapter Summary

In Chapter Two, the notions of a 4Cs skills gap and a review of literatures were examined for an understanding and nature of the presented paradigm. A history of 4Cs skill gap was also briefly explored. This literature review prepared the readers for an examination of this study's methodology in Chapter Three. The next chapter (chapter three) is the methodology of the study, which will cover all the aspects and elements of this study related to the workforce's skills gap in the 21st century skills, 4Cs, and soft skills, especially in Lackawanna County, Northeast Pennsylvania.

CHAPTER THREE

METHOD

Introduction

The purpose and intention of all sciences are to explore and examine answers to the inquiry, questions, and analysis about the development and progression of physical, emotional or social events, experiences or phenomenon via research, study and observation (Jackson, Drummond & Camara, 2007). “Social science specifically attempts to discover new or different ways of understanding the changing nature of lived social realities” (Jackson et al., 2007, p. 2). In an attempt to reveal, understand, and grasp what life events, phenomena, and related experiences means to people, social scientists believe that there is a methodical and systematic approach to capture critical dimensions of social issues which are confronting human society, on personal and professional levels (Jackson et al., 2007). In this noble but significant search for clarity and answers, any professional scientists, researchers or scholars understand and are aware that they can only discover and reveal what is reachable, accessible or obtainable at the time of the study or during the time period leading up to the start of the investigation and inquiry (Jackson et al., 2007). It is noteworthy that it is nearly impossible to grip every element of a social event, experience or phenomenon, research all aspects and derive answers for all aspects of such encounters. However, it is the professional and ethical obligation of any researcher to attempt each study with a high degree of rigor, ethical assiduousness, total objectivity and impeccable integrity and accountability (Jackson et al., 2007).

The purpose of this qualitative study was to examine the perception of 21st century 4Cs (*critical thinking, communication, creativity & collaboration*) skill gap in private-sector employers in Lackawanna county, NEPA. Alignment of the defined 4C skills with the

productivity and professional growth desired by business and industry will provide a baseline for the analysis of the 4Cs skills gap.

Qualitative Research Reporting Standards

As Levitt et al. (2018) pointed out that without the direction of standard reporting, research readers, researchers, reviewers, future publications, journals, and editors would have several difficulties to follow and understand any research structure. To avoid any confusion and create certainty, this research follows the APA standard for qualitative research. “These standards describe what should be included in a research report to enable and facilitate the review process” (Levitt et al., 2018, p. 26).

Research Outline

This research outline and workflow’s relationship and interconnection among the three main process areas (Research Purpose, Data Collecting, and Data Analysis), and their related aspects of his qualitative interview study are displayed in Figure 3.1 at the page 91.

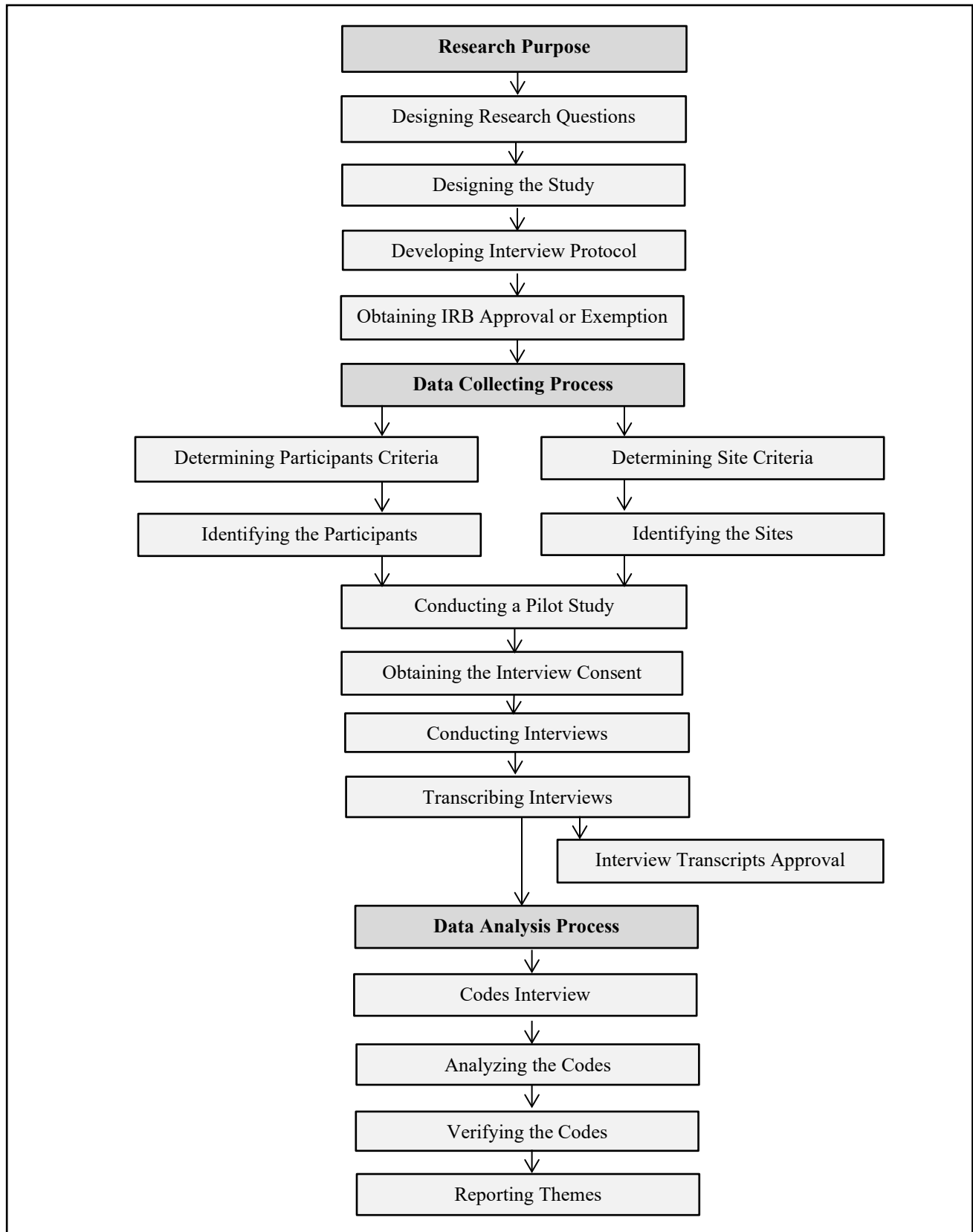


Figure 3.1. Interview study design, structure, and direction. Format adapted from Kvale (2007).

Study Design

This section will cover elements of research related to method, approach, instrument, selection criteria, and key questions.

Research Approach

This paper contains a collection of perspectives of current private sector employers and their presidents, CEOs, business executives, regional managers, business managers, or human resources directors in Lackawanna County, NEPA concerning the skill gap in the Lackawanna County labor market. Qualitative research methodologies characterize an explanatory and informational approach to the research problem while positioning the researcher in the environment in which the research problem exists. Furthermore, qualitative research applies inductive and deductive data collecting and analysis to recognize patterns and themes on the subject matter (Handley, 2017). Conducting qualitative research and data collecting through in-depth one-on-one interviews is the most effective research method and data collection instrument in this case for collecting direct information from participants who are involved in this research topic.

Qualitative Research

The applied qualitative research method assists researchers in accessing research participants' feelings and thoughts, which naturally empower the researcher's understanding of the participants' meaning of the issues which are attributable to their experiences, and consequently their behavior and attitude (Sutton & Austin, 2015). In contrast, quantitative research methods are being used to regulate how many participants commence specific behaviors and attitude toward the issue/topic. Qualitative methods aid researchers in recognizing how and why such behaviors and attitudes occur (Sutton & Austin, 2015). According to Bricki and Green (2007), qualitative research methods are featured by their objectives, which rely on revealing and

understanding of some characteristics and elements of social life. Qualitative research methods generally generate words and distinctions rather than numbers (which is the focus of quantitative research methods), as information and data for further analysis. In general, qualitative methods are focusing on understanding and revealing the experiences, behavior, and attitudes of members of a society, community, organizations, businesses, groups, and teams. Qualitative research methods are looking to find answers for questions and inquiries into about ‘what,’ ‘how’ or ‘why’ of an event, experience or phenomenon compared with quantitative research methods which are looking for answers to ‘how many’ or ‘how much’ (Bricki & Green, 2007).

Qualitative research methods embody a revealing and interpretive style to research issues and inquiries which would position researchers in the environments in which the issue(s) exist while using both inductive and deductive analysis approaches to govern the outlines, patterns, and themes related to the issue(s) (Creswell, 2013; Denzin & Lincoln, 2011). Using a rigorous qualitative research method would improve the processing of procedures, distribution of qualified reports, and perfection on the efforts (Sofaer, 2002). This critical approach will guarantee the essential elements of data analysis and the process of data clarification to be thoughtful, deliberate and in-depth to avoid the use of early interpretations rather than going through a comprehensive and detailed investigation and examining of the collected raw data (Sofaer, 2002).

The qualitative research approach to this study is defined as a series of in-depth interviews within the top ten private sector employers in Lackawanna County of NEPA. This researcher has selected two or three individuals from the pool of management and business personnel of each of these ten companies, for total of 27 interview participants. The in-depth interview process is known among research professionals as detailed and rigorous one-on-one

individual interviews with the determination of understanding and revealing then interpreting sense and meaning of a specific culture, phenomenon or norm (Boyce & Neale, 2006; Kvale, 1994). According to Sofaer (2002), many professional researchers are considering the cognitive interviews, which are based on an interviewee's experiences, reasonings, feelings and perceptions of the topic which would be a critical part of examining the validity and reliability of the study and survey instruments. Furthermore, Sofaer (2002) pointed to the importance of the cognitive in-depth-interview for governing whether or not all the elements of the research topic were included in the interview, and the interviewees' answers are understood and consistently interpreted by the interviewer as envisioned by the researcher.

The main objective of this research was to discover the viewpoint, perspectives, and understanding of current employers in the private sector, and business leaders of Lackawanna County, NEPA in regard to lack of 21st century skills known as 4Cs (critical thinking, communication, creativity, and collaboration) and the observed skills gap among their past and current workforce, and all the human resources and productivity issues caused by the lack of these skills. The qualitative research method and interviewing process is a detailed, rigorous and reliable method applied when direct observation is not readily available to the researchers to informally construct context or meaning of an issue(s) from the perspective of the research participants (Kvale, 2007; Merriam, 2009; Patton, 1990).

According to Miles and Huberman (1994), the qualitative research method and interview process is the most appropriate and singularly effective method of gathering data in this type of research given the research's intention to understand the viewpoints and perspectives of the 4Cs skills gap and the constraints it puts on the business professionals in the targeted geographic area.

Connecting the research with clear constraints would assist researchers in aligning the research to the research questions.

Qualitative Research Limitations. Although this paper has illustrated many professional, valuable, and useful aspects of the qualitative research method, other researchers and scholarly writers have pointed out some limitations and challenges of qualitative research methods. Such constraints are as follows: 1) It is harder to maintain rigor, measuring, assessment, and demonstration compared to the quantitative approach (Miles & Huberman, 1994). 2) The analysis and interpretation of data is time consuming due to the nature and volume of data collected via qualitative method (Miles & Huberman, 1994). 3) The presence of the research team during interviews and data collecting activities might affect the research interviewees' replies (Sofaer, 2002). 4) In many cases, it is difficult to generalize the research finding due to the nature of the research population or communities (Sofaer, 2002). 5) It is harder to analyze the findings due to difficult process of fitting the findings in an organized manner in typical categories (Boyce & Neale, 2006). 6) Responses are not statistically representative and displayable (Boyce & Neale, 2006). 7) The quality of data gathering is dependent on researcher teams' skills, understanding of the research topic, and their ability for relevant and meaningful interpretation of findings (Kyale, 1994).

Multi-Organization Approach

For this research, a multi-organization approach was selected to address the perception, view, and understanding of the impact of the 4Cs skills gap among labor market in Lackawanna County, NEPA. The analysis units for this study is the perspective of current business professionals as individuals (presidents, CEO's, business executives, business managers, senior supervisors or human resources directors) of private sector employers in the geographic research

area. Collecting perspectives, points of view, experience, and understanding from business professionals at ten different organizations will assist researchers in assessing multiple viewpoints and perspectives across various industries, environments, communities, cultures, and situations within the local organizations in the targeted geographic area (Khan & Vanwynsberghe, 2008).

Research Questions

The following three research questions were used as the primary research questions in guiding this study:

Research Question 1: What value is placed on 4Cs in an industry setting in Lackawanna County, NEPA?

Research Question 2: How do the 4Cs skills gap impact workforce team performance in an industry setting in Lackawanna County, NEPA?

Research Question 3: What 4Cs skills training and development would be effective for the labor pool in an industry setting in Lackawanna County, NEPA?

Interviews' Approach, Design, and Instrument

After completion of the literature review, the next step was designing a comprehensive one-on-one interview protocol for collecting data from ten private sector employers, via two or three of their business professionals, for total of 27 interviewees. Designing and developing quality open-ended interview questions which would provide in-depth answers related to the research problems is not easy, but such questions are crucial for trustworthiness, validity, and reliability of the research (Handley 2017).

Data Collecting Instrument

In this study, in-depth, one-on-one interviews were appropriate, given that the intention and purpose of the study was to comprehend perceptions, views, and experiences of these

employers on the issue. In-depth interview studies are comprised of a series of open-ended questions and techniques which will be used to interview participants at the selected study sites. These interview questions should be vetted by a third party to provide access to information-rich data (Hardley, 2017). The nature of the collected data could be defined as abstract, i.e. 'skills gap among the workforce,' in which the in-depth interviews' approach could provide much more clarity explaining and describing the intent of the answers and interview outcomes related to the attitude and behaviors that when detected and noticed, would contribute to the understanding and performance goal of the interview (Handley, 2017; Mager, 1972). A semi-structured interview approach was designated for this research to ask for and receive the participants' viewpoints and perspectives that arise. This interview structure approach allows the researcher to guide the interview by inquiries and questions which assist the researcher in collecting data related to the key research problem being explored. The flexible nature of the semi-structured interview provides an environment in which the participant is the expert in the subject matter (Merriam, 2009).

Instrument Design. Before conducting the interviews, the process of writing the introduction and background, followed by the literature review and the pilot studies provided better understanding and insights into the structure and strategy for designing the interview protocol. According to the Mager's (1972) *Goal Analysis Theory* after researcher classifying the research goal, it is vital the researcher starts describing the research approach and performance plan which would characterize how to achieve the research goal. In this study the researcher's goal is to identify the impact of workforce's 21st century, 4Cs (critical thinking, communication, creativity, and collaboration) skills gap across organizations in the private sector operating in the Lackawanna County, NEPA. For this study's purpose, probing interview questions as descriptors

to outline behaviors associated with the impact of such skills gap on organizations and their well-being was an imperative and appropriate strategy (Handley, 2017). Kim et al. (2008) exploited probing questions to guarantee that descriptions of the impacts of behaviors caused by outcomes of such skills gap were counted in the interview process.

In-Depth Interviews

Even well into the 21st century, the majority of trainings for qualitative research (either intentionally or not) are based on the Grounded Theory which is a model created in the 1960s and has influenced many articles and books on the topic of in-depth interviews and cited their methodology section with material from this theory (Deterding & Waters, 2018). “Grounded theory, developed by Glaser and Strauss (1967) and elaborated by Glaser (1992), Strauss (1987), Strauss and Corbin (1990), and Charmaz (2000), provides a set of steps for conducting and analyzing qualitative research” (Deterding & Waters, 2018, p. 2). The Grounded Theory model promotes and pushes for transparency, and it is not in favor of a secondary analysis of data collected from the interviews. (Deterding & Waters, 2018). In-depth interviews are one of the most well-acquainted strategies for gathering data in qualitative research. While vastly structured survey interviews and robust questionnaires are used in the much research, less formal and structured interview strategies are becoming more desirable to qualitative researchers when the interviewee is participating in finding meaning on and about the research topic versus a channel for gathering information (DiCicco-Bloom & Crabtree, 2006).

Some researchers refer to in-depth, one-on-one interviewing as a set of qualitative surveys displaying and representing a robust research design while trying to find patterns and themes of different elements and aspects of the research topic in order to offer clarification for contextual features and reasoning relevant to the research questions (Handley, 2017). Spencer

(2017) described one-on-one interviews as the data gathering approach comprised of numerous bases of evidence, indications, and parallel lines of examinations. The literature review, and in-depth one-on-one individual interviews are fitting and suitable for this study because the main purpose of the study is to understand issues caused by the 4Cs skills gap from the perspectives of business professionals of private sector employers in Lackawanna County, NEPA which is made up of individuals with perspective and experience of local labor market issues. As it has been underlined in the research literature, in-depth interviews are a most appropriate, applicable, relevant and effective approach to qualitative research and inquiry, given it would provide direct information, data and access to the research participants' view and perspective of the issue(s) (Handley, 2017; Patton, 1990). Qualitative research interviews are categorized and differentiated as either unstructured, semi-structured, or structured. This study specifically used the semi-structured format, giving structured interviews mostly used for gathering the findings for producing quantitative data (DiCicco-Bloom & Crabtree, 2006).

Semi-structured interviews. The semi-structured in-depth-interview data gathering approach is established as the empirical structure of most qualitative research in topics related to social sciences (Campbell et al., 2013). In many cases, the semi-structured interviews are the singular data-gathering basis for a qualitative study venture. They are typically scheduled in advance at an elected day, time, and location separate from an everyday business (DiCicco-Bloom & Crabtree, 2006). Semi-structured interviews are commonly designed to include a series of prearranged open-ended questions when additional questions naturally emerge from the conversations and interchanges between interviewer and the research participant. Semi-structured interviews are commonly conducted only once for a research participant and usually takes between a half an hour to one hour to complete (DiCicco-Bloom & Crabtree, 2006).

In this study, interviews were semi-structured, using open-ended questions which are appropriate for this research study to reflect perceptions of both sides during the data collecting process as follows:

- 1) Interview portfolios were completed in advance.
- 2) IRB application or exemption was obtained.
- 3) Interview participants' consent was obtained.
- 4) Interviews were audiotaped.
- 5) Interview contents were transcribed.
- 6) Transcriptions were sent to participants for review, revision (if necessary), and approval.
- 7) All direct or indirect identifications (if necessary or requested) were removed from the transcripts.
- 8) Confidentiality of all interviews and data collecting processes was maintained as per policies of the Office of Research Protections.
- 9) To ensure qualitative validity, research data was collected in real time from multiple sources such as organizations and their business professionals and local, county and state officials.

Multiple methods such as semi-structured interviews, applicable office documents, U.S. Bureau of Labor Statistics, historical data from the PA Department of Education, historical data from the PA Department of Labor, U.S. Census Bureau, and national records and averages were used.

Developing Interview Protocol

This section explains the rules, policies, and instructions that guided the researcher and application of the research interviews. Strategies applied in the design and application of the

semi-structured interview protocol included asking for definite examples, such as ‘what’ versus ‘why’ questions to keep the interviews and the participants from getting entangled in concepts, and for the interviewers not to ask non-leading questions (Spencer & Spencer, 1993). The initial semi-structured interview protocol used by researchers in pilot studies will provide information and experience for conducting the final interview protocol based on the interviewees’ feedback collected from the pilot studies (Handely, 2017; Kim et al., 2008; Spencer & Spencer, 1993).

These steps were followed for each interview to guarantee uniformity among all interviews which would increase the level of reliability of the discoveries of data during the interviews (Boyce & Neale, 2006). The following directions and guidelines for the interviewer were adopted from Boyce and Neals (2006) and contained in the design of the interview protocol:

- 1) How to set up the interview.
- 2) What to say to the participants during the setup?
- 3) How to set up for the Confidentiality and Non-Disclosure agreement and the Informed Consent with the participants.
- 4) How to conclude the interview and what to say to the participants at the end of interviews.
- 5) What form of data collecting application will be used, such as note-taking or audio/video recording?
- 6) What is the interviewer’s plan for after interview, such as producing Interview Transcripts for interviewees’ approval or summarizing the essential findings and information from the interview?

Given the similarities in the qualitative method between this study and Dr. Handley's dissertation, the interview questions for this study were vetted by Dr. Meredith Hollan Handley the Assistant Teaching Professor to provide access to information-rich data.

Participants' Descriptions. The following nine questions are designed to understand the interview participants' professional histories and positions concerning their management influences on people who they have managed (Handley, 2017):

1. What is your current role in this organization?
2. How long have you been working in this role?
3. How long have you been in a management or leadership role in your career?
4. How many senior and junior managers, supervisors or employees are you currently managing or overseeing?
5. How many positions have you occupied throughout your career?
6. How many companies have you worked with before your current position?
7. How many varieties of positions have you occupied throughout your career?
8. Have you acted as a mentor for new managers or supervisors?
9. How do you rate yourself from 0 to 10 (0 being the lowest and 10 being the highest) on possessing and using these 4Cs skills when working with your workforce: a) Critical Thinking, b) Communication, c) Creativity, d) Collaboration?

Interview Questions. The following 12 interview questions are designed based on the three key research questions, and on the basis of four interview questions for each of the three research questions, plus two general concluding questions:

1. What do 4Cs skills (critical thinking, communication, creativity, and collaboration) look like to you in a skilled workforce? Please describe your viewpoint. (Please reply

separately for the each of the four skills) (Handley, 2017; Longmore et al., 2018; Robb, 2017; Soule & Warrick, 2015; Tulgan 2015).

2. What do you observe about the 4Cs skills gap among the workforce at your organization? (Please reply separately for the each of the four skills) (Handley, 2017; Marts et al., 2016; Robb, 2017; Robles, 2012; Soule & Warrick, 2015; Tulgan, 2015).
3. What degree of value (rate from 0 to 10) are you placing on 4Cs skills among your workforce? (0 being the lowest and 10 being the highest) (Please reply separately for the each of the four skills) (Robb, 2017; Tulgan, 2015; Martz et al, 2016; Robles, 2012; Soule & Warrick, 2015; Handley, 2017).
4. How do you rank the importance of each of the 4Cs skills in having a positive impact on team performance? (The most impactful being 1 on the top to the less impactful being 4 on the bottom) (Robb, 2017; Tulgan, 2015; Martz et al, 2016; Robles, 2012; Soule & Warrick, 2015; Handley, 2017).
5. Can you talk about a time when an employee demonstrated a positive outcome because of any of the 4Cs skills that impacted the team performance? Describe the situation. What behaviors did you observe? What was the impact or result? (Ahmadi & Besancom , 2017; Handley, 2012; Marts et al., 2016; Robb, 2017; Soule & Warrick, 2015; Tindowen et al., 2017; Tulgan, 2015).
6. Can you talk about a time when an employee demonstrated a negative outcome because of a lack of any of the 4Cs skills that impacted the team performance? Describe the situation. What behaviors did you observe? What was the impact or result? (Ahmadi & Besancom , 2017; Handley, 2012; Marts et al., 2016; Robb, 2017; Soule & Warrick, 2015; Tindowen et al., 2017; Tulgan, 2015).

7. From your point of view, what would a practical 4Cs training look like for your workforce? What should be part of this training? (Tulgan, 2015; Tindowen et al., 2017; Boyles, 2012; Robb, 2017; Handley, 2017)
8. How does the 4Cs skills development among workforce provide organizations with a competitive edge? (Ahmadi & Besancon, 2017; Levin-Goldberg, 2012; Spies & Xu, 2018; Soule & Warrick, 2015; Tulgan, 2015).
9. From your point of view, what would be the influence of developing 4Cs skills on the workforce's attitude and behavior? (Ahmadi & Besancon, 2017; Levin-Goldberg, 2012; Spies & Xu, 2018; Soule & Warrick, 2015; Tulgan, 2015).
10. From your point of view, what would be the influence of developing 4Cs skills on training and developing leadership competencies among the workforce? (Ahmadi & Besancon, 2017; Levin-Goldberg, 2012; Spies & Xu, 2018; Soule & Warrick, 2015; Tulgan, 2015).

(The following two questions are general question to give the interviewee opportunity to express any additional information and answer any potential questions they might have.)

11. Is there any experience about having or lacking 4Cs skills in your organization or among your workforce, that you would like to share or add to this interview process?
12. Do you have any questions about this interview or what is next?

Rating Scales. In some of the above questions, the researcher is asking participants to express their answers accompanied with a degree or scale from zero to ten. This approach is similar to the Linkert type scales, for example on the above question #3 from 'not valued' to 'highly valued' everything between. However, these questions and their responses are all in form of verbal and conversations which will be recorded.

Table 3.1.

Interview Questions Corresponding with the Research Questions & Related Literature

#	Research Questions	#	Interview Questions (Appendix A)	Related Literature
1	What value is placed on 4Cs in an industry setting in Lackawanna County, NEPA?	1	What do 4Cs skills (critical thinking, communication, creativity, and collaboration) look like to you in a skilled workforce? Please describe your viewpoint. (Please reply separately for the each of the four skills).	Soule & Warrick (2015) Robb (2017) Tulgan (2015) Longmore et al. (2018) Handley (2017)
		2	What do you observe about the 4Cs skills gap among the workforce at your organization? (Please reply separately for the each of the four skills).	Robb (2017) Tulgan (2015) Martz et al. (2016) Robles (2012) Soule & Warrick (2015) Handley (2017)
		3	What degree of value (rate from 0 to 10) are you placing on 4Cs skills among your workforce? (0 being the lowest and 10 being the highest) (Please reply separately for the each of the four skills).	Robb (2017) Tulgan (2015) Martz et al. (2016) Robles (2012) Soule & Warrick (2015) Handley (2017)
2	How do the 4Cs skills gap impact workforce team performance in an industry setting in Lackawanna County, NEPA?	4	How do you rank the importance of each of the 4Cs skills in having a positive impact on team performance? (The most impactful being 1 on the top to the less impactful being 4 on the bottom).	Robb (2017) Tulgan (2015) Martz et al. (2016) Robles (2012) Soule & Warrick (2015) Handley (2017)
		5	Can you talk about a time when an employee demonstrated a positive outcome because of any of the 4Cs skills that impacted the team performance? Describe the situation. What behaviors did you observe? What was the impact or result?	Tulgan (2015) Ahmadi & Besancom (2017) Tindowen et al. (2017) Boyles (2012) Robb (2017) Handley (2017)
		6	Can you talk about a time when an employee demonstrated a negative outcome because of a lack of any of the 4Cs skills that impacted the team performance? Describe the situation. What behaviors did you observe? What was the impact or result?	Tulgan (2015) Ahmadi & Besancom (2017) Tindowen et al. (2017) Boyles (2012) Robb (2017) Handley (2017)
3	What 4Cs skills training and development would be effective for the labor pool in an industry setting in Lackawanna County, NEPA?	7	From your point of view, what would a practical 4Cs training look like for your workforce? What should be part of this training?	Spies & Xu (2018) Ahmadi & Besancon (2017) Soule & Warrick (2015) Levin-Goldberg (2012) Tulgan (2015)
		8	From your point of view, how does the 4Cs skills development among workforce provide organizations with a competitive edge?	Spies & Xu (2018) Ahmadi & Besancon (2017) Soule & Warrick (2015) Levin-Goldberg (2012) Tulgan (2015)
		9	From your point of view, what would be the influence of developing 4Cs skills on the workforce's attitude and behavior?	Spies & Xu (2018) Ahmadi & Besancon (2017) Soule & Warrick (2015) Levin-Goldberg (2012) Tulgan (2015)
		10	From your point of view, what would be the influence of developing 4Cs skills on training and developing leadership competencies among the workforce?	Spies & Xu (2018) Ahmadi & Besancon (2017) Soule & Warrick (2015) Levin-Goldberg (2012) Tulgan (2015)

Online video conferencing for the interview. For this study, we have chosen to use Skype, Zoom or Go-To-Meeting video platform conferencing and interviewing as an alternative or supplemental choice to the traditional onsite interview when it is feasible due to time, distance or participants' convenience.

Communication technology has changed dramatically over the last several decades. Consequently, online video conferencing and interviews have grown in popularity among academic and business professionals. Online interviews become an answer to concerns about time and financial restraints, geographical spreading, and people's physical mobility limitations (Janghorban, Roudsari & Taghipour, 2014). In today's technical advancement of communication technology, there are many audios and video conferencing platforms readily available to the public. Skype, Zoom, Go-To-Meeting, and FaceTime are four of synchronous online services that offer researchers the freedom and possibility of conducting one-on-one and focus group interviews with recording capability, similar to face to face interviews (Janghorban et al., 2014). Also, any verbal and nonverbal signals in online video interviews are offering the same level of authenticity as an onsite interview (Sullivan, 2012).

Ethical issues in online video interviewing are considered to be the same as in traditional onsite interviews. Research professionals can acquire informed consent by email, and inform participants about the audio/video recordings, either by the video software or detached recorder, for use in transcribing the interview (Cater, 2011).

IRB Application

In order to conduct the pilot study and the actual research, the IRB application (HRP-591 Protocol for Human Subject Research) (Appendix E) was completed and started on September 2, 2019, and after several drafts, the final version of the application was submitted and the

“Exemption Determination” approved (Appendix F) by the Office for Research Protection on September 30, 2019.

Pilot Study

To obtain enough information to improve and redesign the interview protocol, this researcher conducted pilot studies with two local organizations in the private sector. As a result, there was a great improvement on the invitations and communication approach with interviewees, the development of more effective interview questions, and better interviewing skills. The pilot study was conducted in November of 2019. The intention of this pilot study was to evaluate the initial approach to the interviewees and communication strategies for safeguarding the interview and its related elements such as day, time, in-person or on the phone communication, and follow-ups. Also, to practice asking the interview questions meant to observe responses and collect data on the 21st century 4Cs skills gap among the previous and current workforce. The selection criteria for selecting two local organizations was based on their having at least five years of being in business with a minimum of 50 employees. In addition, they had to be in senior or middle management positions and had to have at least five years of employment history in the organization or in their management positions.

Research Subject Selection

In this section, this researcher described the criteria and procedures for selecting sites and participants. Usually, researchers attempt to select study/research subjects that have certain characteristics in common by setting inclusion and exclusion conditions for selecting sites and participants at the time of designing the study/research (Creswell & Creswell, 2018). As Fowler (2009) described, the sample frame is the people in the parameter of the study selection criteria who could be selected. Statistically, a selected sample group should be demonstrative of the

sample population encompassed in the sample frame. In this case, this research sample population is a totality of organizations operating in the private sector domain in Lackawanna County, NEPA, within the qualification category for selection. Selection of the research participants must have a clear justification and precise relevance to the purpose of the research questions. That is one of the reasons that qualitative methods are generally defined as a 'purposive' method (Cleary, Horsfall & Hayter, 2014).

For this type of qualitative study for which data was collected and provided by participants, the purposive sampling was an appropriate technique for selecting the sites and participants of a study (Creswell, 2013; Patton, 1990). Specifically, for this study, the purposive criterion sampling was chosen and used to categorize the sites and the participants (Handley, 2017). According to Patton (1990) criterion sampling is a procedure for defining the sites and participant samples based on a predetermined criterion of significance that is more probable to be information-rich, understanding and knowledgeable of the purpose of a study. Given the purpose of this current study which is to understand the perception of organizations in the private sector on 21st century 4Cs skills gap among their workforce in NEPA, the sites and participants' sampling criteria were selected to gain information-rich data, by taking into consideration the framework, background, environmental aspects and cultural implications of the general workforce in NEPA (Handley, 2017).

As it is expected among the research community, the sampling procedure was iterative and naturally expected to further refine and develop during the research progression (Farrugia, 2019). Unlike the defined and sequential stages of a quantitative research method, the process of sampling in a qualitative research method would be conceptualized as a recurring progression (Farrugia, 2019). Analysis of collected data and interpretation of such data after preliminary

sampling in the pilot study provided feedback to the researcher and opportunity to adjust and reconfigure the sampling selection process for the final research (Farrugia, 2019).

Multi-Site selection criteria. The following was the criteria for selection of research sites. The private sector organizations (based on the number of employees) utilized in this study were identified based on the tender of the following five categories (see Table 3.2.):

1. Be a private sector company operating in Lackawanna County, NEPA.
2. Appear on the list of “Top 50 Employers in Lackawanna County” based on the number of employees, provided by the Pennsylvania Department of Labor & Industry, (Figure 3.2.), or
3. Employ a minimum of 50 employees.
4. Be an active organization for at least the last five years in Lackawanna County, NEPA, and not be a startup level company.
5. Be established at their current location for a minimum of the last three years.

All these categories were confirmed and verified by the local Chamber of Commerce and the Pennsylvania Department of Labor & Industry. During the interview process with the selected ten organizations from the private sector, the employment records and history of hiring and termination records were reviewed to assess a) entry-level employee education (elementary, middle school, high school, college, and graduate level), b) long-term employment history, c) reasons for termination, and d) turn-over rate among the organization’s workforce in order to collect information about the potential cause of long-term or short-term employment related to presence or lack of the 4Cs skills. The selected organizations also have an extended history of employment recruitment through the use of employment agencies, temp agencies, job fairs, and employment ads in the local media in Lackawanna County, NEPA.

The contacts with the selected organization's human resources were established in advance to utilize their assistance in identifying appropriate business professionals (executives, senior managers, middle managers, supervisors, or human resources directors) for research interviews.



Lackawanna County

1st Quarter, 2020

Combined Government Ownerships

Rank	Employer	Rank	Employer
1	State Government	26	Geisinger System Services
2	Allied Services Foundation	27	Arlington Industries Inc
3	Community Medical Center	28	Geisinger Clinic
4	The University of Scranton	29	Golden Technology
5	Scranton School District	30	Albert & Carol Mueller
6	Lackawanna County	31	UPS Supply Chain Solutions General Services
7	Federal Government	32	Keystone College
8	Wal-Mart Associates Inc	33	Abington Heights School District
9	Scranton Hospital Company LLC	34	Aramark Campus LLC
10	Keystone Community Resources Inc	35	North Pocono School District
11	Scranton Quincy Hospital Co LLC	36	Maid-Rite Specialty Foods LLC
12	Bank of America NA	37	Barry Callebaut USA LLC
13	Marywood University	38	Lackawanna College
14	Prudential Insurance Co of America	39	The Wright Ctr for Graduate Med Edu
15	Gerrity's Supermarkets	40	Musculoskeletal Transplant Foundation
16	Penn Foster Inc	41	Fastenal Company
17	Saint Joseph's Center	42	Scranton Quincy Clinic Company LLC
18	Amazon.com Services Inc	43	Kane Warehousing Inc
19	McLane	44	Treesmiths Inc
20	City of Scranton	45	MetLife Group Inc
21	TMG Health Inc	46	Gertrude Hawk Chocolate Shops Inc
22	Lockheed Martin Corp	47	The AZEK Company
23	Gentex Corporation	48	Weis Markets Inc
24	Cigna Health and Life Insurance Co	49	Valley View School District
25	Wegmans Food Markets Inc	50	General Dynamics Ordnance and Tacti

Source: Quarterly Census of Employment and Wages

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August 2020

Figure 3.2. The top 50 employers (based on the number of employees) in Lackawanna County, Northeast PA.

Interview participants’ selection criteria. The particulars of the participants’ sample selection design, its related size, dimensions, and the explicit procedures used for selecting research participants, will affect the accuracy of sample evaluations, in other words, how closely a selected sample is expected to represent the characteristics of the available population (Fowler, 2009). The selected research participants were recognized as current business leaders, such as CEOs, executives, regional managers, senior and middle managers and human resource directors who directly experience the workforce’s skills gap in the 21st century skills or 4Cs (critical thinking, communication, creativity, and collaboration). The selection of criteria for participation and participants themselves were without any particular consensus on the definition of ‘business professional’ (Hardley, 2017).

The criteria for selecting two or three business professionals from each of the ten organizations are the following (see Table 3.2):

1. Be in an executive, director, senior, middle, or junior management position.
2. Be in their current position with the organization for at least three years.
3. Be a resident of Lackawanna County, NEPA area for the last three years.
4. Have direct management responsibility over at least 10 employees.

Table 3.2.

Criteria for Selection of the Study’s Sites and Participants

#	Site Criteria	Participants Criteria
1	Be part of private sector companies operating in Lackawanna County, NEPA.	Be in an executive, director, senior, middle, or junior management position.
2	Appear on the list of “Top 50 Employers in Lackawanna County” provided by the Pennsylvania Department of Labor & Industry, or	Be in their current position with the organization for at least three years.
3	Employ a minimum of 50 employees.	Be a resident of Lackawanna County, NEPA area for the last three years.

- | | | |
|---|--|---|
| 4 | Be an active organization for at least the last five years in Lackawanna County, NEPA, and not be a startup level company. | Have direct management responsibility over at least 10 employees. |
| 5 | Be established in their current location for a minimum of the last three years. | |
-

To initiate the participants' selections, an email directed to the Human Resources Directors of selected organizations was sent, including information explaining the context of the search and a request to contact them in person or via telephone to review and choose the two or three study participants and set up the one-on-one interviews.

Dr. Wesley Donahue, Ph.D., a professor of education in the Workforce Education and Development program of the Learning and Performance System Department at Penn State and a member of my dissertation committee and who has completed multiple studies on the topics related to WFED (Workforce Education and Development), OD (Organization Development) such as Building Leadership Competency and Leadership Competency Inventory, reviewed the above criteria on June 10, 2019. Dr. Donahue confirmed the relevance and appropriateness of selected criteria for identifying current business professionals for the interview participants.

Ethics Issues

In this segment, we will review several potential ethical issues related to the qualitative research method.

Technology Advancement

Recently, during the last couple of decades, there is an apparent increase in the application of the qualitative method research associated with constructivist-interpretive and critical theory models within the areas of social science and psychology. This popular approach has caused a change in the means of data-gathering in addition to a methodological paradigm shift (Handley, 2017). For example, the in-depth, face-to-face interview is the most mutually

agreed means to gather data for qualitative research (Creswell, 2013). However, this was before amazing progressions in technology and online communication platforms. Qualitative data used to be collected only through face-to-face (one-on-one or focus group) interviews. In many ways, this method of data collecting remains the preferred method (Cater, 2011); however, online video conferencing has added new and productive possibilities for interviewing and gathering data through other platforms.

Interviews are no longer limited by face-to-face, geographic location, or financial restraints (Hooley, Wellens & Marriott, 2012). Video chat platforms, such as Skype, Zoom, and FaceTime, via devices such as laptop computers, smartphones, and tablets have efficient options for audio and video recording and are conveniently made available for easy storage of collected data and transcription procedures (Reynolds & Lee, 2018). At the same time, information technology-related platforms plus online availability and complications have established a tandem with these advanced technological opportunities. This leads to extra ethical and methodological issues when faced with obstacles, such as unavailable internet or cell phone coverage, dropped calls, and some inaudible portions (Reynolds & Lee, 2018).

Ethical Responsibilities

Researchers carry responsibilities not only to their research subjects and participants but also to their academic colleagues, institutes, organizations, or people to whom they will submit their research results and findings (Handley, 2017). According to Bricki and Green (2007), one of the starting points for developing such responsibilities is in looking at ethical concerns. In this regard is Bricki and Green (2007) mentioned Tom Beauchamp and Jim Childress (1983) ethical principles, as follows:

Autonomy. Respecting the rights of the research participants as individuals.

Beneficence. Attempting to do good and producing results that make a difference for people and organizations.

Non-Maleficence. Not harming research participants as individuals or organizations which we are interviewing.

Justice. Providing fairness and impartiality to the research participants as individuals and as representatives of organizations being interviewed.

Researchers shall carefully consider the context of the research work and intention and how sensitive the research, its topic and related elements could be, and how they can potentially upset, create discomfort and fearfulness among the research participants during the interview process (Handley, 2017). They shall remember a sensitive fact that by asking the participants to speak about experiences that can potentially bring bad or upsetting memories which are painful, humiliating and even frightening, the interview could cause anxiety or increase stress for them. Therefore, it is vital for researchers to know how to ask selected questions or interject spontaneous questions (Bricki & Green, 2007).

Consent and Confidentiality

Two important ethical matters that should be considered and practiced in any research project are consent and confidentiality;

Consent. Participants in the research project consented to their participation in the project, without being coerced or unfairly pressured. They were well-informed about what their participation involved and required. Additionally, all participants were reassured that declining participation would not affect them in any shape or form, for any services they might receive either from their employers or the organizations (Bricki & Green, 2007). As Bricki and Green

(2007) underlined, although in some cases, written consent might be concerning or alarming for individuals, Researchers should at minimum acquire their verbal consent.

Confidentiality. Sometimes, it is not easy or possible to ration or measure the hazards or risk of a particular situation to a given population or individuals in a society or even within their organizations. Therefore, it is critical to safeguard the identity and the collected data of the participants (Bricki & Green, 2007). Please see Appendix B for this research Consent and Confidentiality form.

Data Analysis

Analysis of the collected data involves creative interpretation of the story developing from the information and methodical basis of data in developing ideas validated through evaluations across the whole spectrum of information (Corbin & Strauss, 2008; Handley, 2017; Patton, 1990).

The qualitative method approach to a data analysis model in this research counts on producing, developing, and confirming concepts within the context of the 21st century 4Cs skills and related professions to guarantee that the meaning and interpretations from the in-depth interview process are clear and correct (Corbin & Strauss, 2008; Handley, 2017). Twenty to thirty interviews will be collected and transcribed precisely into Microsoft Word documents and will be distributed to all research participants for review, potential edits, and approval in order to check for accuracy and representation of their perceptions and viewpoints. The collected and approved transcripts will be uploaded to the Dedoose software to progress with the coding process.

Coding the Data. For this research, the Dedoose software and an open and axial coding process were used for the first stage of data analysis and organization. The open coding process includes breaking apart the collected data into concept groupings (Corbin & Strauss, 2008;

Hardley, 2017). During the open coding process, it is imperative for the researcher to use questioning procedures to reflect on the collected data and start detection of analytic leads for any further exploration into the existing data (Merriam, 2009; Saldana, 2009). One of the qualitative method techniques is 'Questioning the data' that will be used through the open coding process which permits the researcher to constantly question the material they are reading and why that material might be noteworthy and relevant to their research questions. This would allow for deeper digging into the topic question in addition to surprising and theoretically interesting findings (Saldana, 2009). After the open coding process, researchers start the axial coding process, which is the process of relating concepts or categories within the collected data (Corbin & Strauss, 2009). Simply describing the coding process, open-coding breaks down data and separates them into concepts, while axial-coding process groups the data together into associated concepts (Corbin & Strauss, 2008).

At this point, we need to underline that coding as a specific method intended for stories, messages, interpretations, and content analysis is essential to mass communication research methods (Lombard, Snyder-Duch & Bracken 2002). Intercoder reliability or intercoder agreement is a degree or level to which an independent coder makes the same coding conclusions in appraising the characteristics of a story and message; interpretations are at the heart of this method of approach. However, there are not many standards, policies or available guidelines concerning the proper procedures to use for measuring and reporting intercoder reliability, and software tools to compute such reliability (Lombard et al., 2002). As a result of the lack of support, there appears to be little consistency in how this vital aspect of content analysis is evaluated and reported in published mass communication research (Lombard et al., 2002).

According to De Vries et al. (2008), Cohen's kappa statistic is a broadly used measurement among qualitative researchers to appraise interrater agreement side-by-side to the rate of agreement anticipated from coincidental or by chance outcome on the foundation of the general coding rates of each rater. "This chance-corrected statistic is an important measure of the reliability of qualitative data, and although it is still sensitive to the base rates of coding, it more fully considers the effect of base rates than simple measures of agreement" (De Vries et al., 2008, p. 272). Kappa statistics apply to dichotomous items and multiple categorical items and a variety of other approaches (De Vries et al., 2008). After revising the excerpts' inputs and comments, Kappa's coefficient will be calculated to govern the level of agreement modified and altered for chance (De Vries et al., 2008). For this research, a Kappa of 0.75 was planned for representing a good agreement, according to Landis and Koch (1977). Figure 3.3 outlines the framework used for coding the research collected data.

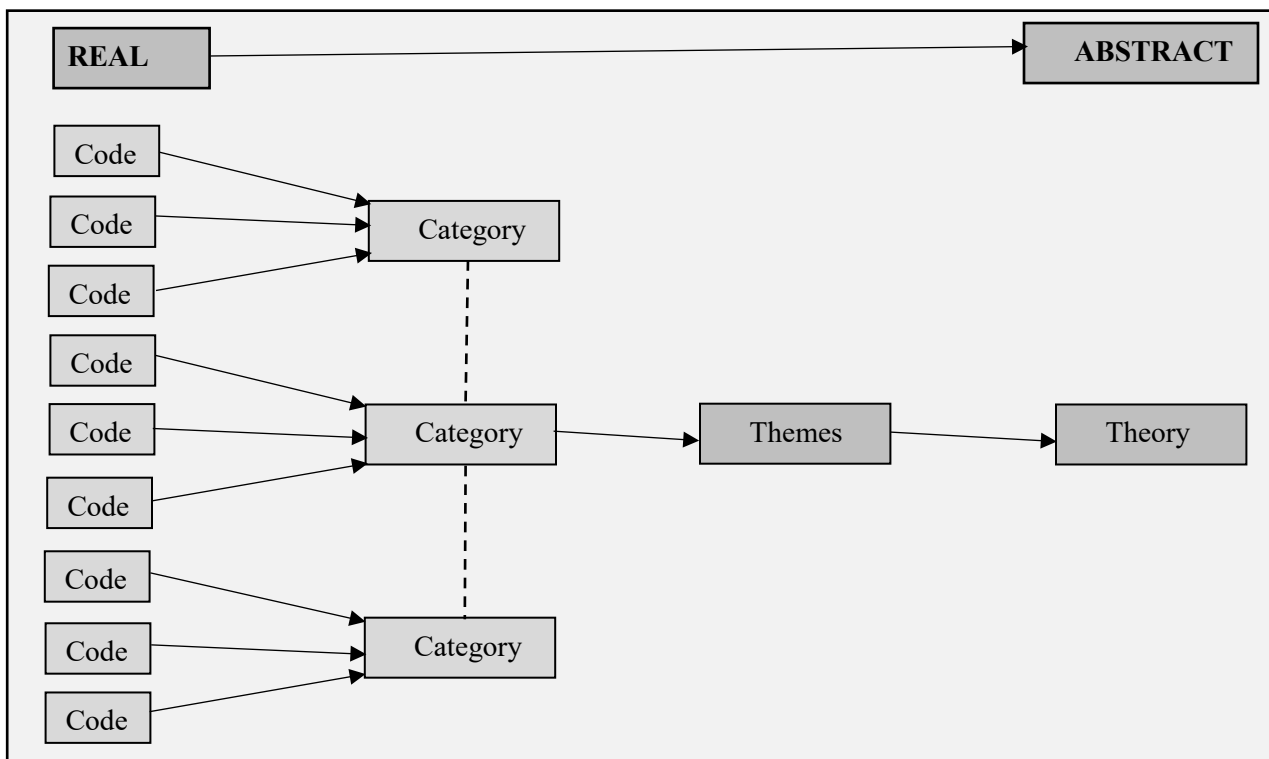


Figure 3.3. Open and axial coding framework. Adapted from Saldana, J. (2008).

Strategies to Judge Trustworthiness of the Information

This section explains the variety of techniques and procedures to judge trustworthiness and validity of collected data and to analyze them.

Trustworthiness. According to Anney (2014), measuring trustworthiness among the qualitative and quantitative research inquiries and findings confirms the legitimacy and validity of their queries. Furthermore, Anney (2014) mentioned that a common error of many doctoral students during their dissertation writing or research is that they rely on only two criteria, reliability and validity, to warrant their research findings. Anney (2014) suggested what he called a “correct qualitative trustworthiness criteria such as credibility, transferability, confirmability and dependability” (Anney, 2014, p. 272). According to Anney (2014), Guba (1981) came up with the original four trustworthiness concerns which qualitative researchers must be aware of and address regardless of their research paradigm. According to Anney (2014) eight years later Wallendorf and Belk (1989) added the fifth concern (Integrity) to the original four.

(i) Truth value. How would a researcher create confidence in one’s findings (Anney, 2014)? This researcher made sure to double check the data-collecting information with the participants. The researcher also gave participants plenty of time and did not push them to come with any particular answers. The researcher assured participants that their answers are valuable to the organizations and are appreciated. The researcher consistently asked participants to be truthful, honest, and authentic, and express everything during the interview process and data-collecting process.

(ii) Applicability. How does a researcher determine the applicability of one’s findings in other situations (Anney, 2014)? It happens by conducting the qualitative research steps and procedures and accurate and complete implementation of data-collecting and data-analysis

models and designs. The issues such as staff turnover, budget accuracy, sales progress, communication effectiveness, internal politics, increasing productivity, and creating profitability are very common issues among businesses and organizations of different sizes and geographic locations. That being said, some specific issues among some organizations exist due to their internal or external cultures. The researcher cannot say with high confidence that all circumstances are 100% applicable to other situations, but as a general concept, they can have some similarities.

(iii) Consistency: How does a researcher identify if one's findings would be consistent if one repeated the research with the same members in the same framework (Anney, 2014)? It could not be guaranteed that new research with the same participants would produce the exact findings, but if the researcher conducts the qualitative research steps and procedures and accurate and complete implementation of data-collecting and data-analysis models and designs, then coming to the same conclusions and findings will be very predictable. This is what has been done in this study. The researcher followed a qualitative research procedure, its regulations, approach, and created a comprehensive interview protocol with appropriate questions.

(iv) Neutrality. How would anyone know if one's findings came exclusively from participants, and not tainted from the researcher's personal interest, bias or other motivations (Anney, 2014)? This was a matter of personal integrity and professionalism of the researcher. The researcher assured the participants that regardless of the researcher's potential relationship with the organization, they should be truthful, honest, authentic, and express everything during the interview process and data-collecting process, without any considerations for the researcher's potential interest and bias.

(v) Integrity. How would anyone know if one's findings are accurate and not incorrect information by the participants (Anney, 2014)? This is accomplished by providing a safe space for participants to deliver the data without any concern for retaliation from the organization's members. Besides assuring participants to tell the truth and be honest, we signed a confidentiality and non-disclosure agreement with participants, which created a safe space. The researcher informed participants that their truthful answers are only serving the organizations and their own working environment.

Triangulation. Through data triangulation, researchers can examine their data's internal validity and how well the findings and results are lined up with reality (Handley, 2017; Merriam, 2009). Creswell and Creswell (2018) stated that the researcher should "Triangulate different data sources by examining evidence from the sources and using it to build a coherent justification for themes" (p. 200). According to Patton (1990), triangulation reinforces the research by using a mixture of methodologies and data to study the issue or phenomena in the inquiry. Denzin (1978) presented four types of triangulation approaches: 1) multiple methods, 2) multiple sources of data, 3) multiple investigators, and 4) multiple theories. For this current research, the triangulation approach is attained through the multiple sources of data approach. Triangulation using multiple sources of data transpires when data is verified and compared across interviews and the collected data from different viewpoints (Handley, 2017; Merriam, 2009).

In addition to the above four types of triangulation, a knowledgeable qualitative researcher is used to validate the coding. Patton (1990) called the process triangulations because this process involves two or three independent researchers to examine and analyze the data and compare results and findings since different people look at the same data differently and might come up with different interpretations (Handley, 2017; Merriam, 2009). For this research, Dr.

Meredith Handley, the associate director of the Engineering Leadership Outreach and assistant teaching professor in the School of Engineering Design in the Technology and Professional Programs assisted the researcher as the second coder for analyzing the data and findings. Also, to cover any emergencies, a graduate student in the Workforce Education program with professional experience and proficiency with qualitative methodology was selected as the third and back up coder. Through the process of data analysis, the second coder's experience and expertise were used to focus on reviewing key passages in interview transcripts related to the research questions and codes regarding the concept of 4Cs skills gap impacts.

In the case of disagreement among the researcher and the second coder about results of coding, differences were resolved through discussion and inquiry among the two individuals. A subject matter expert was consulted after coding verification was done via the second coder, in order to approve the themes created in the process of the data analysis. In this research, the subject matter expert and the second coder was Dr. Tiffany Morey, Ph.D. in Agricultural and Extension Education and Learning Design and Technology, from The Pennsylvania State University, Department of Agricultural Economics, Sociology, and Education. Dr. Morey was referred by Dr. John Ewing, Ph.D. (methodologist) to conduct the second coding process.

Audit Trail. Given (2008) described the process of an audit trail as enhancing confirmability and dependability by documenting procedures, processes, and interpretations of the collected data which may modify the development of the research. For this study, the audit trail included an excerpt from the data coding process, which was allocated to review the interview transcripts and notes, memos, and journals that were generated during the data analysis process. Creswell and Creswell (2018) suggested using an external editor who is distinct from a

peer reviewer and not familiar with the research project or the researcher and can provide an objective viewpoint and assessment of the research themes and conclusion.

Providing comprehensive documentation for the reproduction of the research as well as justification for any alteration in the research of the issue in question is vital to confirmability and dependability of the research (Given, 2008; Handley, 2017). The audit trail reinforces confirmability and dependability of the research by revealing the strategies which were used during the data coding process to confirm that the researcher's bias is sufficiently managed, and research results and findings are grounded in the viewpoints of the research participants. Please find the audit trail information in Appendix F.

Member-Checks. Member-checks involve revising interpretations of collected data with the research participants used during the research. It is a strategy normally used for establishing credibility within research (Lincoln & Guba, 1985). Creswell and Creswell (2018) defined the purpose of member-checks as “to determine the accuracy of the qualitative findings by taking the final report or specific descriptions or themes back to participants and determining whether these participants feel that they are accurate” (p. 200). This method is confirming and clarifying research participant input and intentions while providing an opportunity to summarize the data (Handley, 2017; Lincoln & Guba, 1985). The process of member-checking involves selecting three or four participants from the research's selected sites and asking them to review the summary of the collected data, data analysis, and final interpretations and finally providing the researcher with their comments and feedback on the research summary. The collected comments from member-check participants will be used in fine-tuning information in chapters four and five.

Data Saturation. Regarding the importance of data saturation, Fusch and Ness (2015) stated that the “Failure to reach data saturation has an impact on the quality of the research conducted and hampers content validity” (p. 1408). The purpose of research should comprise the elements that would determine when data saturation is realized. In the case of small research, they will reach the point of saturation more quickly than larger research (Fusch & Ness, 2015). “Data saturation is reached when there is enough information to replicate the study when the ability to obtain additional information has been attained, and when further coding is no longer feasible” (Fusch & Ness, 2015, p. 1408). Guest et al. (2006) defined data saturation as the point through data analysis when some new data produces minor or no alteration in the research codebook. In this regard, qualitative methodologists suggest that the size of samples for the research interviews should be chosen by attainment of theoretical saturation. However, the research design influences the rate that saturation is attained (Fusch & Ness, 2015; Guest et al., 2006; Hardley, 2017). When it comes to regulating data saturation, there is no *one-size-fits-all* technique because researched designs are not a universal form (Gues, Bunce & Johnson, 2006). How and at what point research comes to a level of saturation differs from research design to research design (Fusch & Ness, 2015).

First, a purposive sampling and pre-determined set of selection criteria were used to recognize the research participants who were pertinent to the research objectives (Guest et al., 2006; Handley, 2017). As mentioned earlier in this chapter, an expert has reviewed the sites and participants selection criteria and concerns with the selection process. (Please see Appendix E).

Second, the research utilized a semi-structured interview process, which is a method that data saturation can be reached (Fusch & Ness, 2015; Guest et al., 2006). By using the semi-structured interview approach and designing a standard list of questions throughout the interview

process, this research design element warranted that everyone involved with the interview process was asked the same set of questions to address the research questions.

Third, the triangulation of collected data guaranteed that data saturation was achieved in this research. In this research, triangulation is realized through various sources of data.

Limitations Regarding Generalizability. A high number of qualitative research projects study a defined and precise matter or phenomenon in a selected and defined community, section of society or population. Because of this focus in a defined context, generalizability of findings and results in a qualitative study is not something that is feasible or expected (Leung, 2015). According to Leung (2015) the problem with attempting to assess generalizability to a qualitative research is to accept same standards and measures for elements of validity, which is, “use of systematic sampling, triangulation and constant comparison, proper audit and documentation, and multi-dimensional theory” (Leung, 2015, n. p.).

That being said, some research professionals adopted the analytical generalization approach, where one researcher would evaluate the degree to which the outcome, results and findings of one particular study can be generalized to another study under a comparable proximal and theoretical resemblance model and method, in addition to elements of time, place, people and other similar social contexts (Leung, 2015).

Limitation and Disadvantages of Coding and Thematic Data Analysis

The qualitative design method comprises several techniques for data collecting that researchers use to assist them in establishing social and cultural context through collecting interpretations and descriptions of social and cultural phenomena developed (Vaismoradi & Snelgrove, 2019). The term ‘Theme’ can be portrayed as a personal or a particular meaning that would create a contextual implication of the collected interpretations that ends up creating data.

At the same time, 'Codes' with shared points of view to reference will create a high level of transferability to creating themes (Erlingsson & Brysiewicz, 2013). According to Vaismoradi et al., (2016) a theme can be part of a more indirect meaning of data, while other qualitative data analysis elements such as categories are more associated with an explicit and exterior facet of data analysis. Because of this factor, the theme development process can become a complicated and very time-consuming method compared to the development of categories (Connelly & Peltzer, 2016). Some observers' thematic data analyses indicating that a non-linear attempt to cultivate the themes while moving back and forth in the codes and the original data is complicated and chaotic, would definitely have an impact on the credibility and trustworthiness in the data analysis process and reporting them (Sinkovics & Alfoldi, 2012; Guest, MacQueen, & Namey, 2012).

To sum up this section, the following are some findings concerning the limitations and disadvantages of using thematic data analysis and coding:

- 1) There are always concerns about the reliability of the data given that a wide range of interpretations are generated from various researchers.
- 2) Coding and creating themes might miss some valuable data.
- 3) Focusing on the researched phenomenon could get lost as the researcher could become flexible concerning the analysis of the data.
- 4) There is always a possibility of locating codes and themes or mixing up with verification of codes and themes.
- 5) In cases where analysis eliminates the premises of the theoretical framework, interpretation of data could get very limited.

- 6) Maintaining a sense of stability and continuity of data in every single account becomes difficult when increasing the number of codes and themes.

(Vaismoradi & Snelgrove, 2019; Connelly & Peltzer, 2016; Erlingsson & Brysiewicz, 2013; Guest, MacQueen, & Namey, 2012).

Role of the Researcher

The researcher, as the person and instrument who is conducting this research inquiry, will be involved in a constant and rigorous experience with the research participants. With the above-mentioned concerns in mind, the researcher's experience, knowledge of the field of study, ethics and biases are vital to the integrity of such inquiry and will require that the researcher reflect on his past experiences and how those past experiences will shape his interpretations (Creswell & Creswell, 2018).

The researcher has worked in the training and development industry since 1993, providing personal and professional coaching and consulting for individuals, teams/groups, businesses, and organizations. The researcher's professional accomplishments include working with thousands of individuals and hundreds of businesses and organizations to reach their personal and professional desired goals by inventing a powerful vision and mission for their lives and their businesses. The researcher brought his broad experience and successful track record to each project, whether it involved encouraging personal development, implementing customer-focused programs, integrating technologies, redesigning operational core processes, or delivering strategic initiatives.

Before designing his transformational technology, the researcher led educational programs and later managed operations for a global education organization based in two major US cities: San Diego and Philadelphia. He worked with tens of thousands of participants while he was accountable for expanding customer participation, training program leaders, and

increasing sales. He improved the finance department's efficiency and managed operations for the staff and their team of over 400 volunteers, who together served an annual client base of over 10,000 participants in personal and professional training and development seminars and workshops.

With his transformational technology, designed in 2001, he and his team members have helped countless businesses and individuals not only to achieve their goals but also to transform their thinking. His proven methodology and approach are based on his extensive experience in business and human relations. He has published two books on personal and professional development, one in 2009 and the second in 2015. He also has a book on Organization Development Interventions on press which due to be publish on mid-2021. This extensive professional experience allowed the researcher to have a better understanding of human motivation, attitude, and behavior at work through social and work environment theories, in addition to employer perspectives and leadership development theories. Through his 28 years of professional work with organizations, he experienced the impact of the skills gap among the workforce and on organizations' bottom lines and future expansions in their related industries. His experience in working with businesses and organizations includes a variety of industries such as construction, real estate, manufacturing, food distribution, restaurants, automobile dealerships, non-profits, sales & marketing, beauty, coaching and consulting, and more. This extensive expertise has a positive influence on his understanding of the research participants and the issues they are facing, related to the impact of their workforce's 4Cs skills gap and potential training and development needed to produce a workforce with such skills.

The researcher consistently delivers and works with others to produce results beyond what was predicted or expected. This exceptional rate of business and personal growth is the

result of his integrity, unprecedented teamwork, open communication, and a contagious, unflinching commitment to excellence in all business operations, personal relationships, and professional interactions. His work is an example of how combining vision and goals with hard work consistently pays off beyond even the highest expectations. His work with businesses has resulted in successful team building, companies that grow through a shared vision, efficient process redevelopment, increased revenue, and work environments that support employee satisfaction and retention. His extensive experience in professional coaching helped the researcher to develop skills in asking open-ended, powerful questions with clients. Through his roles as a coach and consultant, the researcher has refined and practiced these skills through hundreds of one-on-one life, career, and business coaching appointments with his clients. Also, the researcher has collaborated with other coaching and consulting professionals on their journey in working with businesses and organizations to increase productivity while decreasing absenteeism and turnover through seminars and workshops on workforce-related issues.

The researcher's formal post-secondary education is in Industrial Design Engineering. Committed to lifelong education, he went back to school and earned his Bachelor of Science Degree in Psychology with the University of Phoenix. He continued his graduate studies at Penn State University to earn a Master of Professional Study in Organizational Development and Change. Currently, he is continuing his graduate studies for his Doctorate in Workforce Education & Development at Penn State. The researcher enjoyed expanding his knowledge into psychology as an addition to his already strong background in philosophy and ontology. He particularly enjoyed and was inspired by Positive Psychology and the work of many psychologists who used the Humanistic Psychology approach for empowering individuals. He finds these two psychological approaches very similar to his work, methodology, and approaches.

Chapter Summary

In Chapter Three, this research paper looked at the study's design, the qualitative method as the research approach and the research questions. Also, this chapter explained the details of the sampling procedure, data collecting instrument, methods, and strategies of gathering data from the research participants, including organizations and their personnel. Furthermore, this chapter covered ethical issues concerning coding the collected data and the limitations and disadvantages of thematic data analysis. In conclusion, this chapter reviewed the role of the researcher at the completion and delivery of the research.

The next chapter (chapter four) reveals all the research findings and results of the one-on-one semi structure interviews and data analysis on collected data including coding and creating themes.

CHAPTER FOUR

FINDINGS AND RESULTS

Introduction

The purpose of chapter four is to report the results of the data analysis. Ten private sector organizations from seven different industries doing business in Lackawanna County, NEPA, were identified and recruited to participate in the interview research. This chapter will report detailed information explaining the interview participants' profiles and the themes produced based on the data analysis. The emerging themes that are relevant to each of the three main research questions are summarized across all ten organizations.

Organizations and Participants Profiles

This section reviews the profile of organizations and those who have participated in the interview process for data gathering.

Organizations

The ten organizations utilized in this research were based on the application of five criteria: 1) Be a private sector company operating in Lackawanna County, NEPA. 2) Appear on the list of "Top 50 Employers in Lackawanna County" based on the number of employees, provided by the Pennsylvania Department of Labor & Industry (Figure 3.2.), or 3) Employ a minimum of 50 employees. 4) Be an active organization for at least the last five years in Lackawanna County, NEPA, and not be a startup level company. 5) Be established at their current location for a minimum of the last three years. These organizations were selected from seven diverse industries. Please note that this research does not mention any organization's names or professional industries, given the participating organizations' confidentiality agreement.

Participants

The criteria used to identify two or three business professionals from each of the ten organizations selected for this study were determined based on the following criteria (see Table 3.2): 1) Be in an executive, director, senior, middle, or junior management position. 2) Be in their current position with the organization for at least three years. 3) Be a resident of Lackawanna County, NEPA for the last three years. 4) Have direct management responsibility over at least ten employees.

Data Gathering Process and Demographics

A list of 34 potential private sectors and non-profit organizations was formulated, including seven different industries. From that list, a total of 17 organizations were contacted and invited. By the end of the invitation process, three organizations declined the invitation, four did not respond either way, and ten organizations accepted the invitation to be interviewed. From each organization, two or three business professionals were selected, and as a result, seven organizations provided three participants each, and three organizations provided two participants each. A total of 27 participants were interviewed during this study.

All the interviews were audio-recorded, transcripts made, and sent to participants for their corrections and approval signature. By the end of the data-collecting process, all a) Consent and Confidentially Forms, b) Interviews Audio Recordings, and c) Approved Interview Transcripts were stored on Penn State's secure electronic Drop Box.

The following four figures display the research interview participants' demographics, such as 1) Participants' gender (sex) (see figure 4.1), 2) Professional position (see figure 4.2), 3) Years at their current position (see figure 4.3), and 4) Years of professional experience (see figure 4.4).

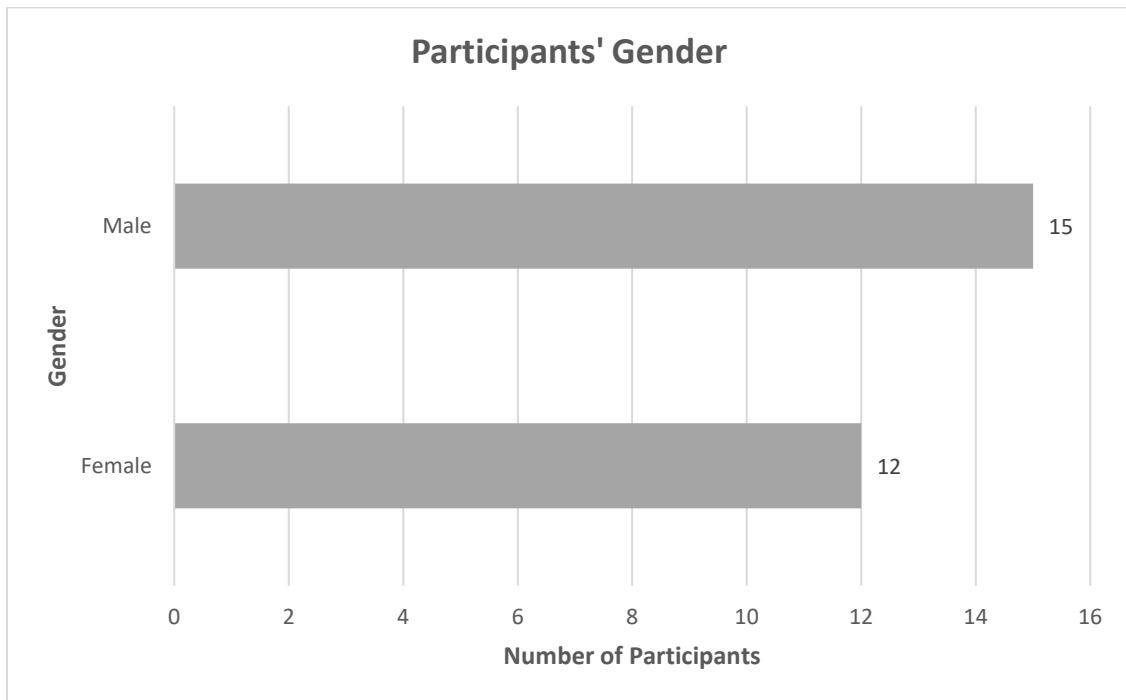


Figure 4.1. Participants' gender (sex)

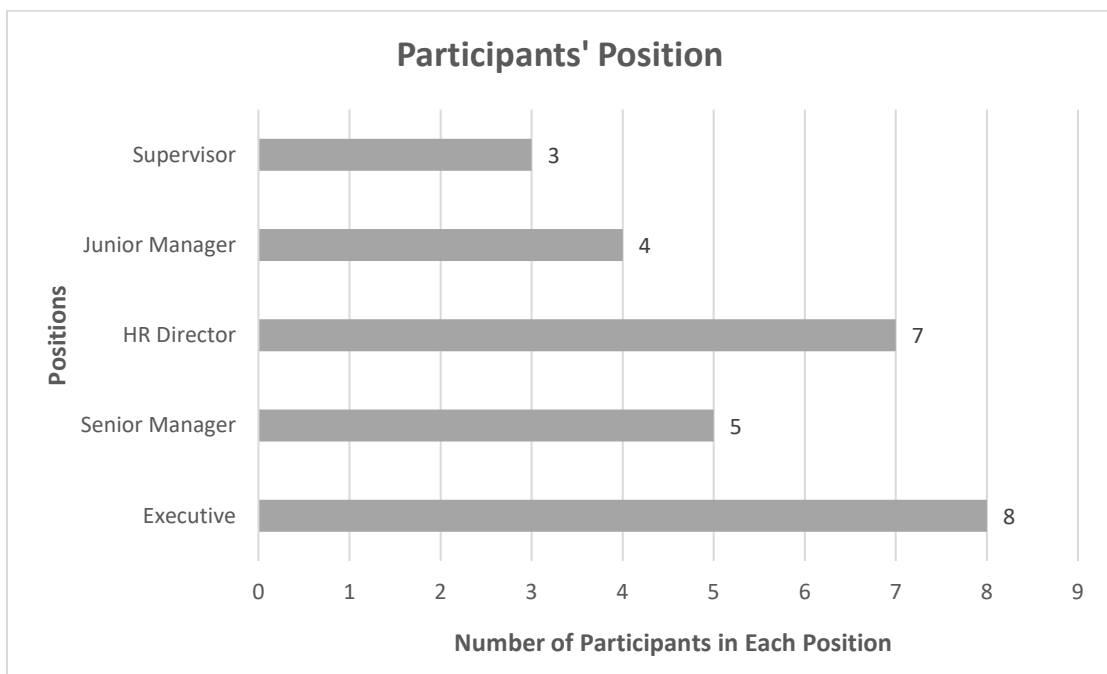


Figure 4.2. Participants' current professional positions

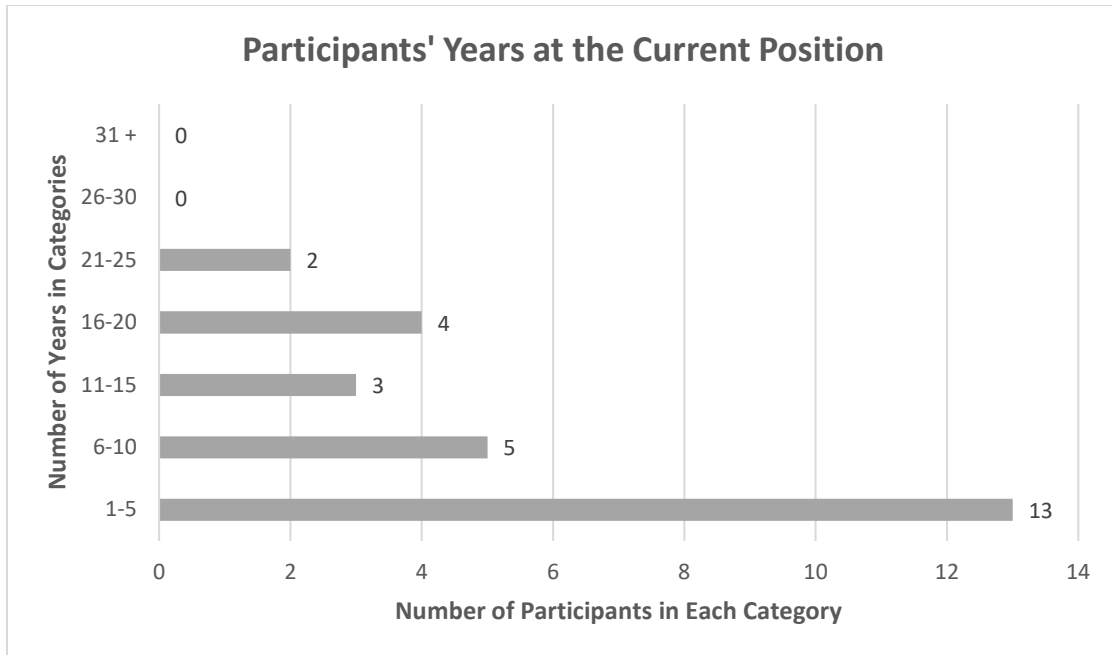


Figure 4.3. Participants' years at their current position

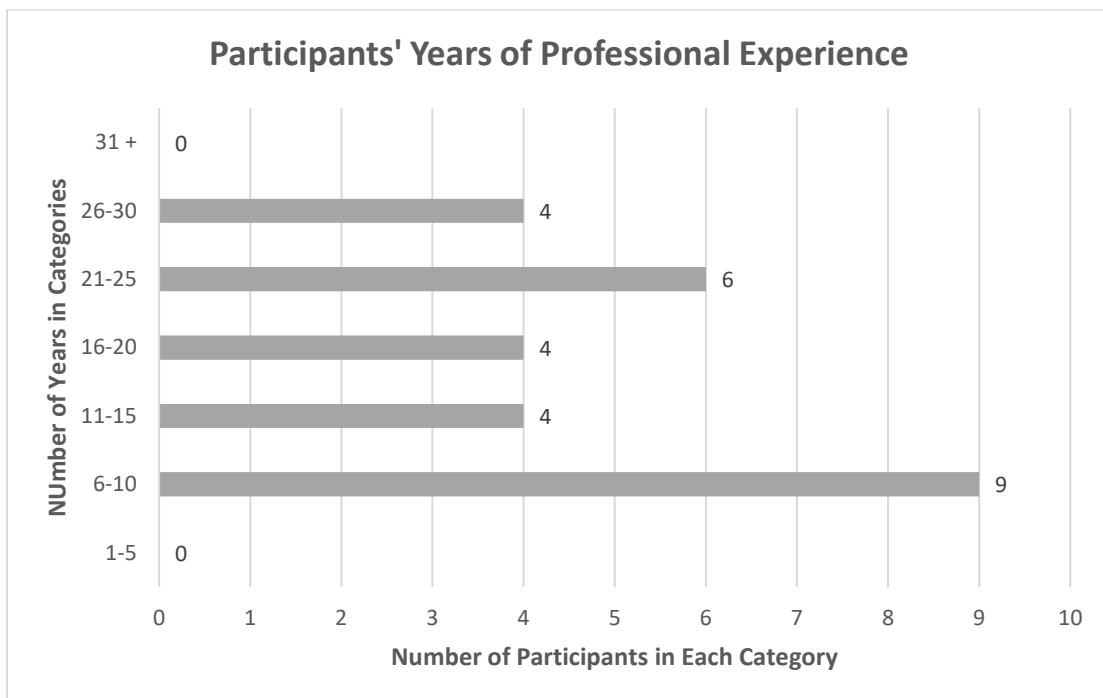


Figure 4.4. Participants' professional experience by year

Participants Self-Rating

Participants also conducted a self-rating action and commented on possessing and using the 4Cs skills when working with their workforce. The following chart (Figure 4.5) displays the total and average of participant ratings from a self-rating scale of 0 being the lowest and 10 being the highest on possessing and using the 4Cs skills, a) Critical Thinking, b) Communication, c) Creativity, d) Collaboration. Given nobody rated themselves below five, the total of self-rating we calculated from scores of 5 to 10 and then averaged them based on six scales (from five to ten). The purpose of this self-rating activity was 1) for participants to acknowledge their self-awareness of their possession of 4Cs skills, and 2) for participants to get present and reflect on the level of their use of their 4Cs skills when engaging their workforce.

As a result (see figure 4.5), participants rated themselves on possessing and using the 4Cs skills when working with their workforce as follows: 1st) Collaboration, 2nd) Critical thinking, 3rd) Communication, and 4th) Creativity. What is very noticeable is the closeness of ratings and average, which all between 33.50 and 37.67, which could be interpreted as all the participants have a very close understanding of their possession of 4Cs skills.

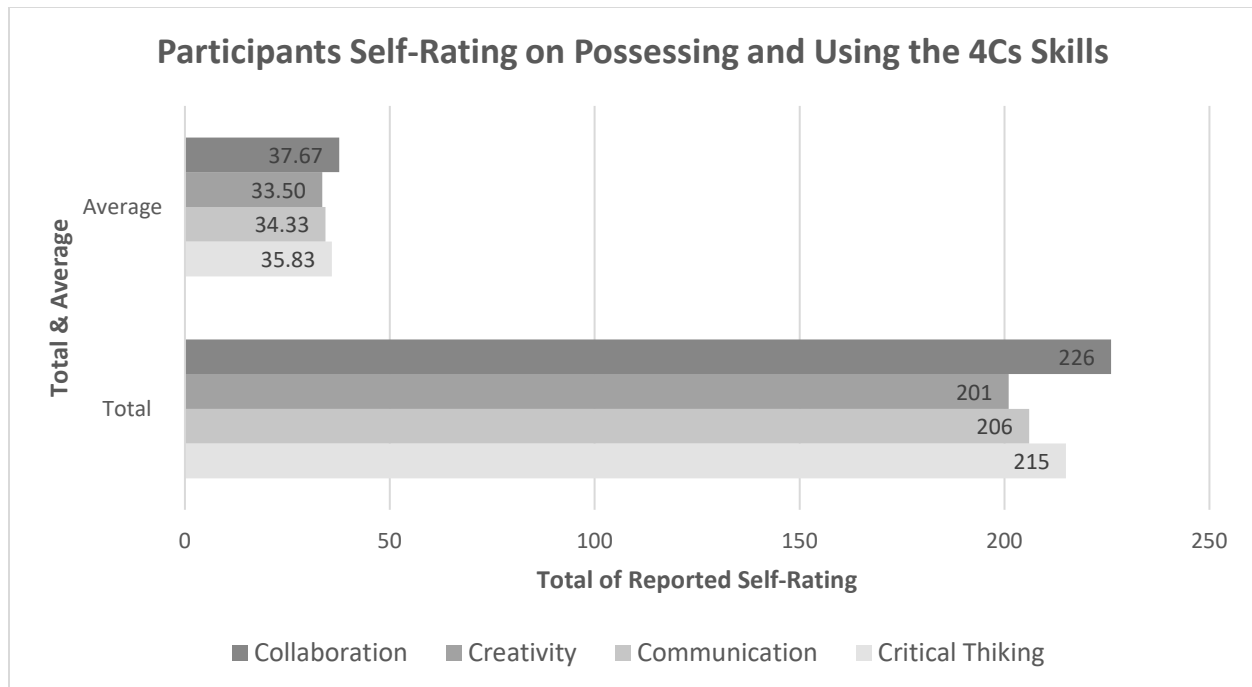


Figure 4.5. Participants self-rating on possessing and using 4Cs

Code and Theme Creation Across Data Set

Coding the qualitative data is one way to quantify data collected from many interviews and turn a pool of information that might look messy in the beginning into useful information (Yi, 2018). Creating and using codes in qualitative research is as significant and relevant as a set of quantitative research numbers. The quantified codes give the researcher reliability and credibility in the research and report and present the findings to the client or the public (Yi, 2018).

Furthermore, coding a set of qualitative data creates a reliable structure. As this paper has established a semi-structured interview protocol, which can assist researchers in pinpointing the questions, the coding process helps the researchers organize and structure the answers (Christians & Carey, 1989). However, not all interviews will run on a productive track or relevant topics, which created a concern about the same interview questions for different participants (maybe from a different industry) which might be underlining different characteristics of the problem.

Coding the collected data from interviews gives the researchers an opportunity to organize their collected scripts so that they can shed light on potential themes in the research (Christians & Carey, 1989).

Coding Methods

According to Christians and Carey (1989), there are two types of coding methods. This research has used both methods to code its collected data from research interviews.

Deductive coding. In this method, the researchers have developed their codebook in advance that will be their reference to steer them through the data coding process. In this method, usually, the researchers have started the process of data collecting by researching the available data and their existing fields, when they have general guidance in their minds about the direction of their research (Christians & Carey, 1989).

Inductive coding. This coding method is used when the researchers do not know much about the research topic before the beginning of their research and are performing empirical or exploratory research. Consequently, the researchers must build the coding from scratch based on the collected data (Christians & Carey, 1989).

Coding Process and Approach to Build Themes

There is a common approach among quantitative researchers on conducting the coding, which was also used in this research:

Initial Coding. This part of the coding process is relatively fast and easy. The researcher will read through the collected data and get oneself acquainted with the data set. This is when the researcher does not have to create complicated codes, but instead just get familiar with the main idea and overall looks of the collected data (Yi, 2018). This researcher developed broad code

sections and general code titles for future references and used them to create much more detailed and relevant codes to the research topic.

Categorization. By the end of initial coding and when the researcher goes through the entire interview transcripts, they usually end up having a chaotic assortment of codes. At this time, researchers organize similar codes by the same categories by moving them around to find a path that reflects their research analysis in the most effective way (Yi, 2018). By the end of the coding process, this researcher came with 92 codes as a result of 644 code excerpts and 936 codes application. This researcher categorized the codes relevant to the actual data collected on the different impact of 4Cs skills on organizations that helped sort the codes and analyze and detect coherent and predominant themes for this research.

Themes. The themes allow researchers to tell relevant and useful stories about the research topics and their findings (Yi, 2018). Themes are the outcome of reflecting and categorizing the codes. The larger categories are the primary themes, and the smaller or sub-categories are supporting the main themes. This is the point where the researcher starts and is able to generate the story from the collected data and relevant codes (Yi, 2018; Christians & Carey, 1989). The best use of these created themes is their support of the researchers to tell the same story from various standpoints or come with many distinct stories that will link to one another. In the end, applying good narratives generated from the process of building themes will transform potential chaotic qualitative data to useful and meaningful information (Yi, 2018; Christians & Carey, 1989).

The table 4.1 represents the totality of the coding process and generation of themes including all the organizations and participants.

Table 4.1
Codes and Themes Generating Order and Counts

#	Categories	Count
1	Private Sector Organizations operating in NEPA	10
2	Business Professionals (Participants)	27
3	Codes created from collected data	92
4	Codes excretion from data	644
5	Codes applications from data for creating themes	936
6	Themes created from applied codes	68
7	Sub-Themes linked to the main themes	81
8	Combined Themes across all three research questions	18

Corbin and Strauss (2008) call the process of collecting the data, coding the data, and creating themes out of the codes a Thematic Analysis as it is displayed in figure 4.6 below.

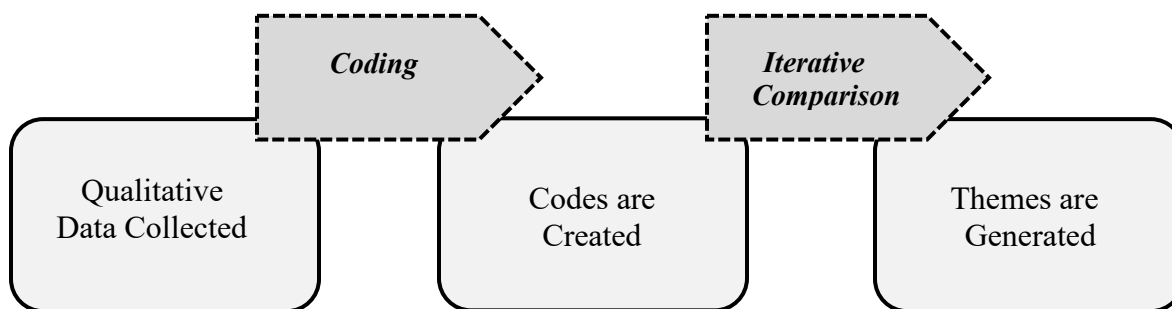


Figure 4.6. Thematic Analysis. Adapted from www.nngroup.com

Data Saturation

For this qualitative research design, saturation was reached after finishing interviews with the seventh organization, which was equal to the twentieth and twenty-third interviews (two or three participants from each organization) and credited to the research design

elements. In this research, saturation is based on code generations across the companies which are displayed in figure 4.7.

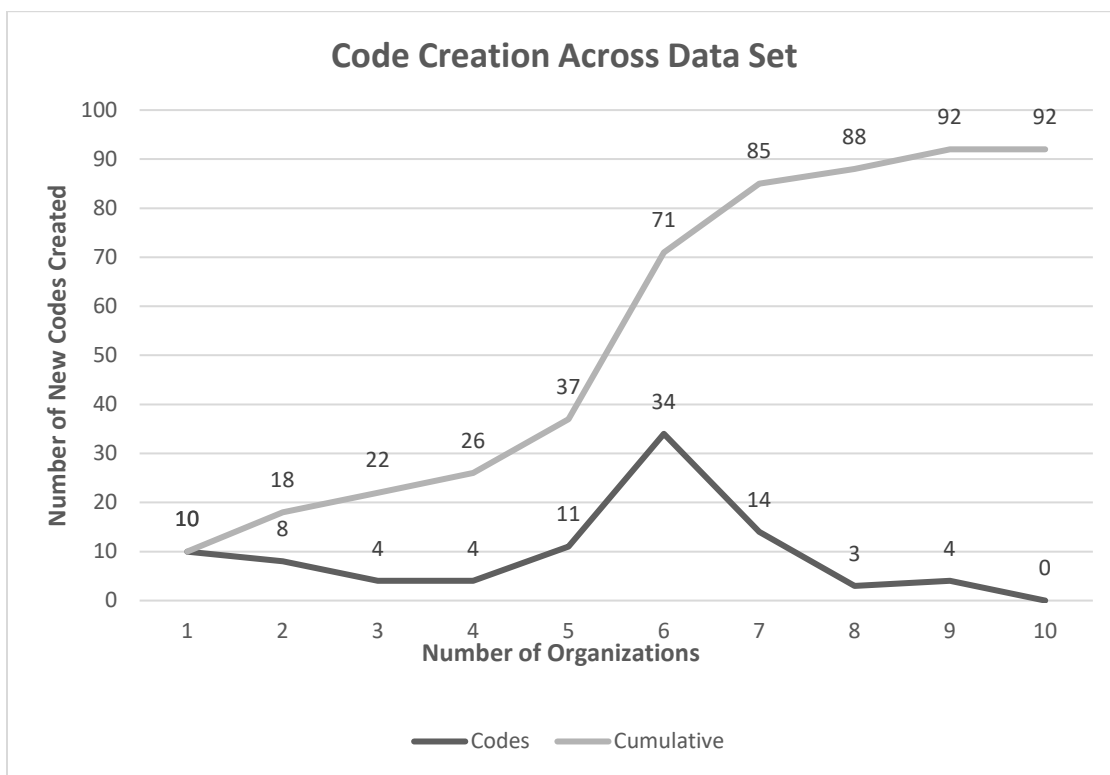


Figure 4.7. Code creation across data set.

Themes Generated Across Ten Private-Sector and Non-Profit Organizations

The purpose of this interview research was to understand the perception of the 21st Century 4Cs (Critical Thinking, Communication, Creativity & Collaboration) skill gap in private-sector employers in Lackawanna county, NEPA. This qualitative research describes how these ten private and non-profit organizations view the 4Cs skills from perspective of their management teams, including executives, senior managers, human resources directors, junior managers, and supervisors.

The following three main research questions were used as the primary research questions in guiding this study:

Research Question One: What value is placed on 4Cs in an industry setting in Lackawanna County, NEPA?

Research Question Two: How do the 4Cs skills gap impact workforce team performance in an industry setting in Lackawanna County, NEPA?

Research Question Three: What 4Cs skills training and development would be effective for the labor pool in an industry setting in Lackawanna County, NEPA?

These research questions are supported by a series of interview questions (IQs) designed to draw valuable information related to the three key research questions (see table 3.1).

By analyzing the collected data, this researcher characterized themes related to 4Cs skills' potential influence on organizations through the use or neglect of these four skills. Themes are organized based on collected data related to each of the four skills, Critical Thinking, Communication, Creativity, and Collaboration and connected to the three main research questions. After that, the researcher compared the themes for consistency across all ten organizations to be able to display a comprehensive list of positive or negative themes that would have impacts on organizations associated with the a) using, b) neglect of using by the workforces or c) lack of training for 4C skills by organizations.

The resulting sections reporting on themes that were generated by interviews and the coding process are organized as follows:

First: Organize the themes related to the research questions, supported by corresponding interview questions, and supported by actual quotes from several participants.

Second: The subsequent organization's perception of using (positive) or not using (negative) impact on organizations and their relative workforces. The second section also identifies potential behaviors associated with using or not using the 4Cs by the workforces. At

the end of each section, the researcher provided a table summarizing the organizations' perceptions of the 4Cs skills and the impact of using them by the workforce and on the organizations' current and future characteristics.

Third. The research's additional evolving themes are used and listed for finalizing the data reported for this research. Participants provided valuable information that was used throughout the coding process. On many occasions, the coding cuts across numerous categories of themes; therefore, many interview excerpts are exploited to reveal different aspects of an organization's perception and positive or negative impact of using the 4Cs skills by the workforce in organizations.

Participants' Correspondence

The research points at participants' input and uses their direct quotes through the theme generation report in this chapter. To a) recognize research participants and their correspondence organizations and b) respect organizations' and participants' confidentiality, this researcher has designated an identification code for each of the 27 participants. The following table (4.2) explains the representation of numbers and alphabetical characters assigned to each participant.

Table 4.2
Participant's Assigned Identifying Correspondence

First Number	Second Number	Alphabets
Identifies employees who have participated in the research interview and data gathering process, from 1st to 27th.	Identifies organizations who have participated in the research, from 1st to 10th.	Number of participants from each participating organization, either two or three participants from each organization, either A, B, or C.
<p>Examples:</p> <ul style="list-style-type: none"> • Participant 2-4A. The 2nd participant from the 4th organization and the 1st participant that was interviewed from that organization. • Participant 25-9C. The 25th participant from the 9th organization and the 3rd participant that was interviewed from that organization. 		

Note. Given the relatively high number of participants, and possible similarity among inputs and their corresponding codes, this researcher will not use all participants' input about each theme; therefore, only two to four related inputs for each theme or sub-themes will be reported.

Research Question One (RQ1)

What value is placed on 4Cs in an industry setting in Lackawanna County, NEPA?

The following themes emerged during the analysis of the 27 interviews conducted within all the ten organizations. All the interview questions (IQs) were designed to extract information and support gathering data for supporting the research questions (RQs). In the case of RQ1 the first three IQs were designed to extract the perception of business professionals (as they were representing this organization) of 4Cs skills and,

- a) Their **expectations** or desires of what the 4Cs skills would look like with their employees in representing a skilled workforce. This question's results and answers by the organizations' professionals displayed the value they are placing and looking for in their desired skilled employees.
- b) What the 4Cs **current skills gap** is among their employees in the current situation and real-time. This question's results and answers by the organizations' professionals displayed the perception of the existing gap associated with the 4Cs skills. Consequently, it shed light on what needs to be done, what training needs to be implemented, and how the organizations are valuing their desired skilled employees.

- c) What **degree of value** they are placing on any of the 4Cs among their workforces directly in the form of a quantitative number from zero being the lowest and ten being the highest on these skills?

Expectations

The following themes describe the characteristics of what the 4Cs skills (critical thinking, communication, creativity, and collaboration) would look like to business professionals (as the representation of their organization) and their expectations of 4Cs skills in their workforce. This is the largest part of this research, given that the purpose of the research is to find the perception of the organization in NEPA of the 4Cs skills among their workforces.

Critical Thinking

There is a strong inner connection between 4Cs skills. One is not independent of the other:

19-7B. "... you need to have the **communication skills**, you need to have the **critical thinking skills**, to **collaborate** successfully. I think those and the creativity to help see things differently and help people."

The following segment of this research is about the emerging themes related to critical thinking:

A. Problem-Solving Mindset

Problem-solving mindset and ability emerged as a characteristic of critical thinking among most of the interviews as something that business professionals are expecting and looking for in their employees:

6-2C. "...with critical thinking typically if somebody comes to me with a problem, I will not even discuss it with them **unless they have some sort of solution**. It tells me that they are actually **making an effort to think about what actions** to take."

14-5B. "Critical thinking, the skills I would be looking for in my workforce, **is problem-solving, finding solutions to different issues, thinking out-of-the-box about how to handle different problems or issues** that they see."

16-6A. "The critical thinker would be someone who **could do problem-solving on their feet** and have the **ability to separate their opinion from facts** of what needs to be done. That would be a critical thinker to me."

Three sub-themes emerged and exhibited more details of the "Problem-Solving Mindset" theme. They were displayed as i) Being decisive, ii) Being patient, and iii) Looking at the bigger picture.

i. Being decisive demonstrates organization leaders' interest in their employees to be decisive and make decisions for solving problems in their department or teamwork.

19-7B "... I am looking for **someone to assess problems, come up with solutions to problems, be able to think on the spot**, work within policies and procedures, understand regulations and be able to implement. Also, **to make decisions, come up with decisive plans, implantation of plans.**"

15-5C. "... someone being able to analyze any situation, and then problem solve it, or **at least decide if it is solvable.**"

18-7A. "**They have the ability and feel the freedom to make decisions.** They have the autonomy to make decisions."

ii. Being patient, demonstrating interest in employees, and taking time to understand the situation and related issues before attacking the problem.

7-3A. "...they're **looking for more ingredients and perspectives to come up with a solution** if they haven't already gotten there yet."

24-9B. "Everybody wants to solve the problem right now; whatever I say is the way it is; **we need to take a step back and consider and have patience.**"

18-7A. "A manager with critical thinking skills **would be patient and teach.** Some staff **lack the autonomy or the ability to make decisions.** They fear that they will be reprimanded if they make the wrong decision. They're nervous about making a mistake, so they won't act."

iii. Looking at a bigger picture exhibits how organizations expect their employees to look at a bigger picture when they are making plans or decisions.

12-4C. "... somebody who **deliberates**, somebody who **thinks through decisions** that need to be made, somebody who **consults with others**, and somebody who is able to **look at the larger picture.**"

"...trying to **see the larger picture**, trying to **understand the ramifications of their decision** beyond just one or two people is probably a key component for critical thinking."

11-4B. "...for Critical thinking, that is a person who understands **how it fits into the whole**, how what they do enables the organization to move forward, and **they think about that as they go through, they are aware of how what they do impacts the whole.**"

18-7A. "If you're developing leadership in this, **you would need to create a culture of learning** so that the leadership is taking those skills and **reinforcing them with the employees**, so you're leading by example."

B. Continuous Learner

Continuous learning was another theme that emerged as a characteristic of the workforce who are applying critical thinking as something that business professionals are expecting and looking for in their employees:

15-5C. "... someone being able to **analyze any situation, and then problem solve it**, or at least decide if it is solvable."

4-2A. "...critical thinking: having employees who **think through problems, being able to identify different areas that could be addressed or changed**, having those skills to be able to do that."

7-3A. "...see that someone is good at it, it is because **they've already asked themselves the questions and answered most of them and then they're coming with their hypothesis that's pretty well thought out and just looking to get a different perspective** to raise it to another level."

Three sub-themes emerged and exhibited more details of the "Continuous Learner" theme. They are displayed as i) Being open to learning, ii) Pay attention and learn from mistakes, and iii) Learn from proven concepts and disciplines.

i. Being open to learning is exhibiting employees' interest to keep their minds open to learning and applying their collected knowledge on their job and work.

22-8B. "I think **critical thinking requires you to be open and try new ways.** And hey, it may work or may not work, like you've just got to try it. Because if **you don't try, you won't know.**"

27-10B. "... a critical thinker would be **somebody who would stop and think, does this make sense?** That's really what I know, **people especially out on our manufacturing floor, I want people to stop and think, is what I'm doing making sense. Does it make sense?** If it doesn't make sense, **stop, and ask your supervisor,** as opposed to just running the job without having that critical thought."

10-4A. "Not just a kind of critical thinking, you know **being able to kind of learn all *[sic]* everything you need to know.**"

ii. Pay attention and learn from mistakes is displaying interest and ability to pay attention to their work and tasks and not repeating the same mistake.

2-1B. "...if critical thinking was *[sic]* **part of the recipe,** you **would have better outcomes.**"

5-2B. "So, the operator, if he is a critical thinker, **will pay attention to what he is doing,** and he may **notice the differences** and notice something is not as it was."

7-3A. "they're looking **beneath the surface too,** not just, they saw that mistake over there, but they're wondering **what have these mistakes got made *[sic]*, how many are there, who made them, is that a process issue?"**

iii. Learn from proven concepts and disciplines is demonstrating employees' interest to learn and apply proven methodologies, concepts, and disciplines without trying to come with unproven concepts and be able to follow their work disciplines.

26-10A. "...so you need a good vision. An old mentor of mine would have said, you know, **you need to see the forest through the trees**, you need to, you need to have some sort of direction."

7-3A. "So critical thinking **would measure what is based on the observations people make, the analysis that they do, how they present an idea** or tell a story or an opportunity for improvement with data and example."

10-4A. "... critical thinking is important for us, and that is about **being able to have the disciplinary knowledge and the ability to develop knowledge.**"

C. Getting the Job Done

Getting the job done was another common theme that emerged as a characteristic of the workforce who are applying the concept of thinking related to critical thinking as something that business professionals are expecting and looking for in their employees:

18-7A. "**They have the ability and feel the freedom to make decisions.** They have the autonomy to make decisions. **They use the knowledge they possess to make the best judgments that they can at the current time. They have the ability to solve problems** on the spot because they are knowledgeable."

3-1C. "That's something that requires critical thinking **to make sure that all those things are being done correctly**, so we have good information going into our laboratory and good information coming out **and making the right decision.**"

23-9A. "Once you step out of anything that is repetitive, then you're going to have to start using those critical thinking skills because you will be **faced with things you haven't thought about before.** Once you are faced with something that is out of a repetitive, clear kind of pattern for you, then you have to kick those critical thinking skills in".

The following sub-themes emerged and exhibited more details of the "Getting the Jon Done" theme. They are displayed as i) Learning from others, ii) Thinking before acting, and iii) Doing your best.

i. Learning from others was a theme that this researcher heard from business professionals on many occasions.

17-6B. "Letting all these employees, from the newest part-time employee to someone who's been here for 20 years, share their experience **and skills together and expand the knowledge;** let them know the specific **skills they have somewhere in them *[sic]* to share.**"

12-4C. "...somebody who consults with others, if somebody can see more than a small view in a very narrow way. That person was thinking critically."

18-7A. "Because I think **part of developing those skills and realizing you're developing those skills and becoming more proficient**

in those skills will also help you recognize those skills in other people and the level of **those skills in other people.**"

ii. Thinking before acting is exhibiting the business professionals' desire to have an important characteristic of an employee in their organization.

2-1B. "For critical thinking, I think you would see **a lot fewer error.** If people **took the time to think before they acted,** they would prevent a lot of negative outcomes."

6-2C. "...and what is going to happen if they do options A, B or C, so to me is **if they are coming to me with a problem and a solution,** it might not be the right solution, but at least they have thought about it, and still, it's an option."

12-4C. "... **someone who will think and try to understand the consequences of their decisions and actions** beyond just themselves or one or two people around them is a key part of critical thinking."

iii. Doing your best is a theme that the majority of business professionals are very interested in having among their workforces.

17-6B. "Someone who thinks they're really good at critical thinking, and **that's what they do best;** they get to get up and go to work every day **and do what they do best.**"

7-3A. "So critical thinking would measure what is based on the **observations people make the analysis on what they do, how they tell how they present an idea or tell a story or an opportunity for improvement** with data and examples."

2-1A. "An overt example is **at its core of the definition is finding a new way of doing something or expressing something or taking something from your mind and putting it into reality**, whether it's in art or cooking or designing and producing something.

Communication

As this researcher mentioned before, there is a relevant connection between how the 4Cs skills are connected and working hand to hand:

13-5A. "... when I look at the 4Cs, I feel like **that overarching communication** and the way in which we sort of deal with each other and work through problems. I feel like **it leads then to more open collaboration, better critical thinking** because you're talking to more people, **you're bringing more information, and you're better able to synthesize a lot more information to make a better-informed decision.**"

The following segment of this research is about the emerging themes corresponding to communication:

A. Relating to Others

Relating to others and the ability to create a welcoming environment emerged from the interviewed business professionals throughout the data gathering process.

13-5A. "I think just from what I've experienced over the years, it really **all comes down to understanding how we interact, how we're all interconnected, and how we all communicate** with each other."

25-9C. "For being able to relate to others through communication, you have to almost be **very empathetic as well in understanding how the human mind kind of works**. It's important to have that kind of understanding with your employees."

7-3A. "The quality, all of the thought that went into critical thinking went into communication and a form of matter, **and then there's the verbal side in terms of, are you talking to people in different departments with enough frequency that you're engaged with them?**"

The following three sub-themes emerged and exhibited more details of the "Relating to Other" theme. They are displayed as i) Relatedness, ii) Listening, and iii) Bridging generation gap.

i. Relatedness as a powerful characteristic of a great communicator arose as a theme from this research's interviews relating to 4Cs skills.

13-5A. "I just think communication is so critically important in any role. **In relationship building, there are ties to communication.**"

19-7B. "Definitely looking for somebody who **can relate to others** and get the message across."

15-5C. "...**be able to relate to others by successfully expressing yourself**, being able to have the **other person understand what you're saying, your view, or your viewpoint**, not necessarily agree with it. I think that sometimes it gets confusing, but to really make the other person understand and hear, you know, what you're thinking or what you're saying."

ii. Listening is another powerful element of communication as a useful theme among good communicators.

10-7B. "Who **listens strongly to others** needs to have that flow back and forth between everybody they're working with."

12-4C. "... but also communication, I think, it **goes beyond just talking and writing and disseminating information; listening is a bigger part of communicating.**"

16-6A. "Someone [*sic*] with communication skills would have the **ability to share their information with their co-workers.** Someone with communication skills would be able to share their ideas with their co-workers, **and they would be able to listen to the responses.**"

iii. Bridging the generation gap is a theme that exhibits helping different generations who are employed in the same work environment to relate to and understand each other and support one another.

19.7B. "There are so many types of technology. They can use that to access the different generations. In our workforce, in particular, you know, **we have four or five generations working in our organization such as people who still like old paper memos and people who want everything in an app, and everybody in between.**"

14-5B. "For communication, I would definitely look for not only verbal communication, **looking somebody in the eye, addressing them by their proper titles, being professional** but also with nonverbal communication, such as the emails and the phone skills. **The big one now**

is not texting while you're talking, actually using formalized information."

25-9C. "Be able to **communicate in a sense that they can understand** you; in layman's terms, it's not so much the book smart part of it all."

B. Role Clarity

Role clarity is an essential element of a well-operating organization generated from clear and precise communication, helping employees' roles in their work and job.

2-1B. "I think what opens up people to **communication and clarity of their role** is when **they throw their ego out of a window** and become **more open to other people's ideas and people's opinions.**"

8-3B. "When I talk about communication, you have to be able not only to look at what we are doing, but also how what we are doing impacts the other **sites and being able to communicate effectively.**"

7-3A. "In informal or formal meetings effectively communicating to review **the results and determine what you know, what direction you want to go, what the right thing to do** is or if an opportunity to pursue corrective actions are needed."

Three sub-themes emerged and exhibited more details under the "Role Clarity" theme. They are displayed as i) Effectiveness, ii) Specificity, and iii) Commitment to workability.

i. Effectiveness emerged as a theme due to the typical communication expression that would make a difference for any group of people, such as groups, teams, departments, or an organization as a whole.

23-9A. "I don't care what business is, and I don't care what the actual processes are. **If you don't have decent communication, both written communication, face-to-face communication, marketing, and all these other kinds, things will not work.** Outward communication, as well as inward communication. If those don't work, none of the rest of it is going to work very well."

18-7A. "Has to be both ways; **multi-directional communications, not just top-down or bottom-up, or interdepartmental.** It needs to be all of the above. **There needs to be complete information sharing.** Knowing that each persons' roles may or may not need to know certain things, and **they should have the information they need for their current roles.**"

12-4C. "For communication, it is not **only the ability to express yourself clearly, succinctly and yet convincingly but also to be able to talk to people** about why things need to be the way they are, why things have to go in another direction or why things just don't work."

ii. Specificity arose as a theme among business professionals who expressed themselves regarding the importance of having clear and specific communication.

3-1C. "we have to **communicate to everybody involved** in making the product how it needs to be made. **It requires that the**

communication level be very specific. No one wants to get it wrong; everybody wants to get it right to make the product successful in **having a successful first run.** So, you are communicating all the little details that are involved in the new product you are bringing to production for the first time."

8-3B. "When I talk about communication, **you have to be able not only to look at what we are doing, but how what we are doing impacts the other sites** and then being able to communicate effectively."

24-9B. "People with communication skills **are going to be patient; they're going to consider what they are saying and who they are saying it to** or corresponding with. **They know their audience,** making sure their message is received. To understand what a message is and how you get it and understand it to where it is [*sic*], and how to get the feedback if it's involved."

iii. Commitment to workability is another sub-theme of "role play" that emerged under communication skills.

3-1C. "A lot of skill communication but also over the years identifying who are the key people in the company **who have ownership in the organization via their commitment to it.** Who wants to succeed, wants to own it and wants to be successful? So, those are the people I go to work with to get the job done."

12-4C. "For communication, **it is not only the ability to express yourself clearly, succinctly and yet convincingly** but also being able to

talk to people about why things need to be the way they are, why things have to go in another direction or why things just don't work."

25-9C. "You have to **ask questions to re-interpret any ineffective communication** because sometimes your employee **does not understand** what you're trying to get at."

C. Transparency

Transparency as a theme has been exhibited by many interview participants and displayed its importance in correspondence to their employees' management.

20-7C. "Not only **for the continuity of care for the individuals** but for the staff **as well so all staff are informed.**"

18-7A. "Communication should be **brainstorming and bouncing ideas** off of each other."

12-4C. "I think it is also **connected to transparency**, being able to **be as transparent and direct** about what's happening, without necessarily being out of bounds for any other responsibility as a manager or another staff member."

The following three sub-themes emerged and exhibited more details of the "Transparency" theme. They were displayed as i) Openness, ii) Adaptability, and iii) Consistency.

i. Openness exhibits a vital element of effective communication among employees and their management and willingness to be open to learning and solutions.

11-4B. "...having the employees that are very well-spoken are able to communicate clearly and receive ideas and the reception part of it [*sic*] is very, very important because a lot of people are willing to give ideas but not a lot of people are willing to accept and truly hear them."

11-4B. "I like to see people who are **willing to discuss items, whether good or bad...** They have a **comfort level actually interacting with other human beings,** and that doesn't have to be in person..."

7-3A. "...**how am I framing that discussion,** so I'm not wasting anyone's time."

ii. Adaptability is displaying needs to be flexible and adapt new ways to communicate and achieve results because of adaptability effectiveness.

26-10A. "... you need somebody **that is adaptable,** who understands that **not everybody receives information the same way;** it's very important to **relate to your audience and know your audience.** I think that's probably **the number one thing that makes up a good communicator,** their adaptability to their audience so that they can present something in a way they can, it can be received [*sic*]."

7-3A. "...to **assess what protocol you want to follow and then following that** which was really taking it up to **the next level, which is both, verbal and written communication,** where you could be adaptable and rewriting processes..."

19-7B. "... somebody who can relate to others and get the message across. Who listens strongly to others **and be adaptable to who he/she is talking to?** Needs to **have that flow back and forth between everybody** they're working with."

iii. Consistency emerged as a vital element of practical and workable communication to support teams and departments' continued productivity and problem-free operation.

17-6B. "But communication wouldn't so much be someone **who just is constantly taking information, but knows how to share relevant information clearly, reliably, and consistently.** I think **consistency is the biggest thing with communication.**"

27-10B. "somebody who communicates well is **not going to just rely on emails to communicate, especially with customers;** they're going to **follow up with consistency** to make sure the cycle of communication is complete, especially with their team members."

18-7A. "Multi-directional communications, not just top-down or bottom-up, or interdepartmental. It needs to be all of the above. **There needs for consistency in information delivery and communication to be complete information sharing.** Knowing that each person's role may or may not need to know certain things; they should have the information they need for their current roles. **Communication should be constant brainstorming and bouncing ideas** off each other."

Creativity

As the research is continually discovering themes related to the 4Cs skills, there is evidence of relevance and connection between how employees and business professionals view the 4Cs skills:

23-9A. "Creativity would probably **go along with critical thinking** skills. That is a repetitive kind of business; it might not be that necessary. At the same time, it might be something that helps make the workday easier. **There are ways to engage creativity**, to tell stories that will kick **back to the communication, that people will just interact** and tell stories to each other all day long."

The following segment of this research is about the emerging themes corresponding to creativity:

A. Thinking Outside the Box

Thinking Outside the Box emerged as a theme and has been pointed out by many interview participants as an important element of creativity that business managers and professionals would like to see in their employees.

19-7B. "I want people to **think outside the box**; I know that's so cliché. I want **people to think differently**. I want them to have the ability to have the imagination of a child, **to look at things completely differently**. Be open-minded to different thoughts and different processes. **To see the world as brand new.**"

18-7A. "Being allowed to **be innovative with different actions or ideas**. I would say **being original in your ideas. Thinking outside the box and coming**

from a wide variety of ideas, you could get a diverse set of ideas in being creative."

14-5B. "I think it's nice to see people that not only are artistic and very musically inclined but **creatively thinking about solutions or out-of-the-box thinking** when it comes to all different facets, **whether they see a problem or whether they see an opportunity just opening** to a lot of different areas."

Three sub-themes emerged and exhibited more details in the "Thinking Outside the Box" theme. They are displayed as i) Realm of new possibilities, ii) Creative thinker, and iii) Creative leading.

i. Realm of new possibilities has emerged as one of the sub-themes of "thinking outside the box."

20-7C. "I think creativity is about **thinking outside the box**. Like thinking outside the **realm of possibility** with the individuals."

12-4C. "Creativity is looking at things and **seeing possibilities instead of obstacles**."

7-3A. "Often, most of the population, because of psychology is process-oriented. They like to follow a rhythm and a routine. **Creativity is hard for people to think outside the box [sic]** just naturally and **looking at a new realm of possibility**. Half the population, out of the gate, struggles with creativity."

ii. **Creative thinker** is another sub-theme of "thinking outside of the box", which emerged in many interviews concerning what the business professionals like to see in their employees.

16-6A. "... someone that possesses **creativity would be able to do brainstorming**. They would be able to develop new ideas different from **what we've been doing the same way** for 25 years. The creative thinker would think there is a better way, and a new idea."

4-2A. "Creativity is being able **to think outside of the box, being able to come up with ideas** that wouldn't necessarily fit everybody's agreement, or they would say yes to it; **I would have thought of this**, and of course, I'd like to share it with rest of the team."

7-3A. "An overt example is... **finding a new way of doing something or expressing something or taking something from your mind and putting it into reality**, whether it's art or cooking or designing and producing something. "

iii. **Creative leading** has arisen side-by-side with "creative thinking" as another sub-theme of "thinking outside of the box."

7-3A. ".... As a leader, implement new ideas and **be creative from what you know** what the **performance measurement** is."

26-10A. "Creativity, again, typically comes from a good **creative leader**, to...think **outside of the box**. A leader should have the ability and creativity, if they have the proper structure around them... to come with a creative way to kind of **get out of the weeds**..."

26-10A. "...the people that are in the trenches fighting day by day, you know, you just get consumed by issues, **because that's blocking your creativity.** So, you know, it's **good to have someone creative,** typically in a leadership role that can kind of pull everybody up and say, hey, you know, I know we've always done it this way, but let's pretend that doesn't exist. What would we do then, and that kind of opens up people's minds."

B. Coming with Solutions

One of the most desired themes that organization professionals like to see being practiced by their employees relates to creativity.

15-5C. "Creativity, I thought it was somebody **being able to turn any situation into one that they could solve** either way positive or negative situation[*sic*] but being able to **look at any situation and solve it in some way.**"

25-9C. "I really have to think **creatively about how I'm going to kind of connect all of these people together.** We're so far **spaced out; we're all so separated in departments.** It's important sometimes to bring us all into some type of togetherness."

7-3A. "... when they are **asking five different ways to get to the root cause of a situation,** so when I see that in my direct reports or people in the organization, it is because they are,[*sic*] **they've already asked themselves the questions and come with some answers** before they're coming to me."

The following three sub-themes emerged and exhibited more details of the "Coming with Solutions" theme. They are displayed as i) Looking for needed changes, ii) Willingness to engage, and iii) Leadership role.

i. Looking for needed changes is a sub-theme related to the "coming with solutions" theme. From the perspective of business professionals, an employee with this creativity theme is always looking for what changes need to be implemented.

12-4C. "Or in some cases **looking at things that we've done in the past** and realizing that we **don't have to do a whole change**, you know. All I need to do is one critical change, or sometimes that is critical, or sometimes that is a small critical **change that can put us on a different path.**"

7-3A. "Creativity is actually a **component of change**. Someone has an idea to **do something different *[sic]*, and then they have to influence and sell that change** to get it understood and then embraced."

10-4A. "We can't just do what we've always done. We won't survive if we do that. That goes everywhere, **from the classroom to production**. and how we're creatively teaching how we do a business."

ii. Willingness to engage sub-theme is another element of "coming with solutions." Organizations like to see their employees are willing to engage with issues and offer solutions and not be afraid of expressing their ideas.

11-4B. "Creativity, is kind of, when it manifests itself when people are **into what they are doing when they are motivated by their work** and the kind of **ideas that they have are accepted by others.**"

17.6B. "... someone **who never shuts the door on a particular idea or other options** toward achieving that goal."

6-2C. "... engineers are **always looking for better ways to do things. Sometimes they backfire and take longer, but at least we are trying.** We have both ends of the spectrum and in-between engineers. I have one guy that would machine the entire part with an eight-inch ball just because he could."

iii. Leadership role is also a sub-theme related to the "come with solutions" and appeared in interviews side-by-side of "willingness to engage."

7-3A. "You are continually **changing to try to improve something, whether it's performance, retention,** earnings, experience, etc. So, the **active mind will do those things, and typically, people who are going to be creative are more often than not going to move into leadership roles** because they're going to evaluate and create and always look for a better way or different way of doing things."

17-6B. "I guess the best way to what I would see in a person would almost **be someone who's always questioning.** It's the difference between someone who thinks that they're always right, I have the right way, I have the right answer, **versus this is the way I think it is.** So, let's **deliberately try to find other avenues. Let's think about it in a different way** because not everybody thinks the same. Right?"

24-9B. "I think that's going to be **somebody who has an idea that's willing to speak about it.** Being creative is great, but **unless you**

share that, it doesn't really help. You have to be kind of willing to make mistakes. Not all ideas are going to work as intended, and you have to be **willing to continue to evolve** that. Your idea might be great, but you might have a couple of bumps in the road."

C. Being Innovative

Practicing creativity always comes with being innovative. This theme emerged as business professionals expressed the interest and desire to see their employees are using their creativity in their work and job production and performance.

3-1C. "I see creativity with reference to **the research and development of new products** that we bring to the table. Looking at **what our customers are looking for**, what type of **product they would like to have**, what we make and what we currently produce, and **then how we can blend these two things together**, what we made and what we need to **create new products.**"

5-2B. "...it might not fall into the example I am building, but **I would appreciate operators that in the process of doing their job, they can think of some way that the work can be done easier or better**; this falls into communication when they express their idea, get it across and in a coherent way."

7-3A. "So, I think, **the more complex the role is, the more creativity** is required."

Three sub-themes emerged and exhibited more details of the "Being Innovative" theme. They are displayed as i) Performance, ii) Productivity, and iii) Combining skills.

i. Performance is a sub-theme of "being innovative," when employees use their creativity to have a better and more efficient performance at their work and job.

27-10B. "...creativity can be thinking out of the box, and we've had some really good examples here of **people thinking out of the box and actually creating new products for us.** So, that's been really good.

7-3A. "Measuring creativity is **an output of performance,** and it's difficult because depending on how much creativity you're expecting of them based on the problems [*sic*]. **They are trying to solve the problems you expect them to solve or the ideas you expect them to have in their role.**"

9-3C. "I think the **best creativity** comes from the folks that work on the floor; they have some comradery."

ii. Productivity is another sub-theme of "being innovative" that emerged side-by-side with performance for which their creativity can be used to have better and more efficient productivity at their work and job.

8-3B. "What are the materials out there that **we have been using that may provide additional production?**"

2-1A. "Everyone should **work with the goal in mind to constantly improve productivity** for the organization they work for."

27-10B. "I think creativity is more than just working. I'm thinking about what I do, and [what] I've got, I want to present my company a

better way to do something, this is the way you guys told me to do it, but you know, I'm the one who's actually doing it, and I think I can do it better."

iii. Combining skills displays opportunity for the workforce to combine their creativity with other 4Cs skills such as critical thinking, communication, and collaboration to produce a better result at their work and job.

10-4A. "I kind of link **creativity and innovation** together."

17-6B. "I honestly think it **goes a lot with critical thinking**. They kind of go hand in hand. Creativity may be a little different in the sense of, Okay, **here's the way we should do this, but since that's not an option, let's find another way around doing it**. So rather than being so concerned about how I can do it this way, **let's find a different way to get to the same goal**. So, someone who's always thinking like that. "

23-9A. "Creativity would probably **go along with critical thinking skills**. [If] That is a repetitive kind of business; it might not be that necessary. At the same time, **it might be something that helps make the workday easier.**"

Collaboration

Similar to the rest of the 4Cs skills, there is a relevant connection between how the 4Cs skills are connected, supporting each other, and working hand in hand:

13-5A. "So, when I look at the 4Cs, I feel like that **overarching communication** and the way in which we sort of deal with each other and work through problems. I feel

like it leads them to **more open collaboration, better critical thinking because you're talking to more people, you're bringing more information**, and you're better able to synthesize a lot more information to **make a better-informed decision.**"

The following segment of this research is about the emerging themes correspondent to collaboration:

A. Learning from Each Other

"Learning from each other" emerged as one of the characteristics of collaboration from a business professionals' point of view during the data gathering process and interviewing participants.

12-4C. "Somebody who is a collaborator is somebody who will not confuse, the gifts of others probably with positivity as opposed to this guy [who] doesn't have these particular credentials, or this person does not have this particular function. Therefore, I'm just going to tell him what to do. It's **allowing people to contribute**. So, because of that, it's **hopefully going to be a better product, a better function, or a better service.**"

5-2B. "Collaboration; **the person should be willing to work with others and learn from them.** For example, maybe they are **working with a machine in an alternate shift, so they are able to communicate their experience with other operators**; here's my experience today, so the person who would work on the same machine in the following shift is aware of what happened. They should pay attention to some parts if they are not as flat as they should be or normally are. **Here's what I did to overcome that! That is the collaboration point.** On

the opposite point of this issue, some people believe information is power, so they keep it to themselves."

21-8A. "I like the fact that the department's work has more of a **structured collaborative *[sic]***, like meetings where they **meet regularly, which also ensures there is accountability for collaboration because we do work we did need *[sic]* to work together.**"

The following three sub-themes emerged and exhibited more details of the "Learning from Each Other" theme. They are displayed as i) Sharing knowledge, ii) Incomplete tasks, and iii) Reaching out.

i. Building a culture is one of the sub-themes of "Learning from each other" that exhibits the importance of creating a culture of supporting and learning from each other among the workforce to collaborate in their working environment.

18-7A. "Working together as a team. **Building a culture where you learn from each other** and developing relationships will help the organization's overall big picture."

26-10A. "... you have **to have a good culture, with the people that are, are *[sic]* together need to feel like their voice is heard, their thoughts are heard. And with good leadership, you can set a direction; you can create a culture where people feel I'm open to discussing their thoughts and not judged** if they, you know, there's no stupid idea, no stupid question, you know, but you have to create that culture. And **then**

you need to pull everybody out of the weeds and that those things create a collaborative environment."

2-1B. "... to me, communication and collaboration goes hand in hand. When communicating with others and **showing interest in collaborating with them will cause people to engage with other people.**"

ii. Sharing knowledge is another sub-theme of "Learning from each other" that demonstrates the importance of sharing and spreading the knowledge between employees. This important theme is helping organizations to build-up their employees' level of KSB (knowledge, skills, and ability) without spending too much time and capital on increasing knowledge among their workforces.

27-10B. "Collaboration, in the ideal sense, **would be sharing knowledge** so that it gets compounded, you know, **so if two people share knowledge, then you get better.** And, **collectively, we could definitely do better.**"

17-6B. "I like to think that I am pretty strong with collaboration. **I'm always looking for input and sharing of information, credit, accolades, defeats, all that kind of stuff. Plus, it's an environment of inclusiveness, and let's work on this together and sharing our victories and our losses.**"

27-10B. "That **would be somebody who seeks somebody else's skills and tries to learn from them, to make their work better;** they do

better, and their team will do better. I think that way there is something **we can quickly improve on as a team.**"

iii. Reaching out, learning from others, and sharing knowledge, one has to reach out to their managers, supervisors, and co-workers. This sub-theme exhibits this important aspect of the workforce "Learning from each other."

14-5B. "Where can I go to find the answer, the solution? **I will be reaching out to multiple facets that they have in their lives that help the organization or themselves and their positions.**"

24-9B. "If you had someone like me when I started this field, I actually had no idea what I was applying for; I just needed the job. So, **you have to reach out to someone who is willing to work with you, all different types of people, and ask questions and learn from them.**"

17-6B. "... collaborating is when everyone is reaching out to **one another**. Whether they're at **an expert level or novice level, they're welcome to express their ideas; they're valued for their inputs and** give them *[sic]* as many options as they can use."

B. Creating a Team Environment

This theme emerged as the conversation about teams and the importance of teamwork has emerged during the interview process with business professionals in organizations.

10-4A. "Now more than ever, admissions need to be working with an academic who has to be working with athletics and financial aid and fundraising;

all of those need to come together and collaborate with each other to be successful."

1-1A. "Collaboration is something that I need for any type of office or floor positions; it is the kind of necessary skills I am looking for when I am hiring a new employee."

17-6B. "I would definitely say collaboration is most important in a team environment and team performance. I would also say that communication and collaboration in team performances are the most important."

Three sub-themes emerged and exhibited more details of the "Creating a Team Environment" theme. They are displayed as i) Ability to work together, ii) Having common goals, and iii) Solving problems as a team.

i. Ability to work together exhibits the necessity of collaborating to build a comprehensive team environment.

15-5C. "Collaboration, I thought it would be similar people having different viewpoints, and still being able to work together."

23-9A. "Collaboration, that again depends in many ways on what the business product is. If it's something one person has to do, then you're not going to see a lot of collaboration. If it's a thing where you are part of a team, and that team has to make something happen; even if it's a team where 'you fry the burger, I'll get the French fries.' They have to dove-tail to deliver the orders."

4-2A. "... collaboration means **being able to work together as a team**; having **those skills to be able to work together** even if you don't belong to a particular team, but you are still able to work together as a team."

ii. **Having common goals**, as a sub-theme emerged in the background of "creating team environment" in addition to the sub-theme of "ability to work together" during the interview process.

16-6A. "Collaboration, of course, I just think would be that all **employees work together for the common goal**. We all have a goal here each day when we start our day off, so **collaboration would be all the employees working together as team members to achieve the same result**."

3-1C. "Collaboration looks to me like we are going through the third party for auditing every year; **independent people come in prior to these audits taking place**. We do part of what we do to **get together with all different departments**, production, maintenance, and sanitation; we pull all these people together and say we have our audit on this date. **This is what I need you to do and how I want you guys to work together to get our facility ready to go**."

21-8A. "When **it comes to collaboration**, I think people are very engaged and very teamwork-oriented moving **forward to achieve the team's common goals**."

iii. Solving problems as a team emerged as another sub-theme supporting the "creating a team environment" while exhibiting the relevancy of collaboration skills in building a strong and a workable team environment.

11-4B. "So, are they **willing to jump in and help solve the problem?**"

7-3A. "Collaboration is humility; **it's the team. It doesn't matter whose name is on the design because it's the output or the memo's bottom. It's a team effort to get the result.**"

14-5B. "... and **collaboration is the key.** Especially now with the way the world's working. I think for this one, I would look to **their network and not only within their position but the community;** what can we get from our community to help us?"

19-7B. "... therefore **causing a lot of back and forth that leads to a bigger issue,** a breakdown in the communication. **Some bad feelings then lead to a breakdown in collaboration. If people can imagine different [sic], think differently, I think that improves communication and then allows for better teamwork.**"

C. Building Relationships

This theme emerged in the background of "creating a team environment" and "ability to work together" as an essential element. Without "building relationships," it will be tough to create a working and comprehensive team environment and culture.

7-3A. "Collaboration is how you **work with partners and ideas without pride** in where they come from."

17-6B. "You can call it **team building**, all that kind of stuff, but really taking input from all those team members, not just trying to lead that team, **but taking input from all those team members equally.**"

6-2C. "I do a lot of work with design engineers and design manufacturing; **therefore, we need to build a solid relationship with them through collaboration and communication.** Designers are usually looking for making very fancy, beautifully looking parts, **but we need to make those parts of working and fitting** in our side [*sic*]."

The following three sub-themes emerged and exhibited more details of the "Building Relationships" theme. They are displayed as i) Understanding the differences ii) Letting go of ego, and iii) Customer relation.

i. Understanding the differences was a sub-theme that emerged during interviews and discussions on building a working relationship between managers and supervisors on one side and the employees on the other side. Understanding the differences between people and respecting such differences are vital to building relationships.

24-9B. "Collaboration definitely goes back to communication **in relationship building.** So, **are they accepting of other people?** Do they have the ability to **work and listen to people with diverse backgrounds?** Who may not come from the same background that you do, either culturally or professionally?"

10-4A. "I've seen universities really break down **because people aren't working together and particularly not trying to understand their differences**, for example between work of faculty and the administration."

23-9A. "... they tried to understand their differences, they were trying to be creative, they were trying to put critical thinking skills to it. Their communication probably was not as strong as it should have been, **and their ideas of collaboration weren't as strong as they should have been. So that eventually the situation became a negative one.**"

ii. Letting go of ego emerged as one of the sub-themes essential to building relationships among employees of an organization working in close proximity.

2-1B. "I think what opens up people to communication **and collaboration is when they throw their ego out of a window and become more open to other people's ideas and people's opinions.** They become less emotionally damaged from criticism."

11-4B. "For collaboration, but this is true for every place I have worked, but at the university, **we definitely are looking for people who put the team before themselves, put our students before their own interests.**"

7-3A. "Collaboration is a matter of, really an aspect of communication meeting pride in some way; **ego and pride are the blockers of Collaboration.**"

iii. Customer relations is another sub-theme that displays the importance of having a workable and acceptable "customer relations" with the most important aspects of organization growth.

8-3B. "Collaboration is necessary to be able to provide the customer with a total solution versus, well, I can only do this, and they have to go elsewhere to get the different pieces for that puzzle."

20-7C. "... somebody with collaboration skills would communicate with clients and customers more in detail. That would be different from communication among the teams or internal collaboration."

17-6B. "... collaboration and teamwork are pretty much synonymous and totally related to produce what the customer wants and desired [*sic*]."

Overall, the business professionals who have participated in this research on behalf of their organizations expressed their perception of how a workforce that processes and uses the 21st century 4Cs skill looks. These perceptions and ideal points of view are directly related and display the values put on 4Cs skills by private and non-profit organizations operating from northeast PA. In the next section (Current Skills Gap), this research displays the business professional's view of the present gap in 4Cs skills among their workforces.

Summary of Organization's Expectations

The following table (Table 4.3) is the summary of themes that emerged from interviewing business professionals as results of the interview question about the organization's expectation of 4Cs among their workforces. Under skills of 'Critical Thinking,' the emerged themes are Problem-Solving Mindset, Continuous Learner, and Getting the Job Done.

Furthermore, under ‘Communication,’ the emerging themes are Relating to Others, Role Clarity, and Transparency. Additionally, regarding the skill of ‘Creativity,’ the main emerged themes were Thinking Outside the box, Coming with New Solutions, and Being Innovative. And in the end, concerning the skill of ‘Collaboration,’ the central theme that emerged was Learning From Each Other, Creating a Team Environment, and Building Relationships.

Table 4.3

Summary of Themes Emerged on the Bases of Organizations’ Expectations of 4Cs.

What The 4Cs Skills Would Look Like Among Workforce		
4Cs Skills	Emerg ed Themes	Emerg ed Sub-Themes
Critical Thinking	• Problem-Solving Mindset	- Being decisive - Being patient - Looking at a bigger Picture
	• Continuous Learner	- Being open to learning - Paying attention and learn from mistakes - Learning from proven concepts and disciplines
	• Getting the Job Done	- Learning from others - Thinking before acting - Doing your best
Communication	• Relating to Others	- Exhibiting relatedness - Listening - Bridging the generational gap
	• Role Clarity	- Effectiveness - Specificity - Commitment to workability
	• Transparency	- Openness - Adaptability - Consistency
Creativity	• Thinking Outside the Box	- New realm of possibilities - Creative thinker - Creative leader
	• Coming with New Solutions	- Looking for needed change - Willing to engage - Having a leadership role
	• Being Innovative	- Performance - Productivity - Combination of skills
Collaboration	• Learning From Each Other	- Building a culture - Sharing knowledge - Reaching out

-
- | | |
|---|--|
| <ul style="list-style-type: none"> • Creating a Team Environment | <ul style="list-style-type: none"> - Possessing the ability to work together - Having common goals - Solving problems as a team |
| <ul style="list-style-type: none"> • Building Relationships | <ul style="list-style-type: none"> - Understanding differences - Letting go of egos - Having good customer relations |
-

Current Skills Gap

The following themes describe what the business professionals observed about the current skills gap related to the 4Cs skills (critical thinking, communication, creativity, and collaboration) among their organizations' workforces. This segment is the second of their elements of how organizations are valuing the 21st century 4Cs skills. This research revealed the themes related to the way organizations view the 4Cs and how they perceive the 4Cs skills to be in their review, and the way they desire to see it among their workforces. This segment reports on the contrast between what they like to see and what they face regarding the present 4Cs skill gap among their workforces.

Critical Thinking

The following themes have emerged in connection to the Critical Thinking skills gap among organizations' workforces.

A. Not Making Decisions

The "Not Making Decisions" theme emerged during interviewing business professionals when the inquiry was about the appearance and current 4Cs skills gap among their workforces. This segment reveals the skills gap relating to critical thinking and "Not making decisions."

19-7B. "In Critical Thinking, maybe it's partly because people **haven't been put in situations where they've had to make decisions on their own?**"

20-7C. "I want them to think it through, **use their own little independence.** I'm **not too big on micromanaging**, sometimes I can do that, but I don't prefer to do that. So, I like **to give them the independence to learn their job and become as good at their job.** So, they can eventually do what I do".

18-7A. "Some staff **lacks the autonomy or the ability to make the decisions. They fear that they will be reprimanded** if they make the wrong decision. **They're nervous about making a mistake**, so they won't act[sic]."

Three sub-themes emerged and exhibited more details of the "Not making decisions" theme. They are displayed as i) Lack of autonomy, ii) Fear of making mistakes, and iii) Not being empowered.

i. Lack of autonomy

19-7B. "In regard to critical thinking gap, maybe it's **partly because people haven't been put in situations where they've had to make decisions on their own?**"

6-2C. "... critical thinking, I almost want to say it's a **cultural thing. In this union environment, almost forces [sic] people to stop thinking, because of the laws that union has [sic]**, they say that's not my job, I am not allowed to do that. So, it definitely snuffles [sic] it when somebody wants to try something, but they can't because it's not his job.

7-3A. "Critical thinking is a requirement when you're in a flat organization, or it's not top-down where you're just following the

directions of the leader, **so they need to think independently and, on their feet.**"

ii. Fear of making mistakes

18-7A. "I would think more **they have the abilities but are afraid to do anything about it, for fear of doing something wrong**, especially when your job is to maintain the life and safety of another human being."

22-8B. "... we can ask questions, like: well, what are your thoughts? How would you solve it? This way, you kind of **getting [sic] them to step out of their comfort zone a little more** and to continue to push through?"

4-2A. "... there are people who don't want to think critically; **they just want to be told what to do.**"

iii. Not being empowered

19-7B. "...or empowered to make decisions on their own. I'm not just talking about work; I think that leads to what you can do and don't do at work. I think a lot of people have relied on and still rely on other people just telling them what to do."

14-5B. "Critical thinking I think, is the area where the workforce really, that's a skill they need. The gap is with my staff members; **I definitely see a lack of critical thinking skills. They would like everything to be told to them instead of coming up with solutions or creative ways to get things and processes done.**"

11-4B. "For Critical Thinking, I see this happening when people **don't really understand how what they do fits with everything else.**

And I think if you have a strong supervisor, strong management structure or mentorship type of structure that, that **you can kind of impact that a little bit so, you know, you can kind of teach a little bit on how it all fits together and help some of them understand it."**

B. Absence of Training and Development

The theme "Absence of Training and Development" also emerged while interviewing business professionals when the inquiry was about the appearance and current 4Cs skills gap among their workforces. This segment reveals the skills gap related to "Absence of Training and Development."

19-7B. "... I think when it comes down to critical thinking and creativity, especially when we talk about the entry-level staff and mid-level management, it is **because of lacking [sic] the skills that we need to help them develop."**

7-3A. "**The critical thinking gap is both training and education in nature** but also requires [sic] when you're interviewing and hiring that you are actually testing whether people are critical thinkers that **are going to dig beneath the surface and be situationally aware** before we would hire them, especially in a leadership role."

18-7A. "...or they **lack the knowledge or training they need, so therefore they can't make the decision.** They're constantly needing to be reconfirmed that what they are doing is accurate".

The following three sub-themes emerged and exhibited more details in the "Lack of Training and Development" theme. They are displayed as i) Finding solutions, ii) Hard to quantify and iii) Not evaluating correctly.

i. Finding solutions

14-5B. "I would definitely say in the critical thinking skill for 4Cs, and the reason I say **that is because there they can identify the issue, but they don't have the critical thinking of how *[sic]* to find solutions or critical thinking of how to present their ideas for those solutions.**"

16-6A. "Critical thinking! I'd like to think that **everybody I hire has the ability to think critically and think on their feet to be creative, but that is not the case in general.**"

7-3A. "Therefore, critical thinking is required to look through the **lens of multiple perspectives on the impact of making change** and how this change has an effect on other functions within the business."

ii. Hard to quantify

15-5C. "I probably see **critical thinking being the most difficult.** I think **probably it's hard to quantify that**, right? So, I may see **people not being able to or look... at things in that *[sic]* in that critical thinking way**, that sometimes it's hard to, **to express that to someone.**"

5-2B. "In critical thinking, **I think too often that employees jump to conclusions** because they are **not completely understood *[sic]* the problem** or sequence of events."

7-3A. "How to tell a story with data instead of just following a story that's perception? It is hard to quantify the data in stories you hear from employees, so that is where critical thinking is missing."

iii. Not evaluating correctly

3-1C. "I think as far as critical thinking is concerned, maybe scaling *[sic]* through the motions and not necessarily evaluating circumstances correctly."

5-2B. "... no, they think to themselves 'this tool is not performing like it used to, so I will change it *[sic]* the process or get a different tool', instead of figuring out why this tool worked in the last four years; that would be a gap in critical thinking."

15-5C. "... in an unknown work situation, either talks to someone, or you come with a get solution. *[sic]* Preparation is critical when you work with somebody. So, I think critical thinking is probably the one that we lack the most among our employees **when they are assessing situations and evaluating their approach."**

C. Lack of Clear Commitment

The theme "Lack of clear commitment" also emerged while interviewing business professionals when the inquiry was about the appearance and current 4Cs skills gap among their workforces. This segment reveals the skills gap relating to "Lack of clear commitment."

8-3B. "... some of our remote sites were run **almost as if they were a subsidiary of the current company as the decisions were being made more at**

the site level than at the enterprise level. It seems like there is no commitment to the organization. **This is caused by not paying attention to critical thinking at the organization level.**”

7-3A. "...we are not as consistent and disciplined in having processes to both flow down and flow up, connect separate groups or silos.*[sic]* **There is a need for an organization's commitment as well as individual commitments** to get rid of the silos.”

16-6A. "You have to have a kind of top to bottom, left to right...that **requires critical thinking and a design** to do that well."

The following three sub-themes emerged and exhibited more details in the "Lack of Clear Commitment" theme. They are displayed as i) Absence of employee commitment, ii) Lack of organizational commitment, and iii) Conducting business as usual.

i. Absence of employee commitment

2-1B. "To think critically about what you are doing, **you have to care about what you are doing.** If you don't care, you **won't put your mind into it and devote your effort into it.**"

21-8C "There is *[sic]* plenty of people who care absolutely about what they are doing, and **there are plenty of people who don't have any investments.** They just want to **get their paycheck when they walk out of this door** at the end of the day. So, yes, you have the **gap there in critical thinking.**"

25-9C. "We have people that have been here for forty, fifty years, and **they're in these spots that 'you know this is how we've always done it;** this is how we're going to do it. There is a lack of commitment to any new ways to do an old thing."

ii. Lack of organizational commitment

2-1B. "Critical thinking, I think **not everybody has bought into the concept of the better a company performs [sic],** the more they enjoy the benefits of it the more they lack performing [sic]."

1-1A. "Critical thinking is not there; I don't even think it is taught in school anymore, **I don't even know if you could teach that if something you have developed [sic]? We do not see that.**"

24-9B. "I think it has to do with some **organizations tend [sic] to be siloed.** So, one department does its thing and doesn't really consider how it affects another department. I think this **lack of critical thinking is a common mistake and lack of organizational commitment among many organizations.**"

iii. Conducting business as usual

22-8B. "Every solution I presented to this individual, **they just kept saying, but that's not going to work.**"

7-3A. "Whether that's a CEO or production supervisor, critical thinking can get squashed in the top-down dictatorship."

25-9C. "That mentality on campus is 'we are just going to continue to keep operating the same way we've always operated'; **no new thought, no critical thinking, and no commitment to any new approach.**"

Communication

The following themes have emerged in connection to the Communication skills gap among organizations' workforces.

A. The Missing Foundation

The emerged theme "The Missing Foundation" emerged during interviewing business professionals when the inquiry was about the appearance and current 4Cs skills gap among their workforces. This segment reveals the skills gap relating to "The missing Foundation" in communication skills.

15-5C. "I think what in our organization communication is what **I see is most important to our employees**, not that there's not a skills gap there, not that I think that everybody necessarily is doing it the way that we should. But I think that's **the most important from what I'm hearing from employees.**"

22-8B. "I think on communication, we do employee surveys every quarter, and it **continues to come up that communication is an issue**. And I think in my 27 years of HR, no matter what organization, whether it was healthcare or utility company, or our company, I believe in every organization, **the number one complaint is communication**, whether it's up down sideways, or whatever."

7-3A. "... the gap is, for us is the **discipline to stay on message** and make sure that **our message from a leadership and strategy standpoint is delivered in a meaningful, consistent, and understandable way**, which allows different

messaging and the other aspect of communication *[sic]* that there is a gap or at least a discipline you have is different *[sic]* forums and different ways to engage people to get their feedback and input.”

Three sub-themes emerged and exhibited more details of the "The Missing Foundation" theme. They are displayed as i) No communication in a silo, ii) Getting lost in transmission, and iii) No relationship, no communication.

i. No communication in a silo

23-9A. "There's been a big metaphor over the years on college campuses that **are talking about *[sic]* silos**. Academics work in a silo, and they don't talk about admissions. Admission is a silo, and they don't talk about financial aid. We have tried on so many different levels, and I tried so many different ways **to pull those silos down and make sure we're talking with each other**. Not just in our own little echo chambers. That could always be a gap.”

7-3A. "... we are not as consistent and disciplined in having processes to both flow down and flow up, **connect separate groups, so *[sic]* silos. To get rid of the silos, you have to have a kind of top bottom left and right that together requires *[sic]***. It really requires a design to do that well.”

12-4C. "So, I think that we do **put a big importance on communication if you were to read through all of our literature** and such, you would see that **we are trying to break any silo and perform as**

a whole. But I don't think we are succeeding to the effect to the level *[sic]* that we would like.”

ii. Getting lost in transmission

18-7A. "With communication, **a lot of times, it's a trickle-down communication.** So, if a decision is made, it is sent to the director level, and then the director levels will send it to the supervisors, and then the supervisors will send it down to the front line. So, **things can get lost in that communication.** Often, the information we think is getting to the people who need **the information is getting lost.**"

12-4C. "But yet I think **because of the different layers and then because of different competing priorities and things of that nature** and by the very nature of **how an organization is set up.** Even though communication is stressed and desire that made an important part of that it may not succeed *[sic]*.”

9-3C. "So, it's really important, and **I can't stress enough, to make sure whoever is receiving the message understands the message they are receiving** and then **relays *[sic]* that message the same as they got it,** because you know the tale seems to change person to person."

iii. No Relationship, No Communication

13-5A. "I feel like that then permeates itself through the organization because then **if you and I don't have a relationship and we have to work on something together,** how is that collaboration and **communication** going to go? And how is that then going to impact that

way in which I critically think about the problem that needs to be solved or the opportunity that it might be able to pursue? Then the ripple effect that has on everything *[sic]*.”

8-3A. "We don't necessarily always talk effectively to each other. So, often, we have to put on our communication's hat and realize what I am working on does have an impact on the person next to me and what they are working on.”

27-1C. "Communication I talked about *[sic]*, our gap here is [that] people don't like talking to each other. I mean, that's the fact of the matter. They'd rather send an email and not talk to each other".

B. Unclear Communication

The emerged theme "Unclear Communication" also emerged during interviewing business professionals when the inquiry was about the appearance and current 4Cs skills gap among their workforces. This segment reveals the skills gap relating to "Unclear Communication" in the skill of communication.

12-4C. "And even though this distress on communication is this apparent, the results of all of that communication may not be what was expected. Because people just ignore stuff. Something I didn't read that I didn't know we had to do it *[sic]* and so on and so forth, but that's a different story altogether.”

16-6CA. "Communication doesn't look the same as it did twenty-seven years ago. Twenty-seven years ago, communication was based on faith, meetings, talking. What they lack now is communication because of

electronics, but I think it's the number one important, *[sic]* or the one item of the 4Cs skills that are lacking.”

11-4B. "For communication, I have seen this play out in challenges addressing issues, such as, **if for whatever reason, communication amongst a team isn't very good, not clear communication, and not reinforced, there could be a variety of different issues.** *[sic]* So what happens? **People on the team don't know things, or they don't feel like they have the opportunity to address things, then you can have frustrated employees and employee relations problems, and maybe start to have interpersonal tension.**”

Three sub-themes emerged and exhibited more details of the "Unclear Communication" theme. They are displayed as i) Confusion caused by technology, ii) Incomplete tasks, and iii) Making assumptions.

i. Confusion caused by technology

19-7B. "Communication is a skill that is lacking. I don't know if that's **because of technology but part** *[sic]* **of the lack of people reaching out, looking for immediate answers. Short responses, technology not being able to read people as well or understand them, not getting in Ques.** *[sic]* Therefore, I think that impacts our communication.”

6-3A. "There are **so many types of technology.** That can use that to access **the different generations** *[sic]*. In our workforce, in particular, you know, we have four or five generations working in our organization.

So, people who **still like old paper memos, and people who want everything in an app, and everybody in between.**”*[sic]*

22-8B. "If emails aren't effective, **then pick up the phone and do all that.** So, I think that's kind of how we, just as an organization, **make sure that communication is just we** *[sic]* **find the right method and communicate it multiple times,** so people finally hear it.”

ii. Incomplete tasks

20-7C. "The staff gets lost doing the task, and then, later on, they (the management) wonder why the **task was not done correctly.** Well, there was a communication breakdown there, and then I come in and try to **help out the other managers because I'm a senior one.** I tell them they have to be very thorough, make sure there is a written account. So sometimes there is a communication gap, but it is getting better.”

2-1B. "In my experience, a **lot of miscommunications comes from assumptions.** People assume everybody else would know what they were supposed to do”.

17-6B. "I'm not so sure there's a gap as if my coworkers and staff don't possess the ability to **think and communicate their thoughts to get the job done to the best of their ability,** as much as perhaps leadership doesn't encourage it or welcome it critically *[sic]*. I think we have a tendency to stifle that a lot of times.”

iii. Making assumptions

3-1C. "People will assume that you told them something but really didn't; you shouldn't assume that. You just need to communicate that directly."

12-6B. "So, there is that kind of communication that when **people's specificity is missing [sic]**. That stems from experience and **the slang that people use.**"

2-1B. "...a lot of it **comes down to nomenclature; someone uses a nomenclature that the other does not understand**, especially in an organization with multi-national employees. We have employees that **don't even speak English, so we have interpreters.** That has become a huge gap in communication."

C. Poor Quality

The "Poor Quality" also emerged as a theme while interviewing business professionals when the inquiry was about the appearance and current 4Cs skills gap among their workforces. This segment reveals the skills gap relating to "Poor Quality" in communication skills.

5-2B. "It is like they are thinking, 'I don't need to know what went wrong. In order to fix it, I will do something different.' That too often happens."

1-2B. "Sometimes it is **just because of me, maybe because of my position, sometimes people are reluctant to tell me or open up to tell me.** I tried to be **very reassuring and make it safe to talk.** It is OK! If you tell me what went wrong, and not try to hide it like the machine took off and not *[sic]* working right!"

22-8B. "... to me, you have to remember, **what are the important things that people want to know?** Not just to communicate, **to communicate, but communicate important things.**"

Three sub-themes emerged and exhibited more details of the "Poor Quality" theme. They are displayed as i) Not listening, ii) Inadequate communication, and iii) Needs for more frequency.

i. Not listening

5-2B. "Sometimes I see communication problems where the person is not necessary for listening well, although they think about what they are trying to say as opposed to listening."*[sic]*

14-6B. "It is very common. I call it prefabricated answers. The answers are already in their sleeves; they are ready to pull [them] out."

6-2C. "However, outside of my group, there is a huge communication breakdown. I think **the issue is they are not listening** to their supervisor."

ii. Inadequate communication

4-2A. "they do not know how to communicate, **they don't want to listen, or they don't know how to put into words what they want to say or communicate** those ideas clearly *[sic]*."

11-4B. "... and so I think that **poor communication** plays out in a number of really ugly ways."

23-9A. "Communication could always be a gap. **We try on several different levels** among faculty and faculty to staff and faculty with staff. To administration and with administration, **we're constantly looking at those ideas of what are the best kinds of lines of communication.** Making sure we keep those lines of communication open[*sic*]."

iii. Needs for more frequency

7-3A. "The gap in communications would be the frequency and quality of communications in any direction to keep people aligned but also to encourage people to use their voices and say what they want."

17-6B. "... we all struggle with communication, you know, just being really consistent with enough frequency with it, but specifically, here, I think there's a lot of stifling of those skills. I think that's really the reason for any kind of gap here."

3-1C. "Communication, you know that there is always room for it; we can always do better with better quality and more frequency."

Creativity

The following themes have emerged in connection to the Creativity skills gap among organizations' workforces.

A. Lack of Imagination

The "Lack of Imagination" emerged as a theme while interviewing business professionals when the inquiry was about the appearance and current 4Cs skills

gap among their workforces. This segment reveals the skills gap relating to "Lack of Imagination" in creativity skills.

25-9B. "Creativity and imagination is a vital element of building organizational culture and absolutely a requirement of management and leadership in the company."

8-2B. "We tend to focus on what's wrong instead of what's right."

11-4B. "So, what happens when people on the team don't feel like their ideas are not important? Or they don't have the opportunity to address things; then you can have frustrated employees and employee-relations problems."

The following three sub-themes emerged and exhibited more details of the "Lack of Imagination" theme. They are displayed as i) Stuck in a routine, ii) Not thinking differently, and iii) We have always done it this way.

i. Stuck in a routine

1.1A. "Creativity; and again, I think that is part of it; we get stuck in a routine."

19-7B. "People are just stuck in a set routine and not thinking, or maybe not challenged to think; therefore, not a lot of opportunities are encouraged. So that's a skill definitely a gap there too [sic]."

27-10A. "Creativity is to come with new ideas, how to break through your old perception, and what you know about how things work." [sic]

ii. Not thinking differently

16-5A. "So, getting people to see things differently, and hopefully getting them **to think differently, allows us to be more innovative and progressive.** In our field, particularly, it's constantly changing; there's lots more research done on it. **In order to stay relevant, we need to be creative in how we address that.**"

3-1C. "If there is a problem with the machine, we need **creativity**, as you mentioned, but then again, you need to be **collaborating with other departments** to get that machine to run correctly."

9-3C. "I would like to see the **organization's creativity** by **forcing people to think from /sic/ collaborating together by entertaining new ideas and coming** up with the best solution for the company."

iii. We have always done it this way

11-4B. "I also think that **this gap could be part and parcel of management.** So, if you have a top-down structure where all the rules and everything is coming from here, **what opportunities are there for employees to explore their creativity and grow their ability to be creative?**"

18-6C. So, if we are stuck in, '**this is the way we always do it,**' 'or **this is the way we've always done it**', you know, you're going to find yourself falling behind, I guess, **and no be able to be progressive.**"

25-9C. "Have different ideas on how a business should run.

Sometimes, when you put all of that into the campus community, **it's very hard to build a change that needs to happen.** So many people have so many opinions; it's hard to say, 'oh, your opinion doesn't matter; **we are just going to go this way."**

B. Needs to Be Creative

The "Needs to Be Creative" emerged as a theme while interviewing business professionals when the inquiry was about the appearance and current 4Cs skills gap among their workforces. This segment reveals the skills gap relating to "Needs for Be Creative" in creativity skills.

18-7A. "Some staff lacks the autonomy and creativity. **They fear that they will be reprimanded if they make the wrong decision.** They're nervous about making a mistake, **so they won't act."**

7-3C. "Measuring **creativity is an output of performance,** and it's difficult because depending on someone's in *[sic]*, **it's how much creativity you're expecting of them based on the problems.** They are trying to solve the problems you expect them to solve or the ideas you expect them to have in their role."

26-10A. "I think, **to promote creativity, that is an area for a company leader to step in and set the directions that promote creativity** and make it clear that you know, we're welcoming your inputs because we are all one company."

The following three sub-themes emerged and exhibited more details of the "Lack of Imagination" theme. They are displayed as i) Fear of Expressing, ii) Necessity to survive, and iii) Absence of development.

i. Fear of Expressing

2-1B. "They are **timid to come forth with their ideas**. They don't want to present something that (in their mind) **is perceived as a dumb idea**. So, that could have an impact on creativity."

5-2B. "I think there is **a gap or misunderstanding that the employees might think that their opinions will never be heard**, or their **ideas are not taken seriously**."

18-7A. "I would say that **we lack creativity and innovation because of the federal and state regulations** that we have. They are very *[sic]* prescribed in what we can and cannot do. So, there is always that **fear of breaking a regulation and being punished by the government**. Losing funding. So, there's **a lack of creativity**."

ii. Necessity to survive

23-9A. "We've looked for **ways to be more nimble**, so our own processes of trying to be academic and scholarly and **make sure everything has its proper vetting**. We don't want that to bog us down so far that **we can't pivot to new programs or new ways of doing things**."

15-5C. "I probably would have said that a year ago, as far as creativity, it was not necessary for what we were doing. But I think **now again in the world that we live in, we had to, you know**.*[sic]* Within

weeks our lives completely changed; our programming is everything, right? **The way that we work, the way that we do life, so I think now more than ever I saw that probably is one of the strongest within our organization.**”

9-3C. "... but that is **the gap; it's collaboration and creativity. I think you bring those two sides together, instead of keeping them segregated** and where you have a group of engineers in one room trying out a process, but being able to repeat that, time and time again, it's a difficult task, so that's why I think **that creativity needs to work together**[sic]."

iii. Absence of development

19-7B. "...unfortunately, **creativity is one of those things where we're struggling with the younger generation;** I think psychology has an impact on that. I like **to have that imagination going, build, and see things differently and come up with different solutions** [sic].”

19-7B. "I think Critical Thinking and Creativity, **especially when we talk about the entry-level staff and mid-level management...** lacks the skills that we need to help them develop."

18-7A. "Or **they lack the knowledge or training they need,** so therefore they can't make the decision or be creative. **They're constantly needing to be reconfirmed that what they are doing is accurate.**"

C. Think People and Organization

The "Think People and Organization" also emerged as a theme while interviewing business professionals when the inquiry was about the appearance and current 4Cs skills gap among their workforces. This segment reveals the skills gap relating to "Think People and Organization" in creativity skills.

13-5A. "I get my creativity from other people. There is a sort of relationship-building involved in this. I mean, how creative is somebody like me going to be? And to be honest, even when it comes to critical thinking again and problem-solving, **I don't know that you can problem-solve without being creative."**

17-6B. "Promote creativity and environment of 'let's figure this out together'. I think that would be the most important thing that would promote creativity among our people."

11-4B. "So, about creativity, I think a certain person needs to have that natural bent. But I think the organization is really responsible for creating an environment where they can grow and flourish. Yes, so that I can see as **more of a two-part thing, employees and organization."**

Three sub-themes emerged and exhibited more details of the "Think People and Organization" theme. They are displayed as i) Partnership with organization, ii) Creativity links to leadership, and iii) Not being attached.

i. Partnership with organization

1-1A. "I have promoted people from the floor because **they come in and say I have an idea; we take that very seriously.** If someone shows interest and someone shows that they don't just want to put the orders in the box, but they are saying, hey, **I know you always have done it this way, but if you do it this way, maybe it would save some time and save some money,** so, we will look at that."

5-2B. "I have run across situations where an employee comes to me and says that 'Hey, this doesn't work very well, we should do x, y, or z', so in one sense **they are trying to be creative and solve the problem,** but they do **not necessarily take to mind the expense and step back for a little bit and look at the picture of how that would impact either the wrong economics or productivity.**"

27-10B. "I want, people need *[sic]* to think more about what **they're doing, and how it is affecting the company,** and not go through the motions, it's so easy, **that is being creative and thinking ahead.**"

ii. Creativity links to leadership

20-7C. "We have some new leadership that comes from **production levels with creative minds and thoughts that's *[sic]* bringing different perspectives** in the organization."

25-9C. "We need creativity to kind of do more of that and make quicker decisions to support and move forward, **instead of leaving things up in the air and hoping for the best.**"

7-3A. "We also have to **refine some refinement** *[sic]* with **creativity and effective leadership**. At the same time, we're never satisfied and never settled, **which almost forces you to be creative with attitude.**"

iii. Not being attached

5-2B. "It is kind of tying into your information versus implementation. That is a difficult balance; be careful what you are asking for! **You want all these creative ideas for improvement**, and as soon as **their ideas were not implemented, you get a backlash!**"

27-10B. "The challenge is when things get really complex. Sometimes you don't understand who needs to be brought into what? **That is the time for a creative mind and not being attached to how things should work.**"

19-7B. "... and **don't be attached to whose idea is it**; whether they're from management or from production, they're welcome to come with an idea... **welcoming their creativity and new ideas.**"

Collaboration

The following themes emerged in connection to the Collaboration skills gap among organizations' workforces.

A. Working in Silos

The "Working in Silos" emerged as a theme while interviewing business professionals when the inquiry was about the appearance and current 4Cs skills gap

among their workforces. This segment reveals the skills gap relating to "Working in Silos" in collaboration skills.

The following three sub-themes emerged and exhibited more details of the "Working in Silos" theme. They are displayed as i) Not working as a team, ii) Missing opportunities, and iii) No personal connections.

i. Not working as a team

19-7B. "There always seems to be a lot of silos between different departments and different areas. Especially when you have different sorts of programs. Between the finance and the administrative and the program people and I think that's keys to collaboration."

2-1B. "... collaboration, it takes effort to bring other people to make a decision in the process. Maybe some people think that they know best. So, they are not going to ask other's opinions; they are not going to bring anybody else to bounce ideas off. I have been doing this for so long, and I know the best way to do it. So, they don't collaborate."

5-2B. "It is like they are thinking, 'I don't need to know what went wrong. In order to fix it, I will do something different.' That too often happens."

ii. Missing opportunities

10-4A. "I think we always do struggle with collaboration. I think we value community here; it is such a big organization that everybody has high expectations these days, and so it is easy for us to create silos."

8-3B. "... some of our remote sites were **run almost as if they were a subsidiary of the current company as the decisions were being made more at the site level than at the enterprise level.** We have done a very good job with lots of effort to **knock down those silos to be more collaborative.**"

15-5C. "I think our leaders are really looking for [*sic*], and **I think there's a skills gap there with the collaboration of the people being able to work, especially in the world that we're in now.** I think the timing of things [*sic*]. I think **it's difficult for some people, you know, they don't realize they don't have to agree they don't have to be the same.** That's difficult in this environment right now."

iii. No personal connections

4-2A. "I feel that people, especially within technology, **they want to be left alone; they don't want to work together.** So, you will see people on their phones a lot. **They don't want to develop that comradery, that teamwork.**"

9-4B. "I think **modern technology might have been a part of personal connections with others at work, socially with the generation that is growing up now with technology.** My generation...had some technology but not to the extent that they have it now."

12-4C. "We used to receive all the orders from the **top to bottom without any personal contacts with lower managers. But now we are collaborating better.** I think, for instance, we have committees made up

of somebody from the administration, somebody from this, somebody from that, and so on and so forth. **It still feels a little bit top-down. So yes, there should be a bit more of that, and the more committees don't necessarily make it better, but it's the appreciation as well as the input from all levels that needs to gather some steam."**

B. Resistance to Collaborate

The "Resistance to Collaborate" emerged as a theme during interviewing business professionals when the inquiry was about the appearance and current 4Cs skills gap among their workforces. This segment reveals the skills gap relating to "Resistance to Collaborate" in collaboration skills.

The following three sub-themes emerged and exhibited more details of the "Resistance to Collaborate" theme. They are displayed as i) Competition vs. collaboration, ii) Personalities in the way, and iii) No skills building.

i. Competition vs. collaboration

18-7A. "Sometimes, there seems to be a **competition versus collaboration**. 'This house is doing something that house isn't doing.' or 'This department is doing something that department didn't do.'"

19-7B. "... there isn't much of not collaborating or resisting because there is a lot of inter-departmental committees within our organization, **but there is still some, a small gap there**, I would say."

27-10B. "... it seems like the **competition is a natural thing among individuals and teams. I can see some competitions that are working against collaborations**. It is very unnecessary if you ask me!"

ii. Personalities in the way

5-2B. "I think sometimes **collaborating between the employees is tricky; some people are getting along with each other, personality-wise, and work together well. Other people have more issues and personality conflicts and not working well with each other.**"

6-2C. "... we have spectrum across employees, **from being easy-going and helpful, and we have pockets of people who are quite difficult to work with, and they are mostly in a bad mood.**"

24-9B. "... Because of **their personality, it's really hard for some people.** Especially people that are new to their position. **Or that are facing a big challenge. It's really hard for them to collaborate and to take constructive criticism, and I think it's really hard for people to give constructive criticism that's not a personal attack.** That takes experience."

iii. No skills building

17-6B. "... for skill-building, like being able to collaborate together and work together and come up with the ideas, I think that's the greater gap there."

11-4B. "Collaboration, that was kind of **where I see gaps in that is when directors or the management team as a whole make decisions or go forth with instructions. And there's no opportunity for feedback from the people that are actually carrying it out.**"

22-8B. "So, by the lack of training, **the lack of training that she didn't do to them, for the managers is going to result in next week when she leaves for me or somebody on the team to pick up the ball because we didn't take the step [sic].**"

C. Using other 4Cs

The "Using other 4Cs" emerged as a theme during interviewing business professionals when the inquiry was about the appearance and current 4Cs skills gap among their workforces. This segment reveals the skills gap relating to "Using other 4Cs" in collaboration skills.

The following three sub-themes emerged and exhibited more details of the "Using other 4Cs" theme. They are displayed as i) Collaborate using communication, ii) Collaborate using creativity, and iii) Collaborate using critical thinking.

i. Collaborate using communication

3-1C. "We see some area that we do see [sic] **there are problems with that piece of equipment, not being collaboratively communicated well.**"

11-4B. "...not to resist an idea immediately, **where they would have the opportunity to communicate** and to say, 'I understand what you're trying to accomplish, but maybe this way could get us there.' This would be a lot easier."

1-1A. "As far as for collaboration, **I said that before— collaboration and communication goes hand in hand for me,** at least."

22-8B. "Now we have somebody leading those projects, and we outline, like, who are the key stakeholders? When we're opening a new clinic, what needs to be done? Who are those people? **I think from that perspective, we're getting better at collaboration,** but you kind of have to, me sitting at a senior table, hav[ing] to be the one to think of those things, right? **They come back to me and say, oh, you know, you're doing this, and you didn't know** [*sic*]."

ii. Collaborate using creativity

6-2C. "If there is a problem with the machine, we need creativity, as you mentioned, **but then again, you need to be collaborating with other departments to get that machine to run correctly.**"

23-9A. "... we're **trying very hard with that kind of creativity which requires a command of that collaboration.** That we have to work with each other [*sic*]. Visual arts is part of my department; we're actually teaching out [*sic*] the visual arts. We're losing that program, but in its place, we've created a new digital media major. **So that we can be flexible because that's the kind of programs** [*sic*] **that we see our students want. We have to be flexible and agile enough to adjust.** Provide them what they want so we can provide them with the skills that will get them into the workforce."

25-9C. "We become very creative; **we have the ability to use creativity and collaboration with other departments and add new**

courses and new course design and change overall, you know the business changes[*sic*]."

iii. Collaboration using Critical Thinking

9-3C. "... there are some **breakdowns in collaboration** among people that I do see, as we all know, anybody who you talk to at this point; we are all dealing with a whole new world and a whole new set of problems; **this is the time for using critical thinking and communication to collaborate and move forward.**"

7-3A. "Collaboration will really spike if we rally towards a particular outcome; **our collaboration will go through the roof using critical thinking.**"

26-10A. "Everybody is **working hard and collaborating just to keep things running as it was planned. Critical thinking is the skill that helps us collaborate** when we get to that level of production."

Overall, the business professionals who have participated in this research on behalf of their organizations expressed their views of the occurrence and presence of 4Cs skills gap among their workforces. These points of view and observations are directly related and display the values put on 4Cs skills by private-sector and non-profit organizations operating from NEPA. In the next section (Degree of Values), this research reveals the business professionals' view of the degree of values they are placing on 21st century 4Cs skills by applying a quantitative rating on how much they are valuing these skills.

Summary of organizations' Observations on Skills Gap

The following table (Table 4.4) is the summary of themes that emerged from interviewing business professionals as results of the interview question about business professionals' observation about the current 4Cs skills gap among their workforces. Under the skill of 'Critical Thinking,' the emerged themes are Not Making Decisions, Absence of Training & Development, and Lack of Commitment. Under the skill of 'Communication,' the main emerging themes are The Missing Foundation, Unclear Communication, and Poor Quality. Furthermore, regarding the skill of 'Creativity,' the main emerging themes were Lack of Imagination, Need to Be Creative and Think People and Organization. In the end, concerning the skill of 'Collaboration,' the emerged theme is Working in Silos, Resistance to Collaborate, and Using Other 4Cs skills.

Table 4.4
Summary of Themes Emerged on the Basis of Current and Present 4Cs Skills Gap.

Organizations Observation of 4Cs Skills Gap Among Their Workforce		
4Cs Skills	Emergед Themes	Emergед Sub-Themes
Critical Thinking	• Not making decisions	- Lack of Autonomy - Fear of making mistakes - Not being empowered
	• Absence of Training & Development	- Finding solutions - Hard to quantify - Not evaluating correctly
	• Lack of Commitment	- Absence of employee commitment - Lack of organizational commitment - Conducting business as usual
Communication	• The Missing Foundation	- No communication in a silo - Getting lost in transmission - No relationship, no communication
	• Unclear Communication	- Confusion caused by technology - Incomplete tasks - Making assumptions
	• Poor Quality	- Not listening - Inadequate communication - Needing more frequency
Creativity	• Lack of Imagination	- Stuck in a routine - Not thinking differently - We have always done it this way
	• Need to Be Creative	- Fear of expressing - Necessity to survive

	<ul style="list-style-type: none"> • Think People and Organization 	<ul style="list-style-type: none"> - Absence of development - Partnership with organization - Creativity links to leadership - Not being attached
Collaboration	<ul style="list-style-type: none"> • Working in Silos • Resistance to Collaborate • Using other 4Cs skills 	<ul style="list-style-type: none"> - Not working as a team - Missing opportunities - No personal connections - Competition vs. collaboration - Personalities in the way - No skills building - Collaboration via communication - Collaboration via creativity - Collaboration via critical thinking

Comparison Between Expectations of 4Cs and the Skills Gap

The themes on table 4.5 are not meant to correspond to one another across the columns directly; however, they exhibit a relationship between overall organizations' expectations compared with the current and presence 4Cs skills gap among the organizations' workforces.

Table 4.5

Summary of the Main Themes Emerged on the Bass of Organizations' Expectations of 4Cs and the current and Present 4Cs Skills Gap Among Their Workforces.

What the 4cs Skills Would Look Like Compared to What the Current 4cs Skills Gap is		
4Cs Skills	Organization Expectation	Current Skills Gap
Critical Thinking	<ul style="list-style-type: none"> • Problem-Solving Mindset • Continuous Learner • Getting the Job Done 	<ul style="list-style-type: none"> ○ Not Making Decisions ○ Absence of Training & Development ○ Lack of Communication
Communication	<ul style="list-style-type: none"> • Relating to Others • Role Clarity • Transparency 	<ul style="list-style-type: none"> ○ The Missing Foundation ○ Unclear Communication ○ Poor Quality
Creativity	<ul style="list-style-type: none"> • Thinking Outside the Box • Coming with New Solutions • Being Innovative 	<ul style="list-style-type: none"> ○ Lack of Imagination ○ Need to Be Creative ○ Think People and Organizations
Collaboration	<ul style="list-style-type: none"> • Learning From Each Other • Creating a Team Environment • Building Relationships 	<ul style="list-style-type: none"> ○ Working in Silos ○ Resistance to Collaborate ○ Using other 4Cs Skills

Degree of Values

After this researcher solicited information and collected data from business professionals about their expectation of a workforce with 4Cs skills and their view of current and the presence of 4Cs skills gap among their current workforce, a dialog emerged about the degree of values they are placing on the 21st century 4Cs skills. The participants had a chance to express their general view of valuing such skills before they placed a quantitative number (skilled from zero to ten) on their choices and selected values.

The following are some of their general input on the degree of values they place on the 4Cs skills:

2-1B. “Listen, **value is huge**; if you can get **everybody to think critically** about what they are doing, if **they can openly communicate**, if they are **open to collaborating** with others, that **would probably generate creativity.**”

4-2A. “... **critical thinking, communication, and collaboration have very high value for us because we do need them to think critically** and to be able to complete the objectives that we set in front of them with very little guidance.”

5-2B. “... the **workplace has room for people that are just two of the four *[sic]***, as **going to the supervisor's role and the manager's roles**, it's more important to have all four.”

6-2A. “I think we can have a pocket of **people that are critical *[sic]* if they are critical thinkers and good communicators that could be very productive and work well at the company**, but we also need **people that have a creativity *[sic]***, we have some tool makers and tool engineers that **are very creative**, and we rely on them to push the boundaries on how we process parts and accomplish our work.”

14-5B. “I think it's important. **It's not as important as critical thinking and communication pieces because creativity is kind of just the skill that makes you unique or independent** as an employee, but it's always good to have.”

15-5C. “I value that I see the most successful, you know, employees would definitely be one would be communication. Because I just see **within a communication value that can or I can absolutely, is the most important that I see to make things successful.** Career employees aren't talking when they're not communicating. It just doesn't work. **We don't work in an environment that silos work.** No matter what we do, so that that would definitely be the most important[*sic*].”

The following figure (Figure 4.8) displays the total and average participant rating of the degree of value organizations place on 4Cs skills among their workforces. The rating scale of 0 being the lowest and 10 being the highest on rating values the 4Cs skills, a) Critical Thinking, b) Communication, c) Creativity, d) Collaboration. Given that nobody rated any of these skills below a scale of five, the total placed values are calculated from scores of five to ten and then averaged based on six scales (from five to ten). The purpose of this rating activity was for the researcher to 1) observe the level of values participants are placing of 4Cs skills on their workforce, and 2) for participants to reflect on the level of values they are placing on 4Cs skills on their workforce.

The ten organizations and the 27 participants from all levels of management have expressed the degree of the value they are placing on 4Cs skills from top to bottom, in order of: 1st) Communication, 2nd) Collaboration, 3rd) Critical Thinking, and 4th) Creativity.

It is important to note that given that these organizations are not all doing their business in the same industry, the nature of their products has a significant impact on their choice of

values on each of these 4Cs skills and is governed by what they are doing and what they are producing. For example, manufacturing companies' interest in the 4Cs skills is much different from what a higher education organization would care for and place values on the 4Cs skills among their workforces. However, in either case, this short rating would help the participants and their organizations plan their approach to where they should concentrate their training efforts and what to pay attention to in the future development among their workforces.

As a result (see figure 4.8), what is very noticeable is the closeness of ratings and average on the top two ratings of Communication 41.67 and Collaboration at 41.33, which could be interpreted as the most important values these organizations place among skills for their workforce.

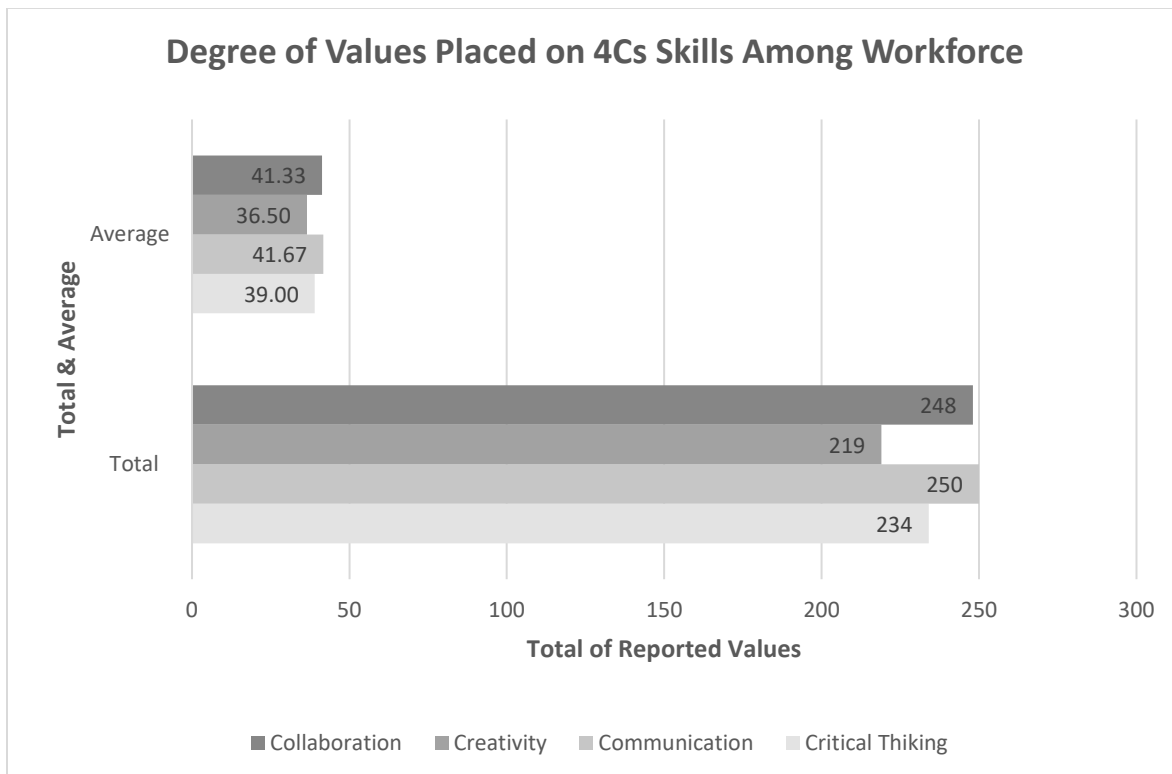


Figure 4.8. Degree of values placed on 4Cs skills among workforces.

Research Question Two (RQ2)

How do the 4Cs skills gap impact workforce team performance in an industry setting in Lackawanna County, NEPA?

Regarding the RQ2 the second set of three IQs was designed to extract the perception of business professionals (as representatives of this organization) of 4Cs skills gap impact to the organizations, associated to team performance by the following:

- a) **Ranking** the importance of each of the 4Cs skills in having a **positive impact** on team performance by applying a quantitative value to each of the 4Cs by scoring the most impactful 4C skill being the number one on the top to the less impactful 4C skill being number four on the bottom. It is notable that not all these ten organizations are performing their businesses in the same industry; these ranking skills for each organization are relevant to the nature of their industries.
- b) Using the Critical Incident approach (a critical incident focuses on a specific event and captures important information related to an event) to talk about a time when an employee demonstrated i) **positive outcomes** because of any of the 4Cs skills, or ii) **negative outcomes** because of a lack of any of the 4Cs skills that impacted the team performance. They described the situation and what behaviors they have observed, and what was the impact or result.

The following are some of the general input from the business professional on the ranking of the 4Cs skills of the positive impact on their team's performance before they place their quantitative ranking numbers from one being the highest and four being the lowest ranking on the positive impact on team performance.

14-5B. “I definitely think for team performance, **communication** would probably **be number one.**”

1-1A. “From a team performance aspect, again, **communication and collaboration are key.**”

5-2A. “For the team, **you need to have collaboration between /sic/ everybody.**”

2-1B. “I think one skill becomes the **byproduct of the other skills.**”

Ranking Positive Impact on Team Performance

The following figure (Figure 4.9) displays the total and average of participants rating the importance of each of the 4Cs skills in having a positive impact on their team performances. The original rating scale was from 0 being the lowest and 10 being the highest on rating the 4Cs skills, a) Critical Thinking, b) Communication, c) Creativity, d) Collaboration. Given nobody rated any of these skills below a scale of five, the total of placing values was calculated from scores of five to ten and then averaged based on six scales (from five to ten). The purpose of this rating activity was for the researcher to 1) observe the participant's placement of the importance of 4Cs skills on their team performance and 2) for participants to reflect on the importance of 4Cs skills on their team performance.

As shown in figure 4.9, among the ten organizations and the 27 participants from all levels of management, the ranking of importance of 4Cs skills on their **team performance** from top to bottom was expressed as:

- 51.9% of participants ranked **communication** as the number **one** important skill.
- 40.7% of participants ranked **collaboration** as the **second** most important skill.
- 51.9% of participants ranked **critical thinking** as the **third** most important skill.
- 59.3% of participants ranked **creativity** as the **fourth** most important skill.

It is noticeable that these percentages and order of ranking among the 4Cs skills happened to be the exact order of placing values on any of these 4Cs skills (see figure 4.9). It is important to note that given these organizations are not all doing their business in the same industry, their products' nature has a significant impact on their choice of the ranking of 4Cs skills on their team performance. This depends greatly on what they are doing and what they are producing. However, in any case, this short rating would help the participants and their organizations to plan their approach to where they should be concentrating their training efforts and what to pay attention to in the future development among their workforces.

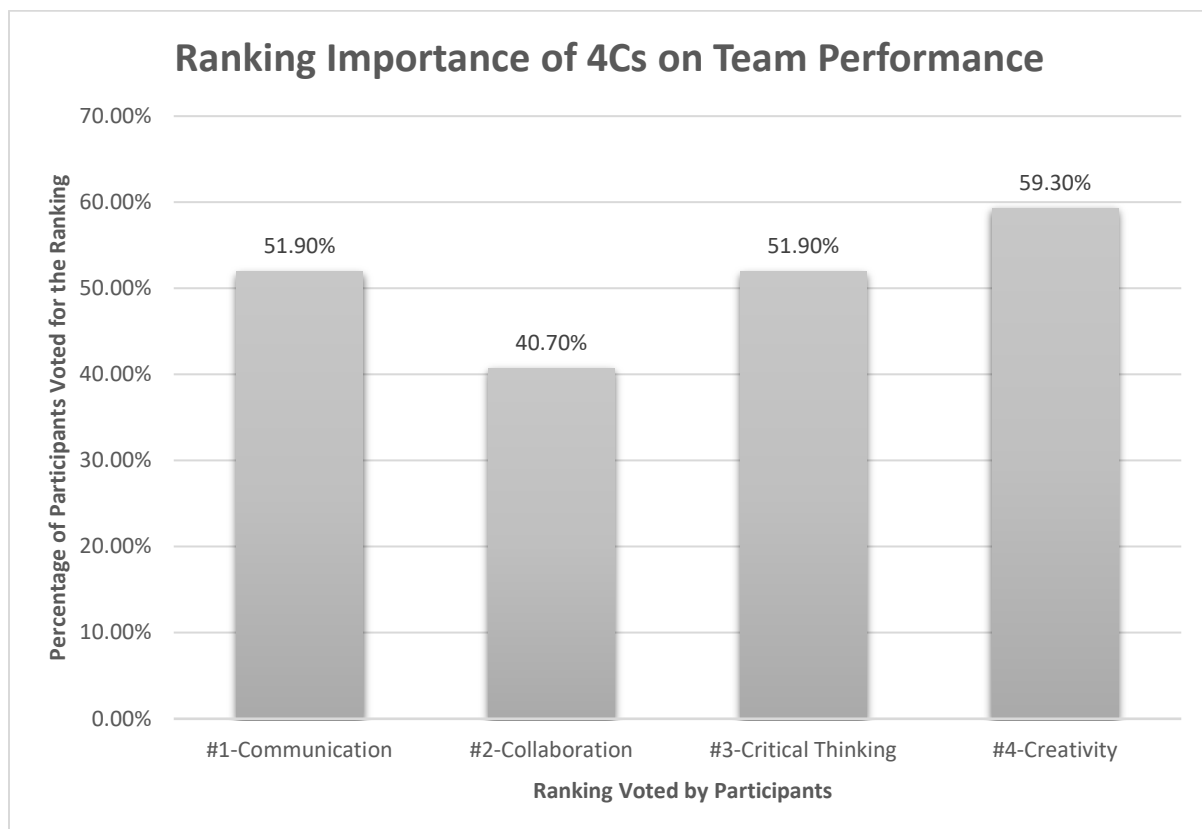


Figure 4.9. Ranking importance of 4Cs skills on team performance

Positive and Negative Outcomes by Using or Lacking 4Cs skills

The following themes emerged from the participants' descriptions of what they have observed as positive and negative outcomes from their workforces use or lack of using the 4Cs skills while working with their team which consequently impacted their team's performance.

Positive outcome. The following theme emerged while interviewing business professionals and asking them about what they have experienced by observing their employees using 4Cs skills and producing a positive outcome during their team performance.

A. Performance in Emergency

15-5C. "... and when COVID hit, we completely because we just talked about that before. I mean, we weren't an organization that could just flip online. So, **we had to completely come up with a new operating plan.** We said, this is not going to work; we need to plan ahead. And so, **we completely stripped away everything that we knew. And we had to come up with a new operating plan.** And obviously, you know, **that took a lot of collaboration and creativity.**"

6-2C. "So, **he did an excellent job on revision which was impeccable. There were no questions, and anybody could make that part after revision.** So, with communication and collaboration he made it work and saved us a big emergency[sic]."

14-5B. "The financial aid office was not on-site; that became an emergency to handle. So, I had to **reach out to them to talk to them about how to fix the students' information, then relay the information back to the student of how he should fix it, and then we came up with**

a solution [to move] forward. When we had meetings with students, we had a worksheet that we can actually give them step-by-step instruction.”

22-8B. “So, it requires a lot of **collaboration internally.** Because of the expectations that we needed to have from an organization, **the creativity of how to navigate those special little rules that the landlords, if you will, had and then obviously, the collaboration and the communication internally, the urgent timeline and the project and different things that needed to get done [sic].** So, I would say that's probably the most recent example where somebody has excelled in making all that happen.”

B. Joy of Working Together

18-7A. “... it kind of hits on **both collaboration and communication.** I would also say **appreciation that the employees were glad we had done things together.** We've made the critical decisions that needed to be made, and we did them in a timely fashion.”

19-7B. “So, she took **the information and made a critical decision. Working together, she used some creativity in how she established that room to better serve and meet the needs of the individuals** that we're providing services to. **Impressive to see.**”

17-6B. “... I don't want to say I didn't answer his questions **but still let him figure it out on his own. He actually came up with a couple of things that I hadn't thought of what he was doing with this phone system that we saw, to really accomplish it [sic].** Through his

own trial and error and really being determined to get to that endpoint, **he just got it figured out, and the customer is thrilled. He used critical thinking and creativity.**”

4-2A. “... our workforce are **grouped into teams, we actually had three employees who came up with a continuous improvement idea, and the team developed the idea**, and our engineers created a new process and new procedure and new tools that we could use on our products. **That actually saved the company thousands of dollars and cut down the time to create this product.**”

C. Commitment to Workability

3-1C. “... on the weekend, when we are shut down, then we have the opportunity to fix those areas. He has this checklist and creates work orders, and **he would go through it and make sure everything is completed.** And then the **next week, we can come back to it, walk through ourselves to see if everything is done.** That was something that you had **collaboration and communication**[*sic*].”

14-5B. “... communication was key and critical thinking was key because I oversaw satellite locations for an institution. So, **I was not at the home institution, and I had to communicate student-related issues to an office that was two to three hours away and work collaboratively with them to resolve the issues,** even though they weren't there.”

13-5A. “I said to them, I want to talk about **something that you both have in common.** Because again, you'll build that relationship, he'll be

more **willing to collaborate, you're communicating, and then eventually you'll be working on something together [sic]**. He did, this was with our carpentry department. He's like, there's this whole project I've been working on, I could use his advice. **I was like, perfect, that will make him feel really good. It'll build that relationship, and I bet the next meeting will go better.** And that all played out, and it did.”

14-5B. “So that was **one of the scenarios that came out of collaboration, clear communication methods being creative in finding a solution that [benefitted] all employees**, so we implemented that handout and all seven site locations so that it eased everybody's job a little bit and **had a better understanding of how to help our students and all the stakeholders.** So, it was nice[sic].”

D. Creating New Ideas

2-1B. “He used creativity, because **for years upon years, never, ever presented that concept with that idea.** So, it was somewhat **creative, and the collaboration part is that he got other people involved** to discuss whether his idea would make sense and whether we are on the same page moving forward.”

9-3C. “... a good example of **collaboration and creativity.** A couple of my CNC operators got together, **and they tried an idea, and this idea now allows for the machine, without changing anything to [sic] actually just by locating it in a different position** for it to cut the outside and a braid it and then come up from underneath and do the other

side, so you caught it all in one cycle. **It's saves us fifty percent of the time, it's great savings for time, and it was all because they looked at something just a different way, change[d] the program slightly,** and as I said, it was a joint effort between them, creativity and collaboration together. It ended up being a big win for us.”

1-1A. “I guess they had different ideas that would help us, so we moved them to a different position. By doing that, we were able to see what they were capable of doing, and we eventually promoted them to a supervisor position.”

19-7A. “Definitely, critical thinking and her creativity are in there. She had been creative in thinking **about what worked better, thinking outside the box. She took the information that she had known of the people she was serving, plus what she learned and applied it.** Did some critical decision make on what would work better for people[*sic*].”

E. Work the Issues, Not the Emotions

24-9B. “Given that emotions [*sic*], we have to communicate clearly; we have to identify the problems, and then **we have to problem-solve those problems using those critical thinking skills without pushing any emotional buttons.** That is working very well, but you have to remember that not all situations are cured in one meeting. So over time, we will get to where we need to be using all of those 4Cs.”

10-4A. "... a lot of anger and that had been going on for quite a while, and the communications had been going through the email, and it wasn't until we got into big rooms in both times was risky, right, **and because there was a lot of anger that we began to talk and we set ground rules for communication and we listen to each other**, and both of those times **ended up coming out, we came out much stronger as teams then we did when we went in[sic].**"

7-3C. "Very authentic communication and interest for collaboration, it **increased organizational commitment** because he made it. **It increased personal connection between company and employee than person to person**, but then the other thing that is, a tied together, stories versus reality, strategy versus where do I fit in on this team?"

11-4B. "Every group had *[sic]* the cross-section had the ability **for people to weigh in on their thoughts. Share their ideas** and bring it forth for a bigger discussion."

F. Pushing the Boundaries

15-5C. "... we couldn't do it alone, we kind of had a break it up and collaborate with others in our team. And **we had to do things that were out of our comfort zone.**"

27-10B. "... and the **team really got creative collaboration, creativity, and developed a new die** made out of polyurethane to actually push the metal through, but without going through by attaching a die, and they developed it themselves, they actually built prototypes [that] they

actually melted. So, **we're the only ones right now in the industry; that's a product that we offer that no one else does. That was a great example of utilizing two of the skills.**”

5-2B. “So, that process **started with creativity and critical thinking, and as it developed, it brought then the use of the four 4Cs communication, collaboration to our design engineers at our headquarters, collaborating with them to incorporate the design changes.** It is very common for design engineers not to really have a lot of manufacturing experience; because of that, they will tend to make them designs more difficult to produce than are necessary.”

26-10A. “So, this specific supervisor, **having been put over both departments, started working in the tooling area,** an area that **he used to criticize, but now was in charge of working down there and saying, how he sees the other side of the fence.** And he starts working with the employees actually, you know, running the machines and seeing what they deal with. **And suddenly, the entire viewpoint changed. And now he sees both sides of the story. His eyes are open. And he's able to work with the machine operators on the production side and the machine operators on the tooling supplying side to put improvements** in place that are beneficial for both.”

12-4C. “So, one of my staff members, **being able to bring a faculty member to the point of understanding why something has to be done.** And a lot of it wouldn't necessarily say creativity but a lot of

critical thinking, putting things in perspective if you will, so **they are able to say well you may not be able to do it this way.**”

Negative outcome. The following themes emerged when interviewing business professionals and asking them about what they have experienced by observing their employees lacking the 4Cs skills and producing a negative outcome during their team performance.

A. Acting Without Thinking

2-1B. “Yes, **they didn’t think what the outcome would be before they act[ed] on it, and then when the problem existed, in the end, it turned out to be a very simple problem,** but maintenance could not figure it out, and one of the maintenance managers was called, but he couldn’t figure it out. My point is that **there was not enough critical thinking during the whole shift to figure out the problem.** It was just a total breakdown.”

27-10B. “**They didn’t talk; one guy got some direction from the customer, didn’t give it to the guy who drives the shop floor.** You know, **I didn’t pass on the communication.** And we’re off by four inches. And so, we made them all, ship them all to the customer. And we had to design an extra bracket so that the attachment would usually go straight on so that it could reach. **The four inches were off; it cost us to make all those brackets, which cost us about twenty grand. And they really poor communication[sic].**”

5-2B. “So, they made some changes up there on their own, and did not get approval from anybody, no manager or supervisor, **did not**

collaborate with anybody in charge, and no communications for proper channels. The rest was a waste of time and resources.”

B. Hot Emotions Taking Over

12-4C. “It was a staff member who **was a bit rough in responding to a parent.** This was about a student with a disability, and they, the parents, got involved, and **the staff member was not thinking because it was a sensitive topic.** This is a difficult one to approach the right way, **and even though the staff member was probably correct in what she was saying, it was the manner in which it was conveyed that** was, well, it led to going above myself and so on. I would say it was **a lack of both critical thinking and communication** in this case.”

15-5C. “You know, the few that I thought of when I think of these negative situations, especially as human resources and having to get involved, **I think they all included a lack of communication, especially probably with supervisors not being able to communicate with their team.** And things get very negative, very out of control very quickly. HR had to step in; it **all came down to communication and getting somebody, you know, people together in one room, and talking and sharing viewpoints and how they're feeling.** And if they did that, from the beginning, it probably would have gotten to the point that it did. **So, I feel like there were three or four different situations, and all of them, they came down to poor or non-existent communication within their teams.”**

4-2A. "...we have an employee that is not really good at **communicating with his supervisor and lacks critical thinking and collaboration.** The supervisor literary told him that you need to put down the phone, and you don't need to be on your phone. **And this employee just absolutely blew up and actually came up to HR and said I [sic] wouldn't be treated like this...**"

16-6A. "My employee **should have handled it better and how he spoke to the customer.** When he saw the customer's **temperature go up higher and higher, he should have used some creativity to defuse the situation or maybe call the supervisor and have someone else be sent.** But, again, a **lack of creativity.**"

C. Suppressing Autonomy and Imaginations

17-6B. "... In the end, we did everything the way **it was supposed to be in black and white, but we could have done some more if some of that critical thinking and creativity to circumvent the problem wasn't squashed, but we weren't allowed to get there.**"

19-7B. "What had happened **was slightly different than what had always happened.** It caused turmoil; people couldn't make a critical decision, **couldn't make a decision differently, or couldn't think slightly different,** couldn't be creative to imagine what a different scenario would be like. Therefore, causing a lot of back and forth that lead *[sic]* to a bigger issue, a breakdown in communication. **Some bad feelings then lead [sic] to a breakdown in collaboration. If people can imagine**

different, think differently, I think that improves communication and then allows for better teamwork.”

24-9B. “In the past, we had a **higher leadership person pretty much make a decision in a vacuum. No collaboration, no communication. Or if it did happen, it didn't happen with the people who were doing the work.** This is another important piece; you have to know who you need to communicate with and who you need to collaborate with. You collaborate with somebody who builds bookshelves, and you're making ammunitions; it doesn't help. **That ended up blowing up, almost blowing up one of our decent revenue streams. So that happened very badly.**”

17-6B. “This is where I go back to where **I think leadership has a tendency to stifle some of these things.**”

D. Missing Cross-Functioning Planning

7-3A. “If a business is working on a next-generation product, but they're not tied in to hav[ing] the engineering resources or skill sets to design that product and then transition into manufacturing, and I have tooling in the hands and resources to deliver it by the time it was committed, we're dead. **That is sadly something that comes based on the nature of the speed of business, unintentional consequences because people could be so driven to serve that they're not serving their first team with the first team is internal, it's not external [sic].** It's cross-functional, and the type of internal contracting and

commitment before making an external commitment is our most frequent fail and collaboration, which then has an effect on everything else.”

3-1C. “... this [*sic*] kind of situations and **breakdowns are happening because there is a lack of planning among departments**; it a lack of maybe **critical thinking and communicating**. Maybe it is a lack of that.”

9-3C. “There was recently a **situation where we essentially wasted a day of production**, and absolutely nothing got done, and it **was as a result of a lack of communication between departments and planning together.**”

E. Absence of Self Awareness

4-2A. “He just had that **lack of collaboration** and understanding of how his behavior is impacting others **and lack of critical thinking** about what **impacts that has on our company** from him being on his phone all the time during work hours while working on the floor.”

5-2B. “... an employee that is quite difficult to work with, from the standpoint of [*sic*] that **he believes he is the new best and would criticize other employees for not working on the priorities that he thought needed to be worked on**, he would communicate around us internally and that caused some problems with other employees. He just alienated everybody, **because of his arrogance and self-importance, he was not very good at communication.**”

1-1A. “They could do the basic job, but as far as communicating with the employees and as far as understanding if they do A how that impacts B and C, they didn’t care. I can tell you that I demoted a supervisor whose critical thinking skills and communication, and collaboration were just terrible. Very much, he was unaware of his attitude and the way he was behaving on the floor.”

10-4A. “I guess a negative piece would be lack of collaboration, and it would be when it’s obvious that some people are coming to the table to further their own area, or agenda, or their own personal advancement not to work towards the goals of the university as a whole.”

23-9A. “Couple of these early-career faculty really kind of came in seeing themselves as better than the older faculty that only had master’s degrees. At one point, they basically said to us both in senate meetings and other communications meetings. This is clearly a lack of collaboration and teamwork.”

F. Delivering Unclear Communication

6-2C. “...two weeks later, the program manager calls me and told me this and that was under budget. I took it personally as I failed and pushed that down to my guys, saying *[sic]* why they didn’t follow the instructions. They said I told us *[sic]* that only once in the meeting did you never give us anything written down and gave us any way to keep track of it. So, I made a spreadsheet with all the tracking numbers and

changed the code in there. **So, the negative impact was that I did not take the time to communicate clearly with them.**”

3-1C. “... we didn’t really run as efficiently as we could because we didn’t communicate and collaborate to determine how long it would take to run that product. Ok, that would take us til two o’clock. But we were going to be done much later.”

9-3C. “So, it happens often where the engineering group will say this is ready, **and it’s because there’s no communication and no collaboration with the folks on the floor** that when it gets turned over to production, it’s a mess, and we can’t do it.”

14-5B. “The office and I had a miscommunication. I couldn’t; I just thought I came up with a solution that would help the student. But it definitely didn’t, and it **definitely had huge impacts on the student.** They couldn’t continue their education; it financially crippled them. They had to go into the workforce because they couldn’t continue their education; it was just a bad scenario. **But again, communication or working with others, they’re very big, and I mean, you can troubleshoot all you want, but if you can[‘t] get those items together, the end results could be very detrimental,** and I know these two students definitely that I screwed up horribly[*sic*].”

11-4B. “When you would speak with her one-on-one, she **wasn’t all wrong.** I mean, they were certain things that she had identified because that is what she had been asked to do, **but she did not have the**

ability to engage others around her. So that they would come on board right and move with her. **So, what ended up happening was kind of like a spiraling downhill.”**

G. Lack of Foresight

24-9B. “I think it’s a lack of critical thinking because when you're doing your critical thinking, **you have to think of not only the issue at hand but what ramifications can happen from your recommendation.** You know, in this situation, **they didn't even begin to consider all the ramifications. They didn't know the ramifications because they didn't communicate and collaborate with the right people.”**

8-3B. “The challenge that we have is that because we have so many folks that have been with us for so many years, they may only know our company and may **not have a broader perspective of what the best practice would be for us within the industry today.** So, we often would hear ‘we have always done it that way’ as opposed to stepping back and looking at it to see why we are doing it that way and is it the best practice versus just having a comfort level of continuing to do what we have always done, which if you look at [it in] a business that way, eventually you become obsolete.”

13-5A. “Sometimes when you're not involved, and people are describing, it's a little easier to see, so again you can reinforce that it all goes back to communication, and if you're communicating and building that relationship, then people are going to be more willing to

collaborate, which will help everybody to be more creative and to think a little more critically about the issues.”

Summary of 4Cs’ Positive and Negative Impact on Team Performance

Table 4.6 displays themes that emerged during the data collecting regarding the positive impact of using the 4Cs skills or the negative impact of not using and lacking the 4Cs skills on team performance. The following themes emerged in relating to some positive impact on team performance when an employee or team of employees have used one or a combination of 4Cs skills: Performing in Emergency, Joy of Working Together, Commitment to Workability, Creating New Ideas, Working the Issues, Not the Emotions, and Pushing the Boundaries. At the time, the following themes emerged in connection to some negative impact on team’s performance when an employee or team of employees did not used one or any of the 4Cs skills: Acting Without Thinking, Hot Emotions Taking Over, Suppressing Autonomy and Imagination, Missing Cross-Functioning Planning, Absence of Self-Awareness, Delivering Unclear Communication, and Absence of Foresight.

The themes are not meant to correspond to one another across the columns directly; however, they exhibit a relationship between the overall workforce using or not using the 4Cs skills and its impact on the team performance.

Table 4.6
Summary of the Themes Emerged on the Bases of Positive and Negative Outcomes on Team Performance by Using or Lacking the 4Cs Skills.

Themes Based on Positive Outcomes	Themes Based on Negative Outcomes
• Performing in Emergency	○ Acting Without Thinking
• Joy of Working Together	○ Hot Emotions Taking Over
• Commitment to Workability	○ Suppressing Autonomy and Imagination
• Creating New Ideas	○ Missing Cross-Functioning Planning
• Working the Issues, Not the Emotions	○ Absence of Self-Awareness

- Pushing the Boundaries
 - Delivering Unclear Communication
 - Absence of Foresight
-

Research Question Three (RQ3)

What 4Cs skills training and development would be effective for the labor pool in an industry setting in Lackawanna County, NEPA?

The third set of interview questions were four IQs designed to extract the point of view and perception of business professionals (as representatives of this organization) in relation to the following four aspects of training and development that would help to develop a skillful labor pool in the 21st century 4Cs skills:

- a) What would a **practical 4Cs training** look like for your workforce, and what should be part of this training?
- b) How does the 4Cs skills development among the workforce provide organizations with a **competitive edge**?
- c) What would be the influence of developing 4Cs skills on the workforce's **attitude and behavior**?
- d) What would be the influence of developing 4Cs skills on training and **developing leadership competencies** among the workforces?

Note: This research has used three to five examples and evidence of exerting data from business professionals for each of the emerged themes.

Practical 4Cs Training

The following themes emerged from the interviews with the business professionals on practical training for the 4Cs skills (critical thinking, communication, creativity, and collaboration) and what they would like to see be included in such a training.

A. Roles and Responsibilities Training

19-7B. “I think, basically, even the collaboration part of it would be understanding roles. So, I think that's a big part of it in any organization. I think, and that's part of **your responsibility with your role. I think part of the thing that leads to a breakdown of collaboration is the fact that people don't necessarily understand their role or their responsibility within that role. They think their role stretches one way or the other, and it's not always clearly defined.** I mean, people say, ‘oh, my job description,’ but I don't think that always clearly defines your role. **Your role within a team,** I mean the roles of people, change depending on the makeup of the people they're with.”

1-1A. “... when they are hired, they would go through a kind of an orientation program, and part of that would be critical thinking and communications.”

2-1B. “Yes, because I have observed that **somebody experienced teaching the newbies how to work with the machine; maybe during that time, they can work on their critical thinking and communication.** Yes, be creative, but think critically before you apply your creativity and talk to someone before you do something different[ly].”

16-6A. “I come back to **what the training could offer a lower-level employee and allow us to discover the potential of a critical thinker that we didn't look at before because maybe we were not aware of it prior to the training workshop.** I think a **training workshop might be able to bring someone to the forefront,** so I think that would have the biggest impact.”

2-1B. “I would say training **with a lot of examples and scenarios that demonstrate where these things are applied that you would get a positive outcome.**”

B. Creating Role Play Scenarios

12-4C. “I think you would **design a training scenario, where you create the steps that lead to a successful conclusion of something.** That is only possible if everybody is involved.”

11-4A. “And when it comes to critical thinking again, **something along those lines of the creativity as well saying what will happen to our department, for instance, if we were to stop doing this, what do you think the implication would be? And how do you think it would be perceived outside of our own department.**”

20-7C. “I would say maybe during the training period for the staff. **They should be given examples of critical thinking skills and given situations they might be confronted with.** Have them answer 'what would you do if...?’”

15-5C. “And I think those are the ones that **work the best when people are up and about and doing exercising and getting real life, you know, situations put in front of them,** I definitely think they're the ones that work the best.”

22-8B. “I think the best way to learn is **through life experiences.** Sometimes those things, areas, **or their roleplays, or those situations are the best learning.**”

C. Problem-Solving Workshop

16-6A. “Maybe take the staff, based on their expertise and divide them into groups that they can work together and learn how to do some collaboration.”

12-4C. “... there would probably be something that every once in a while, people would be required to do some kind of a puzzle and come up with some other solutions if they were to reimagine their department. What would you do? How would that be different? So that would probably be somewhere in that realm of possibility to give you a go ahead.”

26-10A. “So, in terms of an activity that would drive the 4Cs, something very creative, even a creative brainstorming session would be very useful for developing 4Cs among employees.”

8-3B. “... when we talk about a growth mindset, not continuing with the way we have always done it but looking at it from a critical standpoint and asking the question of why we are doing it that way.”

24-9B. “I think what I would do is some real-life- or at least some made up, applicable situation that needed to be solved. I would probably do it in a compare, contrast way where I had two sets of teams. They both get the problem but have different players on each team. When we came together to discuss the solutions, it could be obvious what pieces were missed because we didn't collaborate with the right people.”

D. Soft Skills Training

19-7B. “There are lots of soft skills training that you could do on it. So, I was actually trying to establish a training program here to be started with *[sic]*

communication. **That part of communication we started with was listening because I think that's a skill that's totally missing.** So, if you can listen, you can **take in more information which leads to better communication and better understanding.**”

23-9A. “... a course of **interpersonal communication** would be very useful.”

20-7C. “I think during the training, **there needs to be more of an emphasis on communication and active listening.** You're taking in the message that the sender is giving you. **Sometimes there is a breakdown with that,** as I brought up earlier.”

1-1A. “I think every employee should going through an **effective communication course** and going through what just **critical thinking would mean and work.**”

2-1B. “I think it also keys to have your managers and your supervisors maybe **become somewhat trained in soft skills. Some skilled at delivering this and teaching that.** I think a lot of our managers think that their responsibility is to show someone how to do their job and once they know how to do their job, that's it.”

E. Team and Trust Building

13-5C. “I would say **something really effective around team building and building trust even if you don't consider yourself an extrovert** and reinforcing, really **reinforcing, how they are all interconnected.** But it sort of begins and ends with communication. I would probably put a lot of emphasis,

especially in **the front of the training, on effective communication and team building.**”

15-5C. “I think an effective training for roles **would be an interactive** one. You could really be **interactive with those**. So, that's how I would see it, you know, a **lot of team building; I think all of the C's that you are looking at is about team building.** So, I think you could, you know, **really evolve team-building skills** that we see so much in different training.”

3-1C. “I guess, initially I would look at it as **four different sessions with training and demonstration, bringing everybody and managers and supervisors and do one class on critical thinking.** Five sessions, one class on critical thinking, one class on communication, one class on creativity, and one class on collaboration, and then have one last one which combines all four things. The five-week program I would do like that.”

19-6A. “**I think of team building.** Again, **some people are better than others.** I am so figuring out how you use [*sic*] strong in these areas and then almost doing a peer to peer. Because sometimes, as you know, somebody coming in great, but when it comes from the people you're going to have to deal with on a regular basis, it's a little more impactful.”

8-3B. “So, if we can talk about creativity and critical thinking and **being able to work with each other, employees that have the ability to say, here is what I do well and here is what I don't do well and not use what they don't do well as an excuse, and we all have strengths, we all have weaknesses, do we know what our strengths are, do we know what our weaknesses are,** and

we don't use our weaknesses as our excuses. I think that just strengthens the team.”

F. Case Study and Researched Scenarios

18-7A. “I would say that if you were going to do training on one or all four of the 4Cs, **case studies might be an example.** Where you send something out and say, ‘here is something that happened.’ **Then have them explain to me what went wrong, what went right. I would say it should also be part of a group discussion.**”

22-8B. “**Role-playing, case studies, are very interactive,** I think, and we all have our **own personal stories of that in our careers,** right?”

14-5B. “... **case studies because we all have those experiences,** this is what I experienced, and I don't want you to go through it. With my subordinates, we have this **role-playing and case study type of something that we do so,** I give them a scenario of this is an issue. **How would you handle it? And then we talked about kind of different solutions or ideas.**”

19-7B. “... **bring different research-based pieces of training in for people.** So, we've done **research basics far/sic/ as early times, to get people again to start thinking out of the box, being a little bit more innovative.** We work on **research-based training on just the skills that people needed.**”

Provide Organizations with a Competitive Edge

The following themes emerged from the interviews with the business professionals of training workforce on 4Cs skills and how they will provide their organizations with a competitive edge in their market and industry.

A. Building Comradery and Relationship

18-7A. "... it will assist with relationship building and relationships are one of the keys to employee retention. It builds trust among employees because you are communicating with each other. **You get a sense of belonging.** You're true to your mission. You're getting a wide variety of information from all employees. You get an overall better team because you're getting that wide variety of viewpoints and information and brainstorming among each other."

10-4A. "For communication and collaboration, I'm just convinced **they are building a strong team, as long as we're all talking to each other and working together** on campus."

19-7A. "That's so important, all of those things. **If you can't have that critical thinking, you can't make decisions. You can't see; definitely, you can't be innovative with creativity.** Communicating, and not just communicating internally, but communicating to the larger masses and the public about what you're doing. **Communicate with your employees to keep them going in the right direction. It's highly important.**"

3-1C. "I just think that [an] organization who uses the 4Cs, all **working in one direction, and thinking along the same lines for the same outcome, the same vision, the same objective.** And I think that makes us more efficient as a company, and **the more efficient we are, the stronger we are.**"

13-5A. "I really think **the 4Cs are what bring all of this together, so people have that sense of we're all in this together, this is a safe environment.** I know these are people I have relationships with, so I can reach out to them;

we're comfortable collaborating. I'm just of the mindset that we're stronger together, and it's hard for me sometimes to think otherwise. But I think the more we can reinforce it, I think just makes for a healthy organization.”

B. Staying and Expanding Your Market

19-7B. “... without that, without the 4Cs, I think you become stale and outdated quickly. You lose your innovativeness, you lose your cutting edge, and you're dealing with lots of falling behind competitors and possibly going out of business.”

14-5B. “How to build your team up so that they're resilient and they can persist on their own, and I think it comes a lot from having those open-ended conversations with your staff or your workforce about it's okay to make mistakes, but you also have to communicate that you made mistakes and that you try to come up with a solution and they didn't work and not be afraid to fail with it. But I think always creating and collaborating is key to making a competitive edge for any organization[sic].”

6-2C. “... you certainly can get into the market quicker, you can reduce costs, you improve the product and the quality.”

11-4B. “... if you have people with these skills, then I think there is a way to create a stronger working environment where everyone feels like they're part of the team. Everyone knows, kind of how they fit in, what their purpose is, how they can contribute, and then they feel rewarded. This environment is helping an organization to participate strongly in its competitive market.”

C. Productivity and Consistency

7-3A. **“Economic factors that require a lot of critical thinking that require Collaboration.”**

8-3B. **“... the competitive advantage comes from how well you focus on all the things you can control and do them as well as possible.”**

4-2A. **“... critical thinking and creativity, of course, means coming up with the new ideas that are going to keep you at the forefront of government contracting.”**

2-1B. **“... implementing 4Cs skills will reduce your turnover, you should naturally be more productive because now your people are more experienced, and you could have more faith in your people making better decisions because of their experience and what they have been exposed to through the time that they are with you in the organization. Naturally, if you have less turnover, more intelligent about your organization, every employee becomes[sic].”**

5-2B. **“I believe an organization that has a sufficient number of people that demonstrate the 4Cs, has a competitive advantage because they can execute plans faster. Whatever that plan might be if they work well with each other, they collaborate well with each other and are able to communicate, that level of trust is lubricant they are not as opposed to being in holding back[sic].”**

D. Clarity in Communication

4-2C. "... being able to clearly communicate our objectives, especially with management through our lower-level employees to have that clear communication back and forth, would allow us to meet our objectives."

12-4C. "Sometimes we think of better communication, meaning more communication and that's why I think that kind of fails us. Better communication means being able to express the things you need and for people to understand those things."

10-4A. "Sometimes, it's important to communicate. But it's important to communicate in a strategic way. So, I said earlier that it's important to be transparent when communicating. But transparency doesn't necessarily mean telling everything to everybody all the time; it means being able to state reasons and ways of doing that make sense."

E. Customer Focused Activities

27-10B. "I think we make a lot of mistakes because of communication, but I think we also get positive feedback from our customers that we communicate well with them and let them know what's going on. If something's going to be late, let them know sooner rather than later, not after it's due. So, some things were better than others, so I think I wouldn't say collaboration."

25-9C. "It's really important that we're listening to the community, that we're listening to the outside like the students and the college students and the employers in the area and what they're looking for, for students. Basically,

matching some of those things to the outside community and being able to build that character in the student in itself[sic].”

5-2B. “I think that is a tremendous asset. If you can have a team that each has these four skills, their ability to get to market or improve their organization is going to be a much shorter lead time.”

1-1A. “If you have departments that are interactively working together with one another collaboratively, communication-wise, it makes things run smoother, which at the end it is only serving customers and the organization as a whole.”

10-4A. “I think the goal in the competitive edge is showing to customers that value adds to their desired products and services that the organization has provided.”

F. Facing Current and Future Changes

16-6A. “Again, in my mind, the 4Cs skills implemented correctly would allow a company to be flexible when a change comes your way. We had to use critical thinking and creativity in one day to change everything we’ve known all these years.”

25-9C. “We have to think critically and strategically about now but what kind of [sic] in the future and what that looks like. You have to think further and be more strategic about where certain trends are going and what is really needed in the workforce.”

14-5B. “It's similar to like the large Silicon Valley companies that are out there and that you're always creating, you're always collaborating, you're

always critical[lly] thinking of different solutions or how to put out fires before fires start with employees.”

12-4C. “... we have to be **forward-looking, so that’s a lot of critical thinking and acknowledging the context** of the environment and the cultural, economic, political, and social-economic changes.”

24-9B. “I think the competitive edge is **being able to see down the road. It is [being] able to imagine the problems that will bear the challenges** and then address them proactively.”

Workforce's Attitude and Behavior

The following themes emerged from the interviews with the business professionals about their perspective of 4Cs skills training and development on developing a positive attitude and causing a better and productive behavior in their employees.

A. Engagement and Team Spirit

4-2A. “... they are all important, but I think; **definitely, the communication and collaboration really foster that team type of environment**, that we are all in this together. I think it also helps **drive things such as attendance if you feel engaged because I believe that creates engagement.**”

6-2B. “... lots of the time is getting wasted, it is **because of the lack of communication or lack of spirited core or team spirit.** Using and applying team **collaboration will bring up a team spirit.**”

17-6B. “Someone who thinks they're really good at critical thinking, and that's what they do best; **they get to get up and go to work every day and do what they do best.**”

12-4C. “A lot of the times the **workforce is really confined to an individual if you will**, multiplied a gazillion times. **Individuals don't see their place fitting in the larger organization.** So, because of that, they take a very narrow point here. I believe 4Cs training and development can **resolve this mindset and bring up the team attitude.**”

10-4A. “I think in all 4C's again in particular, communication and collaboration, I would say I think **people feel better about what they do when communication is strong when they feel like they're not being left out of things**, even when there's bad news, but **at least they know what it is and it's not kind of hidden and so people feel bad.** For the morale is much better when all four of those 4C's are working or working well.”

B. Compassion and Empathy for Others

21-8A. “... when it comes to communication, and it's not just communication. **Being an effective communicator, being compassionate, have empathy, and have flexibility.**”

8-3B. “I know that **change can be scary**, and everyone loves harmony, **and when you change things up, that sometimes can disrupt harmony, because that makes people uncomfortable.** Learning 4Cs could be great assistance during any change.”

14-5B. “It's something we hear all the time that new employees or entry-level employees lack these 4C skills that they really should have, coming into the workforce. I think **management should have a deeper understanding that effective 4Cs training would change the attitudes and behaviors** and lessen **negativity around the newer employees** if they can hone in on these skills.”

25-9C. “Just because I think that there's a psychological aspect behind the workforce that operates, **their behavior plays a strong role in how people operate.** They all have **different backgrounds; they all have different cultures.** Some of them have different ideas and ways of thinking and how to respond to situations. **I think 4Cs training and development can have a big impact on [how] people understand each other and be able to work together with more collaboration.**”

C. Reduce Resistance and Increase Acceptance

19-7B. “I think overall **if you're committed to it, it develops a positive influence in the workforce and attitude.** It improves their attitude; it should improve their behavior. I think initially, **sometimes you get to push back from people, resistance. But again, if you continue with that, you stick through the initiative. I think more people would get on board,** and it slowly brings everybody along.”

14-5B. “... the 4Cs skills **can make a difference in people's acceptance of one another.** I think until the attitudes and behaviors of the generation, **the younger generation, change a little bit, also the older generation to**

understand the younger generation, they can be productive together. They have to be open to that. That behavior and that attitude are going to take a while for that to change to come[*sic*].”

17-6B. “I mean if we put a focus on valuing and helping to boost and use critical thinking. For example, **if an employee came in here knowing their critical thinking skills, and they're going to have an opportunity to use them every day and knowing that it was going to be valuable to us every day, then I think that would breed some kind of excitement to come to work every day.**”

23-9A. “You’re always going to have one or two that are stuck in their office and don’t want to make any changes to anything. But using 4Cs training **would boost most of our people [who] would enjoy that kind of engagement and would have a positive impact on decreasing resistance and possibly [creating] more acceptance by the ones who were resisting change.**”

16-6A. “I could say that the influence of, if we had the 4Cs skills,[*sic*] developed in the way they should be, **I think it would make for a more common collective workforce with less resistance to management input and more open to productivity.**”

D. Increasing Motivation

22-8B. “I think it would improve morale. I think **it would improve people's engagement and motivation.** And then ultimately, as a result, improve the bottom line of the organization.”

15-5C. “I think overall, I think it would obviously be positive. ... with the 4Cs, I think you're **just giving them more skills right in their pocket that they're able to use**, so I think when **people are more well equipped and feel that they're doing a good job are able to** complete the task in front of them? I would hope that their behavior and their attitude would follow that and be positive[*sic*].”

12-4C. “Some people have these things like ‘I don’t care about everything, and it doesn’t make a difference anyway’. So being able to expand that, being able to say you are a part in this, but this part is essential in those specific areas, and this is how **can lead to hopefully a lot more understanding on the part of the person of what’s expected in the larger context. But also taking even more pride, saying ‘oh because I contribute here and here and here,’** I can be viewed as more than I really am.”

11-4B. “I think 4Cs training cause **them to be more in tune with the outcomes. They’re more on board, and they’re part of it, and they get it, and I think even to, more willing to think outside the box, more willing to put themselves out with an idea** or talk about something, **they have more confidence.**”

E. Interest in Personal and Professional Growth

24-9B. “... 4Cs development could only be a **positive influence as long as the person is willing to understand that you don't know everything**, no matter who you are. Even if you're a hundred years old, there is still something to

learn and something to improve. So as long as we are considering that lifelong learning period, then the 4Cs could only benefit everybody.”

3-1C. “I am not sure if it is changing someone’s attitude, changing their behavior. **I mean, this is something that is more of a long-term sustained effort. But I think if that sustained effort contains the 4Cs, it could be accomplished.**”

13-5A. “I think that's **when these things get tested, so if they're not good and strong going into a crisis, how can they be strong throughout the crisis.** So just always modeling using 4Cs skills and being that consistent model of positive behavior *[sic]*.”

8-3B. “... **developing the growth mindset and that we have to change because if we don't, we can't be here for another 125 years.** So, when we are looking at onboarding new employees and enhancing and growing those who are with us, **having the right growth mindset, the right attitude, and behavior goes along with that.**”

21-8A. “When it comes to behavioral competencies, **I want to expand here because I'm not only thinking about collaboration, teamwork, communication, creativity, or critical thinking; there's a lot more to nimble learning, interpersonal skills being a good leader as well.**”

F. Sense of Accomplishment

3-1C. “I think when we start to **work more coherently because we are thinking, communicating and collaborating stronger...** we have a management

team here ... that **they want to succeed, they want to have that sense of accomplishment to achieve the goals.**”

21-8A. “I think it **increases your ability to think outside of the box and just to learn**, and you know what **other colleagues in your organization do to contribute to the success of the organization**. So, I think that's really important.”

6-2C. “Well, in my group over the last ten years, we have been doing lots of design for manufacturing, **using 4Cs, collaboration, communication, and critical thinking, and it almost doubled the value of what we do** for the vehicle.”

26-10A. “So, in terms of their attitude-behavior, **if you have an environment where people feel heard, they feel value, it's a happy workforce**. Yeah. You know, **their ideas for improvements. They do it themselves because people want to; they want to do a good job naturally**. And nobody wants to work harder than they have to, you know, so **if they feel that they can be heard, I mean, it really does.**”

Developing Leadership Competencies

The following themes emerged from the interviews with the business professionals on their perspective on developing leadership competencies to provide 4Cs skills training for their employees.

A. Effective Decision Making

3-1C. “I think by using critical thinking, they can develop trying to make the right decisions, making good decisions, and then the next step is collaborating and communicating those decisions.”

12-4C. “We want to foster creativity among our people. So, by doing that we may become not just a better organization, but I think more coherent if you will. It will allow our people to be creative in their decision-making process.”

24-9B. “So, they go hand in hand; you cannot be an effective leader if you do not understand the 4Cs and do your best to use them when you are making decisions or communicating your intentions. You also have to understand that you don't always use them the best way, but everybody makes mistakes. This is a big piece of leadership, it's an art, and a huge social skill to navigate these waters. So yeah, the 4Cs go right in there.”

10-4A. “In order to move onto leadership roles and be able to make decisions that impact the organization, and to be promoted through an organization then I would say that the higher you move up in leadership the more important 4 Cs become.”

9-3C. “Leadership needs to develop competencies in communication and follow-up on communications that have an influence on their decisions.

From top to bottom, it is imperative to have success.”

B. Viewing Development as Opportunity

5-2B. “Communication and creativity; how to the best of our ability use our resources we have, we are being forced... to try to be as creative as

possible to place each of the people we are hiring, where they fit based on their background. Sometimes all we know is what they put on their resumes and a short interview, and you are making a **judgment call on say[ing] this person can work out here or not work out there.** The best approach is to **invest in developing their leadership skills and mold them to what you need[sic].**”

15-5C. “I think that it's difficult because I think people, you know, think of leadership and skills in different ways. **So, I think as long as the organization from the beginning... has an importance on these on communication and collaboration and the 4C's in general,** then yeah, but absolutely, that I think **that could be part of the leadership training, whether it's somebody already in leadership, or again... the kind of people wanting that [sic] moving up.**”

9-3B. “We are **using critical thinking to come up with better ways to train our people in competencies,** manage the amount of time that would take them to acquire skills, measure if they are acquiring them at a correct rate.”

1-1A. “I think critical thinking, collaboration, communication; **I mean, all of them help build leadership skills among our employees. There is always an opportunity to build up their leadership skills as we go.**”

11-4B. “Yes, the 4 C's can build leadership competencies. **I wouldn't just do it for the staff like in my organization, quite frankly.** [The] administration would probably be the best place to start and get those folks ramped up and get them excited about it because that's the way that their teams [will get] excited about it. **That would be just a great opportunity for everyone to grow and learn more about leadership.**”

C. Leading by Example

15-5C. "... if we're going to expect our employees to, you know, collaborate and communicate, **they need to see us as leaders do it yet either with themselves [sic].** And so, I think it works, as long as you **expect it throughout the entire organization.**"

22-8B. "... first of all, they go hand in hand. Because I think a lot of times **where leaders are not successful is because they're not, they don't communicate well, or the way they communicate is not, can be perceived as ... not appropriate or not effective.**"

18-7A. "If you're developing leadership in this, **you would need to create a culture of learning.** So that the **leadership is taking those skills and reinforcing them with the employees, so you're leading by example.**"

6-2C. "I think if you become proficient in the 4Cs, you are more **valuable because you could affect the company a lot quicker with a bigger impact than just as is.** I would do exactly what I am doing now, insist that they are done [sic], and **part of everyday work and that will develop the leadership[sic].**"

8-3B. "If you look at different data that is out there, **often when an employee moves on from the company, they don't quit the company, but often they are leaving because of the managers and supervisors. A strong leader does not mean being a dictator; it's providing guidance, providing feedback, its helping developing others[sic].**"

D. Developing Future Managers

4-2A. "... the communication for our management team, it's very, very important. That can also **be learned when you are at the lower level, too, because eventually, we would hope that you would grow into management using these skills and be also able to communicate with your managers.**"

7-3A. "When you go to training, **it would be more introductory to leadership or supervision training.** Communication is always an element of that; **it's more interpersonal communications and coaching and counseling if you will, then more strategic communications for more respect in the workplace** and have delivered tough messages *[sic]*."

19-7B. "That would be huge. **We are looking for future leaders, right? We need succession planning; we need people who are bringing different ideas to it.** My thought process is there's always good to have some sort of turnover in management over time. Not every year, **but let's say every seven years, you add in someone additional. And you need that, yes sometimes it's good to bring in people from the outside.**"

20-7C. "So, for leadership, I think that **the 4Cs would help build up some of the skills that some managers, supervisors may not already possess.** Or that **they do possess but need work, like tweaking on.**"

2-1B. "You want **people to become the next leaders of your organization.** These are the four words, **the 4Cs that you want to be part of their approach,** and it's essential for them."

E. Talent Management and Talent Retention

19-7B. “But having that internally, you could have people who have organizational knowledge, the organizational history that's not going out the door, and have those critical skills to move up because it's so much more valuable for your organization.”

12-4B. “But I think that what really came to my mind was maybe discovering somebody that I would have overlooked because that wasn't the job for which they were hired.”

15-5C. “I think as far as if I understand this correctly, meaning, you know, being able to almost like succession planning and getting people ready for those leadership roles *[sic]*.”

16-6A. “I think it might also lead me to discover new leaders here that I might have overlooked. I think it would strengthen the current leaders that are here.”

26-10A. “You know, who's going to follow in my supervisor's roles? We're a rather flat organization if we don't draw our people's talent, because if we don't, so that it's tough for our organization. It takes years to develop what we need.”

F. Performance Improvement Planning

14-5B. “I think it would definitely help the employees with their EPA's, their performance reviews, and they're going to do better, and it will also help basically identify areas that they need growth in areas that they actually are doing well in, and I think that would be an influence.”

3-1C. “I think training on the 4Cs **would help with the performance of our current workforce and new people that we are bringing in.**”

25-9C. I think you can definitely find out if you really took this to that level. If this was how you were going to push the organization, you would definitely be able to pinpoint what is needed for the **competencies as well as the incompetence in your main staff when it comes down to level of performance.**”

8-3B. “If I have a member on my team that is strong, that to me is a plus. I don't view that as a threat, but there are leaders out there in business that don't see it that way. **Their performance is sufficient to keep growing**, so, to me, **having strong leadership by action by the level *[sic]* of engagement, you don't need to micromanage their performance.**”

17-6B. “Because I think part of developing those skills and realizing you're **developing those skills and becoming more proficient** in those skills will also help you recognize those skills in other people and the level of those skills in other people. So, yes, **definitely, these skills have a direct link to leadership competencies and also in individual and team performance.**”

Summary of Effective 4Cs Skills Training and Development for Workforces

Table 4.6 displays themes that emerged during the data collecting process regarding the positive impact of using the 4Cs skills training and development for the workforce. The interview question that pulled out these emerging themes about type of effective 4Cs skills training and development for the workforce were four-fold. On the basis of ‘Practical Trainings’ the emerged themes were Role and Responsibilities Training, Creating Role-Paly Scenarios,

Problem-Solving Workshops, Soft Skills Training, Team and Trust Building Activities and Case Study and Research Scenarios. On the basis of if 4Cs skills training would give organizations a ‘Competitive Edge’ the emerged themes were Building Comradery and Relationships, Productivity and Consistency Training, Effectiveness and Clear Communication Training, Customer Focus Activities Development, Facing Current and Future Changes, and Maintaining and Expanding Our Market trainings. Under if 4Cs training and development have positive impacts on workforce’s attitude and behavior, the emerged theme was Engaging and Team Spirit, Compassion and Empathy for Others, Reduce Resistance and Increase Acceptance, Increasing Motivation, Interest in Personal and Professional Growth, and Sense of Accomplishment. The last area was if the 4Cs training and development is developing leadership competencies among the workforce, the emerged themes were Effective Decision Making, Seeing Development as Opportunity, Leading by Example, Developing Future Managers, Talent Management and Talent Retention and performance Improvement Planning.

The themes are not meant to correspond to one another across the columns directly; however, they exhibit a relationship between the 4Cs training and development and development of leadership competencies among the workforce with support of the organization’s leadership and management.

Table 4.7

Summary of the Themes Emerged on the Bases of Effective 4Cs Skills Training and Development for the Workforce.

Themes Based on Practical Training	Themes Based on Providing Organizations with a Competitive Edge
• Role and Responsibilities Training	• Building Comradery and Relationships
• Creating Role-Play Scenarios	• Productivity and Consistency Training
• Problem-Solving Workshops	• Effective and Clear Communication Training
• Soft Skills Training	• Customer Focus Activities Development
• Team and Trust Building Activities	• Facing Current and Future Changes

- Case Study and Researched Scenarios
- Maintaining and Expanding Our Markets

Themes Based on Workforce's Attitude and Behavior	Themes Based on Developing Leadership Competencies
• Engagement and Team Spirit	• Effective Decision Making
• Compassion and Empathy for Others	• Viewing Development as Opportunity
• Reduce Resistance and Increase Acceptance	• Leading by Example
• Increasing Motivation	• Developing Future Managers
• Interest in Personal and Professional Growth	• Talent Management and Talent Retention
• Sense of Accomplishment	• Performance Improvement Planning

Additional Inputs and Themes

The following themes emerged during the interview process a) but not related to the already emerged themes and elements of 4Cs regarding the interview question and b) from the last interview question when this researcher asked the participants if they had any additional information and if there was any experience about having or lacking 4Cs skills in their organization or among their workforce that they would like to share or add to the interview. This researcher categorized the following three themes as A) Empowerment, B) Relationship, and C) Vision, Mission, and Values.

A. Empowerment

26-10A. “I had a boss years ago; every single time he comes and talks to me as something negative, that's the only time he talked to me. Yeah, and I remember that so many years later. And I make a point of that, that I don't ever want to be that boss. If I go and talk to a production employee, **I might just be seeing how their day is going.** I don't necessarily need anything; I might not be mad at anything. **I might be praising them. If the only tool in your toolbox is a hammer, everything looks like a nail.**”

19-7B. "... or **empower them to make decisions on their own.** I think that **leads to what you can do and don't do at work.** I think a lot of people have relied on and still rely on other people just telling them what to do."

17-6B. "I think receiving **empowerment and appreciation makes getting up for work every morning a lot easier.** So, I definitely think that an organization can **value those 4Cs skills by empowering them and show[ing] some appreciation** and to help its employees develop these skills."

The following three sub-themes emerged and exhibited more details of the "Empowerment" theme. They are displayed as i) Appreciation, ii) Encouragement and iii) Room for Voicing Opinion.

i. Appreciation

20-7C. "I think that **they would feel more appreciated because they would get a higher degree of training.** They wouldn't want to leave; **they'd feel more appreciated.**"

25-9C. "... in our company, we're so far spaced out; we're all so separated by departments. It's important sometimes to bring us all into some type of togetherness. **Those are times that I have to kind of show that we appreciate them.**"

26-10A. "So, this specific supervisor, having been put over both departments, started working in the tooling area, **an area that he used to criticize,** but now was in charge of working down there and saying, '**oh he sees the other side of the fence.**' And he starts working with the employees actually, you know, running the machines and **seeing what they deal with, and suddenly,**

the entire viewpoint changed. And now he sees both sides of the story. His eyes are open, and he's able to work with the machine operators on the production side and the machine operators on the tooling supplying side. He starts appreciating what it takes to do the work from both sides. Now he is able **to put improvements in place that is *[sic]* beneficial for both.**"

ii. Encouragement

20-7C. "With the 4Cs **the staff would feel more valued** I believe. You would be **able to retain more employees.**"

17-6B. "I think the most important thing **is encouraging and empowering employees** to be able, and to be **allowed to use these skills.**"

18-7A. "... they fear that they will be reprimanded if they make the wrong decision. They're nervous about making a mistake. Management needs to encourage them so they act."

iii. Room for Voicing Opinion

18-7A. "I would think that employees would have a **positive attitude towards this because they would feel that they get a say in what is going on in the organization.** They would **get appreciation because they are being heard.** They would **be more willing to voice their opinions.**"

26-10A. "And nobody wants to work harder than they have to, you know, **so if they feel that they can be heard,** I mean, it really ... changes the culture."

9-3C. "I would definitely say there is something lacking, communication from the top, and lack of interest **to hear what is happening with the employee and the issues that are browning *[sic]* among them.**"

B. Relationships

14-5B. “So, I was on a committee, and we were talking about skills, and **there were three employers on there, and I mean they weren't senior executives, they weren't ready to retire, but they were sitting there saying this generation has no work ethic.** They can't do this; they can't do that, yada, yada, yada. I said, have you ever talked to them? **Have you ever tried to learn from them or see why they see it this way and ...where the employer they should mold to us?** And I said that's not how this generation sees it. **They see it as a relationship. So, you need to be able to mold or to accommodate them to a standard.”**

18-7A. “I think **building a relationship would be the most important thing.** Letting all these employees, from the newest employee to someone who's been here for twenty years, **let them know they are important to the organization.”**

24-9B. “I think **lack of relationship among departments has to do with some organizations [who] tend to work in a silo.** So, one department does its thing and doesn't really consider how it affects another department **because they have no relationship.”**

The following three sub-themes emerged and exhibited more details of the "Relationship" theme. They are displayed as i) Trust, ii) Loyalty and iii) Longevity.

i. Trust

17-6B. “... and this is where I go back to where **I think leadership has a tendency to stifle some of these things. This is definitely having a negative impact on trusting** management.”

20-7C. “It's very similar in the sense that leadership has as big of a role to play in this gap as the people who lack these skills [and] **mostly don't have a strong relationship with the organization and they don't trust their managers or the organization.**”

19-7B. “Developing 4Cs skills **assists with relationship building and relationships are one of the keys to employee retention. It builds trust among employees** because you are communicating with each other. **You get a sense of belonging.**”

ii. Loyalty

17-6B. “... if an employee came in here knowing their critical thinking skills, and **they're going to have an opportunity to use it every day and knowing that it was going to be valuable to us every day**, then I think **that would breed some kind of excitement to come to work every day.**”

2-1B. “We are **looking for people who are dedicated to our company and their job. 4Cs training could assist our company in encouraging that loyalty.**”

20-7C. “I think it would **help with staff morale.** I think that they would feel more appreciated because they would get a higher degree of training. **They wouldn't want to leave; they'd feel more appreciated.** I think it would have a **positive influence on their attitude and the way that they work....**”

iii. Longevity

3-1C. “We are **looking for people who are looking for a long-term career.** So, training them on 4Cs skills might help them for staying longer.”

20-7C. “With the 4Cs the staff would feel more valued I believe. You would be **able to retain more employees.**”

1-1A. “They **don’t put the longevity of five years or ten years in a position.** And that, unfortunately, is the mindset of this area. And I don’t think it’s just our county.”

C. Vision, Mission, and Values

10-4A. “Yes, that and I think that all four of the 4C’s really **help to further a mission in new ways.**”

13-5A. “I really think it's everything. I think when people aren't communicating, and there **isn't that sense of we're in this together,** whether it is the big overarching **vision of the organization, the individual team missions or department missions...**”

7-3A. “I think...the most important thing you would get is increasing employee engagement in organizational commitment, **along with the sense of purpose, same vision, same values.**”

The following three sub-themes emerged and exhibited more details of the "Vision, Mission and Values" theme. They are displayed as i) Ethics, ii) Responsibilities, and iii) Accountabilities.

i. Ethics

18-7A. “I would think the more **they have the abilities but are afraid to do anything about it, for fear of doing something wrong,** especially **when your job is to maintain the life and safety of another human being.**”

10-4A. “... I do think critical thinking is many times **misinterpreted as a negative thing because it’s thinking outside the box** and creativity is as well.

It's challenging the paradigm, and sometimes organizational leaders don't want. I think this is one of the ethical issues for organizations' leadership."

26-10A. "... when you see an outcome from **standing for your ethics and the company's ethical values**, like ownership, we want to promote critical thinking and collaboration, and all the 4Cs, **because they are supporting what we value.**"

ii. Responsibility

19-7B. "I think, basically, even the collaboration part of it **would be understanding roles**. So, I think that's a big part of it in **any responsible organization**. I think, and that's part of **your responsibility with your role**. I think part of the thing that leads to a breakdown of collaboration is the fact that **people don't necessarily understand their roles and what they are responsible for** in their work."

18-7A. 'I would say that we lack creativity and innovation because of **the federal and state regulations that we have, and we have to be responsible for**. They are very prescribed in what we can and cannot do. So, there is always that fear of breaking a regulation and being punished by the government. Losing funding. So, **these kinds of responsibilities is *[sic]* causing lack** of creativity."

3-1C. "And maybe if we had better critical thinking, decision making, and collaboration in certain areas, ***and we were responsible to develop our people in these skills***, those situations would run smoother."

iii. Accountability

18-7A. “Then those same people, **because they are not accountable**, they will say ‘Oh no I never heard about that. So, we're sending the information out whether via newsletter, via email, and people aren't getting it for some reason. So, there is some sort of gap, **lack of being accountable *[sic]* for their jobs**. There definitely seems to be some sort of gap that needs to be filled.”

6-2C. “Lacking the 4Cs adds to the frustration and affects performance. Because they are not sure what is expected of them or how far they can go, regardless of what you are doing if it's not clear what are the expectations of what you can and cannot do. **That is management’s responsibility and accountability to make sure everyone knows** what they can, or they can’t do.”

4-2A. “I really think that the communication portion of it, which I am dealing with it on a daily basis, **is pretty much lacking accountability** because of people’s misunderstanding and not being clear on what they need to do. That keeps me really busy, **even from a higher level, from management leadership accountability to the Union leadership accountability**. A lot of times, the lack of skills of being able to hear and be heard is the problem.”

Summary of Additional Inputs and Themes

In addition to all the themes which emerged directly from the interviews and collected data, there were some additional themes that emerged among those correlated to the 4Cs skills. They are Empowerment, Relationships and having Vision, Mission and Values. The following table (Table 4.8) displays the above section's summary on the business professional’s additional inputs on their perception of 21st Century 4cs skills among their workforces.

Table 4.8
Summary of Additional Input and Themes

Emerged Themes	Emerged Sub-Themes
• Empowerment	- Appreciation - Encouragement - Room for Voicing Opinion
• Relationship	- Trust - Loyalty - Longevity
• Vision, Mission, and Values	- Ethics - Responsibility - Accountability

Use of 4Cs During Pandemic

The following themes emerged from participants' responses to the interview questions when they expressed their experience of how the 4Cs skills being used at their team operation and organization production during the pandemic and emergencies caused by the COVID-19 virus. Given the importance of how organizations continued their operations under such massive obstacles, this researcher decided to shed some light on this matter.

Inventing New Environment

The theme “Inventing New Environment” emerged as a display of an organization’s need to use the 4Cs skills to create a new working environment for their employees during emergencies such as a pandemic or any other emergencies that would affect stable working environments.

15-5C. “And this year, **our incoming class was the largest class that we ever had, in spite of COVID** and that alone, **we could say we did a successful job at creating a new environment**; nobody really thought it would be possible, but it happened only because **we were able to collaborate because we all think very**

differently, we have different viewpoints of how we should do it. And we still kind of came together to realize that, you know, we need to collaborate. And like I said, this has been a different fall, but it's been very successful.”

13-5A. “I think if COVID taught us nothing, definitely **something that is worth investing in is communication and collaboration.** I think we have to try a couple of different ways because I think it's just that much more **difficult in this environment for people.** I think people right now are in two mindsets. They're either comfortable and they feel safe with plans that are in place, masking and distancing. Or it's the complete opposite where they want to be at home. This is all they want to do, even though they don't necessarily have the skills built to do this effectively. **So, how do you find a balance between those two worlds to communicate and collaborate, how important some of this is.**”

14-5C. “Having somebody who can articulate a vision and be transparent and honest and communication are the values **I think it would make a difference for employees who are operating under stress, like time of the *[sic]* pandemic. Using the 4Cs skills help management to create a new working environment,** even if it is during the COVID-19.”

Changing Management Approaches

The theme “Changing Management Approaches” also emerged as a display of an organization’s need to use the 4Cs skills for altering their managements’ policies and approaches in order to allow their employees to work during emergencies such as a pandemic or any other emergencies that would affect regular and set working policies.

20-7C. “So, I think **using the 4Cs in leadership development would definitely have a positive impact on changing management approaches during the pandemic across the board.** It's not only in my organization but wherever anybody works.”

15-5C. “I think I could speak for many organizations, **but just speaking for our organization, we definitely couldn't have survived the past.** I don't know the time anymore. I don't know what it is now.... eight, nine months that we've been in this situation, it feels like a lot longer than that, but we **definitely would not have been able to survive without using the 4Cs skills to alter and modify our management approaches.** You know, and I could say that confidently, **without... some of the 4Cs that we were talking about.**”

13-5A. “It's just so interesting to kind of **take a step back and watch how this is sort of really changing the way which people communicate or don't communicate.** It's like if you were a good communicator before COVID and having to adapt, you are using the 4Cs to fit yourself into the new environment. I feel like you're still a good communicator through COVID, but you're getting frustrated because others **maybe they were just poor communicators before COVID, and now they just don't know how to act, and some are not willing to learn and apply the 4Cs.** For some, **this would be the time to be forced to learn, even if they don't like it.**”

Make it Work

The theme “Make it Work” also emerged as a display of how organizations and their workforce used the 4Cs skills to work and operate under crises and emergencies during emergencies such as the pandemic or any other emergencies that would affect regular working environments.

25-9C. “Because when something big, like COVID happens, I think that's **when these things like 4Cs get tested, so if they're not good and strong going into a crisis, how can they be strong throughout the crisis?** So just always modeling and being that consistent model of positive behavior during crises is what organizations need to pay attention to.”

16-6A. “The entire state got shut down; the governor deemed us as essential workers. We continued. We never shut down, **but we had one day to figure out what the new installation process will look like now, without going into your home.** I might add that we added between the first of April and the first of August 2,500, new accounts. **Some people got a television that never had TV because they were now inside, and they needed other entertainment sources because they could not go out.** So, we had to figure it out on a dime. **We definitely used critical thinking and creativity.**”

20-7C. “So, for example, right now, with the Corona Virus where we can't do the same types of activities with the individuals like we used to. **They're a vulnerable population health-wise. So, we came up with activities in my director activity calendar every month. We used creativity and collaboration to make it happened[sic].**”

Summary of Use of 4Cs During Pandemic

The following themes emerged naturally from participants' responses to the interview questions in regard to their experiences of how the 4Cs skills were being used at their team operation and organization production during the pandemic caused by the COVID-19 virus.

The following table (table 4.9) displays the above section's summary on the business professional's point of view and experience of how to utilize the 21st century 4Cs skills during the pandemic and emergencies caused by the COVID-19.

Table 4.9
Summary of Themes Emerged regarding Use of 4Cs During Pandemic.

Emergenced Themes
<ul style="list-style-type: none"> • Inventing New Environment • Changing Management Approaches • Make it Work

Combining Themes Cross the Data Set

Given a large number of emerged themes across the collecting codes from the ten organizations and the 27 business professional participants' interviews, the researcher reviewed all the 68 emerged themes and the 81 sub-themes for similarity in nature and concepts. Many themes could be interpreted in the same form and shape relating to a similar context or concept.

As a result of this combining efforts, this researcher discovered six combined themes per each of the three research questions, for total 18 combined themes. Under Research Question #1, the main combined themes are Problem-Solving Mindset, Clear and Timely Communication, Creating Team Environment, Welcoming Innovations, Performing During Emergencies and Continuous Learning. In regard to the Research Question #2, the combined themes are Absence of Imaginations, Working in Silos, Lack of Motivation, Absence of Communication, No Self-Awareness, and Lack of Self-Regulation. At the end, the following themes were combined under Research Question #3, as Emotional Intelligence Training, Soft Skills Development, Effective

Communication, Team and Trust Building, Work and Organization Commitment, and Problem-Solving Workshops.

Summary of Combined Themes Related to the Three Research Questions

The meaning and descriptions of all the above 18 themes will be explained and expanded in the following chapter (chapter five), the Discussion chapter. As a result of this review and consideration, the following table (table 4.10) displays the results of combined themes from reviewing all the emerging themes from the 4Cs skills and related to the three research questions.

Table 4.10

Summary of Combined Themes Related to the Three Research Questions

Combined Themes Corresponding to the Three Main Research Questions		
Research Questions	Combined Themes	Descriptions
Research Questions #1: <u>What value is placed on 4Cs in an industry setting in Lackawanna County, NEPA?</u>	1- Problem-Solving Mindset	- Looking at a bigger picture - Being patient but decisive - Being open to new possibilities
	2- Clear and Timely Communication	- Commitment to workability - Use of communication to get related - Not making assumptions & ask
	3- Creating Team Environment	- Solving team issues - Having common goals as a team - Willing to engage others
	4- Welcoming Innovations	- Coming with new ideas - Expressing talents - Being opened to change
	5- Performing During Emergencies	- Showing strengths & intentionality - Staying calm and collected - Recognizing emotions vs. reality
	6- Continuous Learning	- Learning from mistakes - Paying attention & learn from others - Being interested in learning
Research Question #2: <u>How do the 4Cs skills gap impact workforce team performance in an</u>	1- Absence of Imaginations	- Not thinking differently - Stuck in a routine - Fear of making mistakes
	2- Working in Silos	- Not getting related to others - Not working as a team

industry setting in Lackawanna County, NEPA?	3- Lack of Motivation	<ul style="list-style-type: none"> - Missing many opportunities - Lack of employee commitment - No personal vision for the future - No personal goals and dreams
	4- Absence of Communication	<ul style="list-style-type: none"> - No specificity in communication - Confusion caused by technology - Generational gap and resistance
	5- No Self-Awareness	<ul style="list-style-type: none"> - Resisting changes and new ideas - Displaying gossips & separations - Lacking empathy for others
	6- Lack of Self-Regulation	<ul style="list-style-type: none"> - Displaying negative attitude - Being unaware of one's behavior - Being condescending & belittling
Research Question #3: What <u>4Cs skills training and development</u> would be effective for the labor pool in an industry setting in Lackawanna County, NEPA?	1- Emotional Intelligence Training	<ul style="list-style-type: none"> - Learning self-awareness - Learning self-regulation - Learning the impact of emotions
	2- Soft Skills Development	<ul style="list-style-type: none"> - Interpersonal skills - Intrapersonal skills - relatedness skills
	3- Effective Communication	<ul style="list-style-type: none"> - Precise and clear communication - Active listening - Bridging misunderstandings
	4- Team and Trust Building	<ul style="list-style-type: none"> - Ability to work together - Understanding differences - Learning diversity and sensitivity
	5- Work & Organizational Commitment	<ul style="list-style-type: none"> - No organizational commitment - No work & job commitment - No motivation to personal growth
	6- Problem-Solving Workshops	<ul style="list-style-type: none"> - Problem solving techniques - Cause and effects training - Welcoming and trying other ideas

Chapter four outlined the findings and outcomes associated with this exploratory research, comparing the findings across all the ten private-sector and non-profit organizations and their 27 business professional participants. Chapter four has shown differences in describing their perception of 21st century 4Cs skills among their workforce in Lackawanna County, NEPA, using the 4Cs skills, and perceived current skills gap among their workforces.

Chapter four also reported detailed information explaining the interview participants' profiles and the themes produced based on the data analysis. The themes emerging relevant to each of the three main research questions were discovered and summarized. Sixty-eight main themes were identified across all companies, but delivered across different themes categories, based on a) What are the organization's expectations of 4Cs among their workforce, b) Organizations' observations of 4Cs skills gap among their workforce, c) Positive and negative outcomes on team performance by using or lacking the 4Cs skills, d) Effective 4Cs skills training and development for the workforce, and e) Some additional emerging themes including the use of 4Cs during the pandemic.

The following chapter five discusses the implications of these findings, research limitations, recommendations for future research, and the researcher's final thoughts.

CHAPTER FIVE

DISCUSSIONS, RECOMMENDATIONS & CONCLUSIONS

Introduction

The purpose of chapter five is to discuss the impact of research findings, how the emerged themes can be interpreted and linked to personal and professional development for not only the workforce but for the organizations as a whole. Chapter five will also look into the potential implications of organizations' findings, the workforce, the educational system, and the local and state government. Furthermore, this chapter provides recommendations for future research on the area of concern and discusses the research's limitations. In closing, chapter five will express the researcher's final thoughts and conclusion.

Research Overview

The understanding and application of 21st century 4Cs skills are defined as a necessity within the context of importance and use of a skilled workforce in an organization's workability, profitability, and competitiveness (Longmore et al., 2018; Boyles, 2012). As it has been established in Chapter One (introduction) and Chapter Two (literature review) in the new global economy, given the fierce competition for holding onto the market share, either nationally or internationally, organizations are focused on providing excellent services, competitive pricing, and using up-to-date knowledge, technology and information. Having a competent workforce equipped with 21st century skills and up-to-date knowledge and abilities (KSAs) is becoming more and more critical to organizations' and businesses' ability to participate in their markets successfully and even to survive the fierce national and global competition (Boyles, 2012; Longmore et al., 2018).

This increasing demand for recruiting and obtaining skilled and competent employees has shed light on the importance of workforce development with a college education and useful skills. Current research has revealed that even recently employed college graduates don't have the necessary skills which employers require for their organizations' compatibility and sustainability (Boyles, 2012). In recent decades, organizations have started to face a dramatic adjustment in business concepts and the working environment in the 21st century as compared with previous decades; they were forced to adopt a whole new learning process to stay competitive and thrive in this new global working environment (Longmore et al., 2018; Soulé & Warrick, 2015).

The purpose of this qualitative study was to examine the perception of 21st century 4Cs (*critical thinking, communication, creativity & collaboration*) skill gap in private-sector employers in Lackawanna county, NEPA. The collected information and the gained knowledge from this research are a valuable contribution to the existing literature and future researchers who are seeking to define the use and impact of the 21st century 4Cs skills in the context of workforce education and development. The findings of this research can help improve educational curriculum, workforce training and development, and professional coaching initiatives to help improve the current leadership behaviors and develop a skilled workforce working in today's highly competitive local, national and international work environments.

This qualitative research illustrates organizations' perspectives on 21st century 4Cs skills, how they perceive the impact of having or lacking the 4Cs skills among their workforce, and what training and development they are seeking and designing for their workforce. The qualitative approach to this research suggests the need for exploratory analysis of 4Cs skills within the context of professionals working in the current and future workforce. Investigation of

the research problem occurred through interviews with 27 business professionals (executives, senior managers, HR directors, junior managers, and supervisors) from ten private-sector and non-profit organizations to increase understanding of how the 4Cs (critical thinking, communication, creativity, and collaboration) skills gap among the workforce impacts organizations in Lackawanna County, NEPA.

The qualitative approach to this research concentrated on one-on-one semi-structured interviews as the exclusive method of data gathering with the objective of coding, interpreting meaning, locating emerging themes by recognizing similar patterns, and categorizing the emerged themes within the context of organizations and their workforce (Boyce & Neale, 2006; Kvale, 1994; Jansen, 2010). The three main research questions (RQs) listed below informed the research design and helped the researcher understand the use, or lack thereof, of the 21st century 4Cs skills in the organizations and their workforce, which is a relatively large and hard-to-define concept. This understanding necessitates a qualitative approach to derive the participants' meaning and understanding of the 4Cs skills and how they are used (Rose, Nigel & Canhoto, 2015). The three main research questions (RQs) for this research were as follows:

Research Question 1: What value is placed on 4Cs in an industry setting in Lackawanna County, NEPA?

Research Question 2: How do the 4Cs skills gap impact workforce team performance in an industry setting in Lackawanna County, NEPA?

Research Question 3: What 4Cs skills training and development would be effective for the labor pool in an industry setting in Lackawanna County, NEPA?

The 27 participants' interviews were recorded, transcribed, and analyzed using open and axial coding to harvest themes related to using or lacking the 4Cs skills (Critical Thinking,

Communication, Creativity and Collaboration) by the workforce employed by ten private-sector and non-profit organizations working in Lackawanna County, NEPA. The researcher employed in-vivo coding wherever possible to align the research findings within the 4Cs context. In-vivo coding is the method of appointing a name, label, or title to a portion of collected data, like an interview transcript, employing one or two words or a brief catchphrase taken from part of the collected data. Therefore in-vivo coding is correlated with the earlier phases of coding when the researcher is looking to identify concepts or developing categories to name the emerging themes (Given, 2008).

Second Coder Examination and Review of Emerged Themes

Qualitative research's trustworthiness depends on the researcher being reliable, accountable, and trustworthy through methodological precision and consistency (Lincoln, Guba & Egon, 1985; Patton, 1990a). This research effectively employed triangulation by cross-examining all the interview data from all the participants at each organization and by the second coder examination of emerged themes, resulting in a Kappa co-efficient.

According to Landis & Koch (1977), the Kappa coefficient is a numeric statistical rate for the inter-rater dependability, trustworthiness, and agreement that was applied to evaluate and calculate qualitative research results to verify the agreement between the original rater and the second-rater. The kappa coefficient is interpreted as the following: 0.01 to 0.20 is considered a slight match; 0.21 to 0.40 is considered a fair match; 0.41 to 0.60 will be considered as a moderate match; 0.61 to 0.80 is considered a substantial match; and 0.81 to 1.00 is considered an almost perfect match (Landis & Koch, 1977). As was indicated in Chapter 3, the planned and anticipated Kappa co-efficient was $k=0.75$.

In this research, the subject matter expert and the second coder was Dr. Tiffany Morey, Ph.D. in Agricultural and Extension Education and Learning Design and Technology, from The Pennsylvania State University, Department of Agricultural Economics, Sociology, and Education. Dr. Morey was referred by Dr. John Ewing, Ph.D. (methodologist), to the researcher to conduct the second coding process and review the emerged themes.

Process of Second Coder Review of Codes and Themes

Given a large number of codes, emerging themes, and sub-themes (see Table 4.1), this proposal selects a ten percent sampling from the pool of emerged themes for the second coder review of coding and creating themes from Chapter Four without going through the entire coding and theme checking process. This proposal and approach was submitted to Dr. John Ewing, the methodologist and member of the dissertation committee, and received his alignment and approval. This research came up with 68 themes (see Table 4.1) from the applied codes; in the end, these themes were combined to only 18 main themes based on six themes for each of the three research questions.

Ten percent of the samples were selected from the 68 themes that were created from applied codes. Because all the sub-themes and the 18 combined (see Table 4.10) are generated and linked from these 68 codes, then ten percent of the samples (total of seven themes) would be a sufficient number of themes to be examined by the second coder to verify the coding and come with a good kappa coefficient rate. The samples were two themes from each of the three research questions, and one from additional emerged themes for a total of seven to be reviewed for accuracy. Each theme has three sub-themes, which the second coder reviewed to look deeper into the emerged themes.

Result of Second Coding

A kappa coefficient calculation will be employed to confirm the first coder's emerged themes. The kappa coefficient is a statistical measure of inter-rater reliability or agreement used to assess qualitative documents and determine the agreement between two raters ("Statistics Solutions," 2021). The equation used to calculate the kappa coefficient is $K = \frac{Pr(a) - Pr(e)}{1 - Pr(e)}$, where $Pr(a)$ = qualified observation and monitored agreement between the two raters and $Pr(e)$ = the theoretical likelihood of chance agreement ("Statistics Solutions," 2021). "If the raters are in complete agreement, then $k = 1$. If there is no agreement among the raters other than what would be expected by chance (as given by pe), $k \leq 0$ " ("Tutorials Point," 2021, n.p.). Given complete agreement among the second coder and the original coder considering codes and the emerged themes, the kappa coefficient for this research findings and results of the emerged theme will be $k=1$.

The following is a direct quote from the second coder Dr. Tiffany Morey, Ph.D., expressing her satisfaction regarding her review of codes and emerged themes samples: "I have read through everything you sent (including your Chapter 4) and am in agreement with you on the themes you identified and the participant responses supporting them. I also really admire the dedication you put into identifying all of the sub-themes and supporting themes."

The remaining part of chapter five will discuss the research findings in association with the three research questions. Interpretations, implications, limitations, and recommendations for future research are presented for next actions and considerations for organizations, OD practitioners, and the workforce.

Discussion

The findings presented in chapter four defined and summarized the perception of private-sector and non-profit organizations in Lackawanna County, NEPA within the context of their

relationship with their workforce on 1) How they valued the 21st century 4Cs skills (Critical Thinking, Communication, Creativity and Collaboration) and their perspective of how a workforce equipped with 4Cs skills would look; 2) How the 4Cs skills gap among their workforce has an impact on team performances; and 3) What kind of training and development would be effective for developing 4Cs skills among the workforce. The findings offered a contextual illustration of the interaction between the organization's management and their workforce regarding using or lacking the 21st Century 4Cs skills from both sides, the workforce and the management. The following segment displays results and findings corresponding and relevant to the three main research questions.

Research Question One

The first research question (RQ1) informed the context of how organizations are valuing the 4Cs skills and their perception of what the 4Cs skills would look like among their workforces.

Research Question One: What value is placed on 4Cs in an industry setting in Lackawanna County, NEPA?

As results, six major themes (Table 4.10) emerged from the collected data, representing combined themes with the similar concept and within the same context to describe the values placed on 21st century 4Cs skills by the private-sector organization in NEPA: 1) Problem-Solving Mindset, 2) Clear and Timely Communication, 3) Creating Team Environment, 4) Welcoming Innovations, 5) Performing Under Emergencies, and 6) Continuous Learning.

The literature review described 21st century 4Cs skills broadly as concepts and skills developed and implemented by individuals and organizations. They bring more effectiveness, workability, and competitive edge to the organization (Tindowen et al., 2017; Soulé & Warrick,

2015; Tulgan, 2015). Additionally, the literature review revealed the importance of adding the soft skills, including the 4Cs skills, as a teaching curriculum in the National Educational System (Hirsch & Alliance, 2017; Martz et al., 2016; Cappelli, 2015; Soulé & Warrick, 2015; Boyles, 2012). Furthermore, the literature review pointed to the importance of 21st century 4Cs skills on developing hard skills and other competencies among the workforce in addition to already existing employee knowledge, skills, and abilities (KSA) (Donahue, 2018; Rothwell et al., 2016; Cummings & Worley, 2015).

The finding from this research adds to the existing literature by providing organizations' viewpoints on the importance of 4Cs and the value that organizations are placing on the 21st century 4Cs skills for their workforces.

Problem-Solving Mindset. The “Problem-Solving Mindset” theme emerged from the desire of organizations' professionals for their workforce to have the ability to solve their issues not only at the moment or the problem at hand, but from the perspective of a much bigger picture— the future, the next problem or what might come up next as an issue, and how this decision-making has a positive impact on the future problem-solving activities. That mindset required the workforce to be open to a new realm of possibilities. That is where additional education, training, and development, including special training on selected areas, would be beneficial to the workforce and the organizations. In this regard, Martz et al. (2016) pointed at academic and educational establishments such as high schools, colleges, and technical vocational institutes, that should modify and adapt their curriculums to face this critical need by including the 21st century skills as part of their education.

According to the business professionals, during the data-collecting process, this potential development would be possible by developing a patient workforce to look at all possibilities,

make a decision, and be decisive without fear of making mistakes or being concerned with potential consequences from management. The business professionals have expressed their desire and underlined their value placed on 4Cs skills and how it could help develop a problem-solving mindset among their workforces. Twenty-first century organizations are looking for a workforce with not only technical competencies or subject-matter expertise but also with modern skills, such as critical thinking, initiative, problem-solving, adaptability, agility, communication, and the ability to collaborate with others (Longmore et al., 2018; Martz et al., 2016; Soulé & Warrick, 2015).

Clear and Timely Communication. The desire and value placed on “Clear and Timely Communication” was one of the largest emerging themes among the business professionals. As shown in the early sections of Chapter Four, the highest value placed on any of the 4Cs skills by organizations was communication, closely followed by collaboration (see Figures 4.8 and 4.9). The concept of communication, clarity in communication, and timeliness of communication was expressed by almost every research participant. Steinfatt’s (2009) view of communication might not be accepted as a general definition of communication, but it sheds light on the importance of this essential skill. This is the way that Steinfatt (2009) explained the functions of communication and its elements of the message, channel, and receiver, and its definition of communication. The concept of communication is used in many ways, from a simple description of conversing and connecting via language to complex technological uses in information technology and everything in between (Steinfatt, 2009). However, in general, the term ‘communication’ is commonly referred to as transferring information from one person to another in personal or professional environments (Steinfatt, 2009). Given the human ability to converse and use language as a tool to communicate with others, the concept of communication is vital to

human connection, especially for developing professional skills and teamwork to increase accuracy, save time and increase productivity (Steinfatt, 2009). The viewpoint of business professionals using and delivering clear and timely communication is based on the workforce's commitment to workability, which emerges in the context of employees' work commitment and organizational commitment.

Another valuable point from the business professionals' perspective is the use of communication to relate to other employees and the ability to create a firm foundation for team building. Creating and maintaining good relationships are the backbone of the team-building process. Without relatedness and having a relationship, there will not be a team or team relatedness. Effective communication and clear and precise communication are elements of building a bridge to team effectiveness and more, such as not making assumptions, and asking more questions for better clarity that would lead to effectiveness and productivity. The majority of research participants pointed to the importance of workforces not making assumptions and asking questions to prevent optional expensive failures and breakdowns in equipment, scheduling, timely deliveries, and productivity, as communication without collaboration is creating an unworkable atmosphere.

Spies and Xu (2018) pointed at this issue when they underlined the importance of these two vital competencies that needed to work side by side for 21st century learning: communication and collaboration. According to Spies and Xu (2018), to develop these skills, the national standards for speaking and listening have been increased to a higher level among schools to support this national need. These vital skills are the foundation of oral communication, which is the base for communication and collaboration and are essential skills for students' academic achievements (Spies & Xu, 2018; Ahmadi & Besancon, 2017). Simply said, without

communication skills, there is no instrument for delivering a message to collaborate, express creativity and conduct a critical thinking process (Jones, 2015a). Besides verbal and writing skills, today's students need to develop skills in digital applications of symbols, images, and other digital means to be able to communicate effectively with others (Jones, 2015a). Digital communication is thus becoming increasingly important to workability and effectiveness in teamwork and collaboration with others.

Creating Team Environment. Another strong theme desired by organizations and valued because of the 21st century 4Cs was Creating Team Environment, which was mentioned so many times during the interviews. Organization professionals desired to see their teams solving issues as a team, meaning all team members are applying critical thinking, communicating, contributing by being creative and collaborating to resolve the issues as a team. This desire emerged in the background of the organization's value of the workforce's team mentality and having common goals as a team, and their workforces' willingness to engage others. Engaging with others and having common goals are some of the important elements of building a team. According to Rothwell (2017), team-building is one of the most popular forms of organization development (OD) change intervention among organizations. OD professionals consider the interpersonal relationships among team members to be an essential element of team-building, given team coherency and understanding of one another are critical to the success of team-building (Rothwell, 2017; Rothwell et al., 2016).

There were many complaints from the business professionals about lacking the team spirit, and individuals desire to engage others and be part of teamwork, not just as a position of team member but as the willingness to engage others as behavior that makes a difference for creating a team environment. However, Feldman (2017) underlined the importance of team-

building as a collaborative process between organizations and their workforce as individuals.

This collaboration is a continuous process without any established ending. Furthermore, Feldman (2017) added: “Besides the work of finding the right people to join the team, there is the work of building relationships, engendering trust, and setting an agenda that is built on mission, vision, core values, and a strategic plan” (87).

Welcoming Innovations. “Welcoming Innovations” was another major theme that emerged during the data gathering interviews and coding. Almost all research participants welcomed innovation by their workforce. They valued creativity for their workforce to come with new ideas and express their talents; however, in a responsible way without just implementing some activities or unapproved procedures that could potentially cause damages and create liabilities. Regarding the importance of creativity in the workplace, Ahmadi and Besançon (2017) pointed to increasing interest during the last several years to implement creativity as a study topic in schools. This interest is due to increased attention to the importance of competencies and skills for the current and future workforce. However, some studies have looked at the difficulty teachers face in integrating creativity in their classrooms due to overloaded class schedules that interfere with implementing 4Cs and the needed competencies (Ahmadi & Besançon, 2017).

Organizations would like to see their workforce being expressive, presenting ideas and be open to change. There were some experience concerns by the business professional about their workforce wanting to express their ideas and to see all of their ideas being implemented, which is something organization management cannot guarantee. This deficit was causing some fractions in the organization’s team performance and employees not being pleased to see their ideas not being implemented. From the point of view of management, it comes down to

responsibilities and accountabilities on the shoulders of the organization and its management, not entirely on their workforce's shoulders. However, there is no mystery that organizations are looking for a workforce with a creative and innovating mindset; as Matz et al. (2016) underlined, innovation, creativity, and entrepreneurship are becoming the key qualities desired of employers searching for the 21st century employees. This means the academic side of the create-a-better-employee relationship should adapt the curricula to address this need by including problem-solving and creativity; and this introduction should occur as early as possible in a student's course of study (Martz et al., 2016).

Performing During Emergencies. Performing During Emergencies was another common theme that emerged during the interview process. The majority of business professionals, regardless of their industries, agreed that 4Cs skills are helping their workforce to operate with 'strengths and intentionality' that comes from critical thinking and collaboration thereby causing the workforce to stay calm and collected in emergencies and hard times. To do so, they would recognize their emotions and act based on the situation's reality and not based on their potential rising hot and boiling emotions. Many organizations used this theme during the pandemic and their efforts to rearrange their schedules, processes, procedures and literally reinvent their production activities overnight, some voluntarily to protect their workforce, and some based on the state and federal government's mandates. During the data-gathering interviews, many business professionals credited their workforce's supportive behavior and adjusted activities during emergencies to skills such as critical thinking and collaboration as part of possessing soft and hard skills.

In the 21st century job market, these two sets of skills go hand in hand; they are not separate but encouraged to be used in conjunction with one another (Martz et al., 2016). Many

pieces of literature underline the importance of having the 4Cs skills and soft skills as a set of important skills in addition to vital hard skills. In this regard, Martz et al. (2016) stated that it was understandable that organizations are looking for new hires with technical skills and other qualities and abilities related to the job. However, for many employers, the concept of problem-solving is considered as critical as mathematical skills, written communication, and teamwork among their workforces. Ahmadi and Besancon (2017) pointed to collaboration that gives rise to diverse opinions, expresses different views, and helps resolve issues faster than just one person's ideas. Jones (2015b) also added, "Simply put, better collaborators make better students—and better citizens" (p. 24). Either at their workplaces or from home connected with their colleagues or co-workers, neighborhoods and communities collaborating with others will benefit society without self-interest, bias, or political and social agendas (Jones, 2015b).

Continuous Learning. The organizations' desire and interest for their workforce to continue learning was another common theme for organizations' values placed on 4Cs skills. From the business professionals' perspective, Continuous Learning can be achieved in different shapes and forms. One is for the workforce to learn from their mistakes, pay attention, learn from others, or show interest. Much literature has underlined the adult learning activities and what is possible for an organization's productivity, retention, and employment longevity that is rising because of the workforce's interest in learning. Organizations and businesses began to face a dramatic alteration in business concepts and the environment in the 21st century as compared with previous decades; they were forced to adopt a whole new learning process to stay competitive and thrive in this new environment (Longmore et al., 2018; Soulé & Warrick, 2015).

It is clear that the workforce's technical abilities and skills, in addition to knowledge of their trades, are essential to any employer. However, it would be difficult for any employer to

disagree with the importance of having employees armed with critical thinking, creativity, communication, and collaboration skills and competencies (Martz et al., 2016; Soulé & Warrick, 2015). One set of skills is not a substitute for the other (Martz et al., 2016).

Research Question Two

The second research question (RQ2) informed the organization's perspective and belief on how the 4Cs skills gap among their workforce impacted their groups, teams, and departmental performances.

Research Question Two: How do the 4Cs skills gap impact workforce team performance in an industry setting in Lackawanna County, NEPA?

Six major themes (Table 4.10) emerged from the collected data, representing combined themes with a similar concept and within the same context to describe how 4Cs skills gap among the workforce have an impact on an organization's group and team performances: 1) Absence of Imagination, 2) Working in Silos, 3) Lack of Motivation, 4) Absence of Communication, 5) No Self-Awareness, and 6) Lack of Self-Regulation.

These days in the global economy, with the fierce competition for the market share among national and global organizations, the value and importance of exhibiting new and developing competencies and skills, including the 4Cs in workplaces, are very present. As a matter of fact, competencies and skills are crucial for identifying any profession because they provide a common language to define the set of performances for the workforce that points at the necessary knowledge, skills, and behaviors that workers, technicians, or practitioners need in order to be successful in their jobs. This set also includes knowledge in 4C Skills (Arneson, Rothwell & Naughton, 2013). Because of this critical position that 4Cs skills hold in the industries, understanding organizations' view of current and potential future gaps among their

workforce, which would impact their team performances, is vital to the organizations' well-being. To this point, 21st century readiness among the workforce is becoming a vital element and the center point of such growth and development, which would allow for any organizations' healthy growth and sustainability (Soulé & Warrick, 2015). Twenty-first century jobs need 21st century skills and competencies to be able to provide products and services that would support organizations in their survival and expansion (Soulé & Warrick, 2015). Life in the 21st century requires an integrated recognition that skill sets such as the 4Cs are as necessary for both individual and corporate success as understanding the task requirements of a set job (Tindowen et al., 2017). These skill sets embrace problem-solving ability, conduct critical thinking, deliver effective communication, and collaborate with others. These are necessities of a successful life and profession (Tindowen et al., 2017).

The finding from this research adds to the existing literature by providing organizations' viewpoints on the 4Cs skills gap among their workforces that impact their teams, groups, and departmental performances.

Absence of Imaginations. This theme results from combining many emerging themes regarding current and consistent skills gaps among the workforces, which directly or indirectly affect teams' performances. One of the business professionals complains that their people are afraid to act on new or innovative approaches because they are afraid to make mistakes. However, there is so little inquiry from the business professionals about why their workforce is afraid to make mistakes and minimize their workforce reservations and maximize their innovations. Underlining an organization's interest in having a workforce that is capable of doing routine and non-routine work in the same setting, Boyles (2012) and Soule and Warrick (2015) mentioned that in the highly technical and fast-paced work environment, the ability to

perform a set of non-routine tasks is very much encouraged and desired by employers who are looking for prospective workers who can do more than just a routine job or task. (Soulé & Warrick, 2015; Boyles, 2012).

Based on data gathering and code-building process and results, the fear of making mistakes is embedded deeply within the workforces regardless of the types of industries with which they are engaging. This persistent fear is causing the workforce to be stuck in a routine without using their creativity and allowing their imagination to potentially make a positive difference for the team or for the organization as a whole. Having competencies in these 4Cs skills is becoming the norm and expected as a basic necessity for individual, team, and organizational success (Soulé & Warrick, 2015; Boyles, 2012).

Hence, in some industries involving manufacturing and production lines, there is a strong need for keeping the same routine and continue working at the same pace without changing anything. However, at the same time, there are underlined complaints from the business professionals about their workforces not thinking differently. This particular theme has the concept of the *double-edged sword*; on the one hand, organizations displayed the desire for the routines and processes being kept, and on the other hand, they are promoting creativity, innovations, and using imagination. This researcher has experienced the same concepts in many organizations that participated in this research, regardless of their business and industries' nature.

Working in Silos. This theme also has a considerable impact on teams' performance. One of the negative outcomes of Working in Silos is the fact that in many cases, good employees, who are most probably productive and care about their work, are working alone, in a silo and not working as a team, which naturally and by design, makes other team members miss many opportunities for learning from one another. Simultaneously, working in silos has some

side effects, such as not getting related to others, not building trust among the team members, and ultimately not creating a team environment. In regard to the importance of teamwork, Levi (2016) stated, “The use of teams to perform work has a long history, but during the past few decades, organizational teamwork has changed: it has expanded rapidly because of changes in the nature of jobs and the structure of organizations” (p. 3).

Hence, in some industries, such as in medical research and advanced education, the nature of their business might demand a certain time working in a silo, however not as a natural choice of the individuals keeping themselves away from other team members and not sharing their experience because of their situations. Levi (2016) defined a team as a particular kind of group formed of individuals who work interdependently to achieve a common goal. Businesses and organizations use several distinct types of teams to work on a variety of objectives. Feldman (2017) added: “Besides the work of finding the right people to join the team, there is the work of building relationships, engendering trust, and setting an agenda that is built on mission, vision, core values, and a strategic plan” (p. 87).

Lack of Motivation. Organization’s and business managers’ concern and complaints about workforces’ Lack of Motivation individually, as a team, or as a whole is not new. This complaint has and continues to exist among organizations. As a result of the interview process and gathering data about organization professionals about their perception of the 4Cs skills gap, which directly impacts team performances, the business professionals continue pointing at the directions of their employees’ lack of work commitment and organizational commitment. Furthermore, many business professionals pointed at individuals lacking personal vision for their future and, as a result, lacking personal goals and dream about their future. The issue of lacking

motivation has been the topic of many literature reviews about the students in the educational systems as well as in the workforce.

In today's labor market, there is a recognizable issue facing educational institutes and employers, which is the lack of skills and, most importantly, lack of motivation among younger generations coming into the labor market. Regardless of high school graduates' plans to enter the labor market directly after graduation or after going through vocational schools or obtaining a college degree, in order to be a productive member of an organization or even to be considered as a new hire, they need to demonstrate specific abilities, skills and personal motivation encouraged by personal goals. They need to have strengths and skills to think critically, be creative and have competencies to communicate effectively and solve problems in their workplace, as well in their lives in general, which would be motivated by personal interest and their goals in life (Soulé & Warrick, 2015; Martz et al., 2016). According to Mitchell (1997), industrial and organization (I/O) psychologists described motivation as "those psychological processes involved with the arousal, direction, intensity, and persistence of voluntary actions that are goal-directed" (Mitchell, 1997, p. 60).

Absence of Communication. Similar to what was mentioned above, "Absence of Communication" is not a new gap to professional operations and among teams. As this researcher mentioned in Chapter Four, communication came up as the most critical skill and the most valuable concept among the business professionals who have participated in this research. This combined theme emerged because interview participants complained about the workforces' lack of specificity in their communication cause by unclear intent in communication, lack of sufficient information, or many ambiguities in communication delivery. The concept of communication is used in many ways, from a simple description of conversing and connecting

via language to complex technological uses in information technology and everything in between (Steinfatt, 2009).

Another major issue in communication reported by the business professionals was a lack of understanding of how to communicate effectively among different generations and the gap between the generations at the workplace. The issue of generational gaps among the workforce and lack of understanding among them continues to be the topic of social research and academic literature. Also, confusion caused by new communication technologies is another issue facing effective communication among team members that directly impacts the team's performances. Using new technologies for communication is good, useful, and welcomed by the business professionals, but not before all the team members have been trained, examined, and signed off to understand, maintain, and implement such technology by their managers and supervisors. In today's electronic and technological environment, digital methods of communication can help individuals and organizations communicate swiftly through vocal and visual communication platforms and apps (Jones, 2015a). This issue is especially prevalent among the older generations who are not familiar with the fast-paced technology and, in many cases, simply reject or resist using them.

No Self-Awareness. Self-Awareness is part of emotional intelligence (EI), which has emerged as several different themes in a different context during the data collecting process.

Many business professional participants expressed their view of 4Cs skills gap among their current workforce that would have a negative impact on their teams and group performance by pointing out their workforce's resistance to changes and implement new ideas, display a lack of empathy for other co-workers, especially new arrivals, and participate in spreading misinformation and gossip about others and suppress new approaches because they think it is not

worth trying. This researcher credited these behaviors to lack of self-awareness as part of not displaying emotional intelligence, which can be directly linked to lack of training and development for teams working as one. Significant academic literature and professional research are available on self-awareness in domains of personal growth, professional performance, and personal or professional relationships.

Many psychologists characterized Self-Awareness as having a clear insight into one's personality and its attributes, such as source of behavior, attitude, one's weaknesses and strengths, one's mindset, and one's motivations and emotions. The knowledge of our self-awareness gives us the access to create an opportunity to recognize and understand others, how they view us, how they perceive our attitude, and how we respond to them (Wayne, 2019; Rothwell, 2015; Stevens, 2009). In supporting the above topic, Hockenbury and Hockenbury (2007) defined being self-aware as those displaying their capability to truly identify their own thought process, presence of emotions and motivations, and personal and professional values. Furthermore, being self-aware means having and displaying their capability to recognize and understand the impact of their behavior on others, at home or at work. Additionally, Goleman (2015) a psychologist and author, pointed at someone with self-awareness have the ability to evaluate their strengths and limitations, with a clear sense of self-assurance and self-confidence.

Lack of Self-Regulation. Another element of emotional intelligence (EI) is self-regulation. Besides one's understanding of one's mindset and self-awareness of one's thoughts and emotions, the next thing is how one would act on such feelings and emotions and if one would have control of one's actions and not display a negative attitude and behavior. Self-regulation can be characterized in numerous ways. Basically, self-regulation includes the individuals' ability to monitor and regulate their mindset, emotions and behavior, in the interest

of better and more effective relationships and productivity, through their capacity to control their distracting emotions and impulses (Goleman, 2015).

The workforce's negative behavior and unawareness of their attitudes were other underlining business professionals' complaints due to their workforce's 4Cs skills gap and negatively impacted their team's performances. Self-regulation, in the simplest terms, is to think before acting. It also indicates the individuals' ability to applaud themselves after any downfall or disappointment and continue working on their projects consistent with their important principles and values (Hockenbury & Hockenbury, 2007).

It is worthy to note that in some cases, the workforce also expresses this complaint about their managers or supervisors who display negative behavior by being condescending and belittling to their workforce.

Research Question Three

The third research question (RQ3) informed the context of the organization's perspective and desired types of training and development for developing 4Cs skills among their workforces.

Research Question Three: What 4Cs skills training and development would be effective for the labor pool in an industry setting in Lackawanna County, NEPA?

As a result, six major themes (Table 4.10) emerged from the collected data, representing combined themes with the similar concept and within the same context to describe the organizations' desire for using training and development to increase the presence of 4Cs skills among their workforce: 1) Emotional Intelligence Training, 2) Soft Skills Development, 3) Effective Communication, 4) Team and Trust Building, 5) Work and Organization Commitment, and 6) Problem-Solving Workshops.

Autor et al. (2003) pointed out that at the beginning of the 1970s in the US, the routine cognitive labor and manual tasks started to deteriorate and began giving room to increasing non-routine, diagnostic and collaborative trades. Organizations began to use technology, automation, and computer systems to take the place of manual laborers who were performing non-routine tasks (Autor et al., 2003). They began encouraging laborers with abilities to perform non-routine tasks and to use problem-solving techniques. This major shift to a computerized work environment demanded more comprehensive skills involved with critical thinking, problem-solving, and communications tasks, like resorting to inconsistencies, improving the production systems and processes, and supervising, managing, and coordinating other people's tasks, activities, and performances (Soulé & Warrick, 2015; Moore, 2013). Therefore, the need for training and development on skills was much more apparent and critical to organizations surviving in their competitive markets. American students need to be educated and armed with 21st century skills to be ready for 21st century careers in 21st century organizations (Boyles, 2012).

The finding from this research adds to the existing literature by providing organizations' viewpoints on the types of 4Cs skills training and development they see as effective for their workforces.

Emotional Intelligence Training. There was a common trend among business professionals' interest in developing more awareness and more self-control among their current workforce and to make sure they continue developing these skills among their future workforces.

This type of skill training falls under emotional intelligence (EI) training and development. Self-awareness and self-regulation are two of the seven elements of emotional intelligence. Regarding the importance of emotional intelligence, Clarke (2006) stated,

“Emotional intelligence has been suggested as providing a new perspective on how leadership and teamwork necessary for performance in today’s workplace might be more effective and better understood” (p. 423).

During the interview process and data gathering about workforces’ skills gap and what the organizations are wanting to see for their workforces’ 4Cs training and development, most of the business professionals mentioned some sort of training for people to manage their emotions and be present to the impact of their heated emotions during communication, discussions, and debates on professional issues. This was in addition to the impact of their feelings and emotions related to the personal issues pertaining to their job accuracy and overall productivity. Emotional competencies are believed to be essential for social interaction among people personally and professionally. The understanding of the individuals’ thoughts and emotions assists social functions, effective communication, and it harmonizes social encounters in positive and productive ways (Wayne, 2019; Stevens, 2009; Clarke, 2006).

Soft Skills Development. Training and development of workforces on soft skills were another interest of organizations when it comes to 4Cs skills training. Overall, the lack of soft skills among high school and college students and graduates continues to be an issue for educational systems and professional business industries. In addition to the 4Cs, soft skills are vital and necessary for the 21st century’s workforce development and its effectiveness. As part of soft skills, interpersonal competencies are essential in establishing a healthy work environment (Handley, 2017).

Most of the issues reported during the data gathering and interviews were about the workforce’s inability to relate to each other and their difficulties in building relationships with their team members or their managers and supervisors. Developing soft skills could include

developing emotional intelligence, such as developing interpersonal and intrapersonal skills. The workforce needs to have strengths and skills to think critically, be creative, and have competencies to communicate effectively and solve problems in their workplace and in their lives in general (Soulé & Warrick, 2015; Martz et al., 2016). Soulé and Warrick (2015) stated that “These are today’s survival skills—not only for career success but also for a quality personal and civic life” (p. 178). As Tulgan (2015) pointed out, the young workforce has many qualities to offer to organizations, such as new ideas, positive energy, technical abilities, and fresh perspectives. However, given their lack of soft skills, so many of them cannot connect with the older generation, and this disconnect is causing friction in the workplace. Tulgan (2015) referred to these as soft skills which include many non-technical skills known as people skills, teamwork, self-awareness, etc.

Effective Communication. As it was revealed in Chapter Four, communication came up as the number one skill and the most valuable concept among the business professionals in this research. The importance of communication or the impact of lacking communication skills manifested in the lack of delivery of clear and precise communication and ambiguity in receiving or delivering of messages. To conduct effective communication, the two parties need to be aware of barriers to effective listening, such as being distracted during the conversation, pretending they are listening while displaying impatience, being closeminded and having bias and agenda, and being quick to jump to conclusions (Rothwell, 2015; Kold, 2011).

Effective communication could be one of the strongest bridges for overcoming miscommunication or misunderstanding between the workforces and their managers or supervisors. The listeners’ active listening techniques for effective communication is very productive to producing effective and productive communication. Related to the importance of

listening skills and how to improve them, Rothwell (2015) and Kold (2011) provided some techniques as follows: Put the focus on the person who is talking, ask more questions to understand the other person's communication, provide the speaker with verbal and nonverbal feedback as displaying an interest and a sign of active listening, and do not interrupt the speaker until that person is done speaking (Rothwell, 2015; Kold, 2011).

Having communication skills and the ability to deliver the intent of the message effectively is more vital than ever (Jones, 2015). With the overflow of digital and electronic messages in society and at work, students and the workforce need to develop sharper skills to distinguish appropriate and professional ways to communicate effectively. Educators and teachers or organizational management cannot assume that students or the workforce will develop these 21st century skills and competencies on their own (Jones, 2015).

Team and Trust Building. Team building skills and techniques are very important to creating team environments and the workforce's ability to work together. Given the nature of the organizational structure, companies always rely on a team concept to get the job done. Teams are made up of individuals, and individuals need to be accepted by others and need to establish trust in their relationship with others. According to Rothwell (2017), team-building change intervention is one of the most popular types of Organization Development change intervention among organizations. Professional organization development practitioners and consultants consider the interpersonal relationships among team members to be a vital element of a team-building process that needs close attention, given that team cohesiveness and closeness are critical to the success of this level of change (Rothwell, 2017; Rothwell et al., 2016).

This was a common issue that the research participants identified about their need for 4Cs training to establish a team and trust environment. To build a team, a foundation of trust needs to

be strongly laid. Given the mixture of workforces with different races, gender, religion, education, culture, and backgrounds, understanding these differences and being sensitive to diversity is the biggest challenge for building trust and what it takes to build a team around that trust. Much literature and research has been done about the sensitivity and understanding of diversity at work and among the workforces. According to Stewart et al. (2016), to get to the root cause of the soft skills gap, first, there needs to be an understanding and determination of what are the most important soft skills among employers, and those are teamwork and team-building. Research has revealed (Stewart et al., 2016; Anthony & Garner, 2016; Charoensap-Kelly et al., 2016) that the most important and desired soft skills exist in wide classifications. Interpersonal relationships, professionalism, communication, critical thinking, problem-solving, ethical behavior, diversity awareness, cultural sensitivity, and leadership are skills that have a direct impact on team-building and for team members to effectively work together (Stewart et al., 2016).

Work and Organizational Commitment. Lack of individual commitment to one's work and lack of commitment to the organization and its vision and mission were other combined themes that emerged, which were linked to many other themes. Work commitment is characterized as the amount of excitement and level of interest displayed by an employee in connection to their tasks, job, and work designated to them at their workplace. Work commitment is the sense of responsibility and accountability that an employee or an individual has about the organization's vision, mission, and set of principles and values in the organization (Rothwell et al., 2016; Cummings & Worley, 2015).

Work commitment and organization commitment arise from personal motivation and one's desire for personal and professional growth. Without workforces' personal interest and

commitment to their work and supporting organization's purpose, it would be hard for organizations to achieve their desire level of productivity and competition in their market.

Organizations are displaying their commitment to their workforce by realizing the importance of competencies and skills and their role in hiring, recruiting, and retaining strong employees that would directly impact their business growth and success. Because of this realization, educational establishments are paying more attention to developing competency-based learning and development to support the needs of a competency-based workforce for the present and future needs of the workforce market (Donahue, 2018; Rothwell, Stavros & Sullivan, 2016; Cummings & Worley, 2015).

Organizational commitment is an employee's psychological connection and loyalty to an organization. Generally, employees' job satisfaction and organizational commitment are tightly associated with one another. Lower job satisfaction and/or organizational commitment leads to higher turnover among the workforce (Yousef, 2017). Many organizations are now using competency-based assessments and already-existing methods for evaluating employee knowledge, skills, and abilities (KSA) and the 21st century 4Cs to build-up their workforce's professionalism and as a form of displaying the organizations' commitment to developing a professional workforce. The competency-based assessment establishes its place in organizations as a valuable and useful way to assess and design development programs for their employees and implement necessary competencies and skills in employees' work responsibilities and job descriptions (Donahue, 2018; Rothwell et al., 2016).

Problem-Solving Workshops. There was a common interest among business professionals for their workforces to have problem-solving skills and use such skills in their work, individually or as a team. The problem-solving skill could be achieved by applying some

proven techniques and welcoming and trying new ideas. Using a cause and effect approach or conflict resolution approaches are some of the available methods that could be part of 4Cs skills training. Many organizations are interested in a workforce which has problem-solving skills and is able to implement them successfully. There were many suggestions for role-playing in creative work scenarios in order to be able to perform as a team to find solutions for these creative problems. There was also the interest to review existing case studies and research issues to train and develop the workforce to implement problem-solving approaches.

The skills desired are not limited to technical knowledge, mechanical abilities, trade knowledge and experience, task-related skills, or 4Cs (critical thinking, communication, creativity, and collaboration) but also using skills such as problem-solving, innovation, soft skills, and cross-functioning competencies, which are all the other technical skills or other competencies they possess or practice (Martz et al., 2016; Soulé & Warrick, 2015). Martz et al. (2016) brought up another imperative skill for students and the workforce creative problem-solving techniques. The problem-solving skill can assist in risk-control strategies for the existing workforce as well as for students who are the future workforce. It is essential for students to have a solid education in concepts of group problem solving and to understand, contribute and follow these concepts when the procedures are applied in their groups (Martz et al., 2016). Educational systems, hand in hand with organizations, can provide recurring, well-planned opportunities for students and the workforce to practice these skills and improve their 21st century skills for their future success, individually and nationally (Jones, 2015b).

Using Organization Diagnosis Models to Recognize 4Cs Skills Gap

The following segment is this researcher's suggestions for what organizations can use to recognize 4Cs skill gap among their workforces and extend the workforces' development on 4Cs

skills or understanding of who needs to be more trained or developed on which of the 4Cs skills. Organizations can use their internal OD (Organization Development) practitioners or HRD (human resources development) professionals or hire an external OD practitioner for utilizing and implementing what is already available to them in the form of elements of Organization Diagnosis, which simply can redirect the diagnosis on the role and effect of the workforce in an individual and team level. The following is an explanation and description of these potential training and development opportunities by organizations for their workforces.

There are many organization diagnoses models available in the OD industry. This researcher believes the following three organization diagnoses model can be used for diagnosing issues in individuals and teams regarding their 4Cs skills gap. These proposed models are 1) Individual and Group Behavior Model, 2) The Great Place to Work Model, and 3) SWOT Analysis. Given that organizations are formed by individuals and teams, OD and HRD professionals can use the same elements of these diagnoses' models, with minor modifications in language and approach and utilize them to achieve a better understanding of individuals, groups, and teams' issues concerning having, using, or lacking the 4Cs skills. These diagnosis models can be used to pinpoint the individual's and groups' issues relating to 4Cs skills and how they are going to resolve those issues and perform better, more productively, and in a better working environment. To better understand how to use these diagnostic models, it would be very useful and relevant to understand the organizations' diagnosis levels. This researcher is not recommending conducting the entire organization diagnosis on all levels of a) Organization level, b) Group and team level, and c) Individual-level; however, given the important role of individuals and teams, it would be very beneficial to understand the relevancy and connection among the three levels.

Organization Diagnosis Levels

The important point to remember is the fact that no matter what type of diagnosis is being conducted, individuals have a large role in the process of diagnosis and understanding of organizational issues, such as what changes need to be implemented, or how to develop their workforce on 4Cs skills. “The diagnostic process usually assesses the organization’s current condition by guiding what to look at. This is also the first step in selecting the appropriate change strategies and interventions” (Rothwell 2015, p. 15).

Figure 5.1 displays the three levels of organization diagnosis and their elements and areas that are covered by each diagnosis level. There are variables in each level of organization diagnosis that have an influence on organization development processes and have a substantial role in an organization’s successful growth; however, all three levels are connected to each other, and eventually they represent an organization in its entirety.

Organization level. This level is about examining human capital, organization’s structure and hierarchy, HR and HRD practices, use of information technology, organization’s policies and practices, organization’s environment, norms, and culture. Not all organization levels are directly related to developing 4Cs skills, however, there are some elements that are directly related to workforce education and training and development, such as an organization’s practices, environment, norms and culture.

Group and team level. This level is about examining the team format, team structure and hierarchy, team composition, relationships among the team and groups, team processes, behavior, norms, culture, use of information and technology by teams, and HR & HRD policies concerning teams and groups. Again, not all of these groups and team levels are directly related to developing 4Cs skills; however, some elements are directly related to workforce education,

training, and development, such as team relationships, teams' and groups' behavior, and norms' culture.

Individual level. This level examines individuals' attitudes and behavior, what they value, what principles they are following, their interests, their understanding of self-awareness, their communication style, and their motivations and desire to collaborate. This is the most relevant diagnosis level relating to individuals.

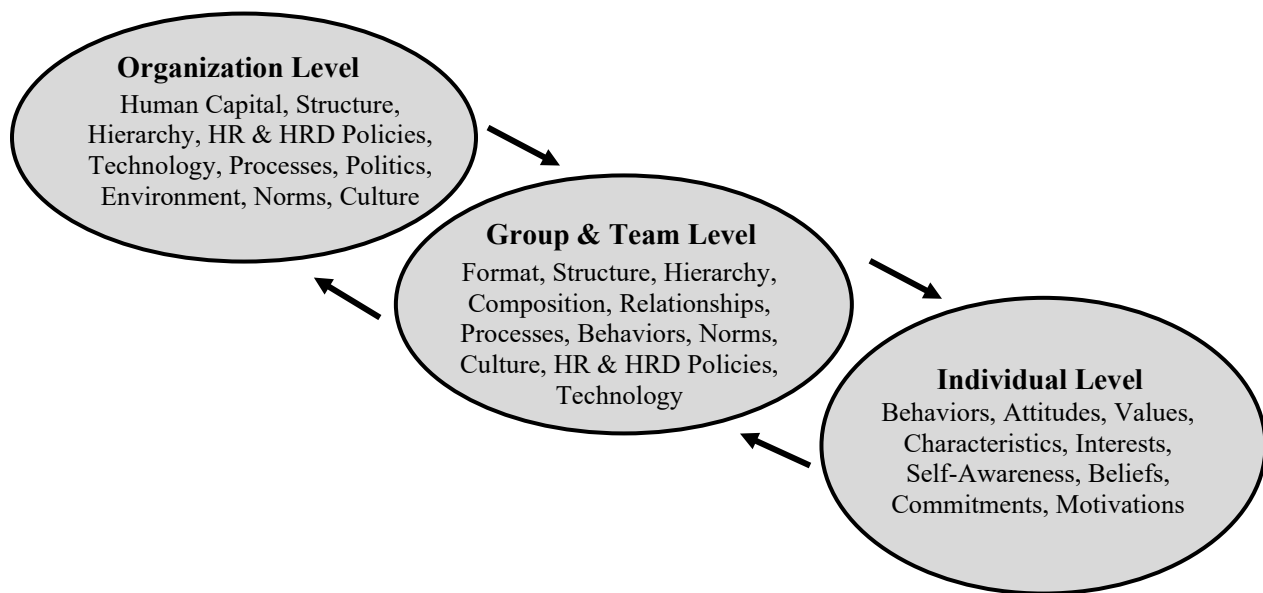


Figure 5.1. Organization diagnosis levels. Adapted from Rothwell (2015).

Individual and Group Behavior Model

This organization diagnosis model was originally designed by Michael I. Harrison in 1985. Through the years, this model has been modified and used on many editions of Harrison's work. This model is very useful to understanding individuals, groups, and team behavior in order to understand the gap in their use of the 4Cs skills, or where there is a need for implementing training and development programs for increasing all or any of the 4Cs skills among the workforces. According to Harrison (2005), components of the individual and Group Behavior model are as follows:

Inputs. These are elements that cover human capital, such as individuals, groups, teams, and overall workforce, in addition to raw material, supplies, budget and financial aspects, all intangible aspects of a business (Harrison, 2005; Rothwell et al., 2016).

Outputs. These are final products, goods, and services, in addition to the workforces' satisfaction and well-being, which cover all individuals, groups, teams, and overall workforce (Harrison, 2005; Rothwell et al., 2016).

Organizational behaviors and processes. This covers all the organization's practices to create outputs, including HR and HRD policies and organizational rules and regulations (Harrison, 2005; Rothwell et al., 2016).

Technology. This is about the organization's systems, production practices and procedures, equipment, tools that would transform the organization's inputs into outputs (Harrison, 2005; Rothwell et al., 2016).

Environment. a) Close environment includes an organization's competitors, customers, partners, suppliers, and investors. b) Remote environment includes the local and national political system, the economy and its relevant influences, social structures based on norms and cultures, and technological advances in the market (Harrison, 2005; Rothwell et al., 2016).

Culture. Society's shared values, norms, beliefs, and behaviors that would impact and influence the organizational culture, such as a) How work is getting done by employees. b) What the model of communications is among organizations. c) The way employees are treating their customers and d) The way the organization treats its employees (Harrison, 2005; Rothwell et al., 2016).

The Great Place to Work Model

Another useful and relevant organization diagnosis model that can help to understand the workforce's issues in order to understand the use or gap in 4Cs skill is the Great Place to Work Model. This diagnosis model was designed by Michael Burchell and Jennifer Robin in 2011. This model can give access to understanding individual work commitment as well as their organizational commitments. According to Burchell and Robin (2011), this model includes the following elements of individuals' and groups' interactions and relationships:

Trust. The element of trust encompasses the individuals' and teams' trust and respect for each other, and fairness among the members of a team, and ultimately between the workforce and the organization (Burchell & Robin, 2011).

Credibility. The element of credibility will be reached through open communication between members of a team, displaying competency at work, and practicing integrity, responsibility, and accountability by the members of an organization (Burchell & Robin, 2011).

Respect. Respect is an element that would be reached by displaying support, collaboration, and thoughtfulness among individuals, groups, teams, and organizations as a whole (Burchell & Robin, 2011).

Fairness. This element will be attained by displaying and conducting equality, impartiality, and justice by the organization, individuals, and teams in all levels of organizational hierarchy, all the way to the top management (Burchell & Robi, 2011).

Pride. Pride is a personal phenomenon and can be initiated in individual achievements, team performance and triumph, and the organization's status in the community (Burchell & Robin, 2011).

Camaraderie. The element of camaraderie can be constructed by facilitating intimacy, displaying respectful behavior, having compassion and empathy, being hospitable, and creating a sense of community in the workplace (Burchell & Robin, 2011).

SWOT Analysis

This is one of the most popular organization diagnosis models used by OD and HRD practitioners and general business consultants. SWOT analysis (Strengths, Weaknesses, Opportunities & Threats) originally designed by Albert S. Humphrey in 1960. SWOT is designed to find procedural or structural components that establish the main strengths, weaknesses, opportunities, and threats relevant to the organization in two internal situations (Strengths and Weaknesses) and two external circumstances (Opportunities and Threats). But again, this diagnosis model can be used by organizations to understand their workforces, individual and team Strengths, Weaknesses, Opportunities and Threats and use the findings to realize what elements of 4Cs skills or the whole 4Cs skills are needed to develop among individuals or teams at the organization. According to Gupta, Sleezer & Russ-Eft (2014), this diagnosis model includes elements of the following elements:

Strengths. The organizations' strength could be their unique products, high-level customer service, or their strong presence in their markets. It also can be their culture, their strong team, and professional management. Strengths are within the organization's control (Gupta et al., 2014; "SWOT Analysis", 2009). At the same time, this element of SWOT can be used to understand an individual's or a team's strength and give their managers access to what needs to be done to develop the workforce in the 4Cs skills using such strengths.

Weakness. An organization's weaknesses could be the lack of a skilled workforce, lack of resources, weak strategies or shortage of capital that can prevent it from growing, expanding, and competing in its market. Weaknesses are factors within an organization's control (Gupta et al., 2014; "SWOT Analysis," 2009). As above, the element of Weakness can be used to understand an individual's or a team's weaknesses and give their managers access to what needs

to be done to develop the workforce in the 4Cs skills by working on their weaknesses and building more strengths.

Opportunities. Opportunities are elements that provide the organization with opportunities to improve its performance and abilities to compete in its market. Opportunities can be external or internal attractive factors that represent opportunities for an organization to exist and grow (Gupta et al. 2014; “SWOT Analysis”, 2009). Obviously, developing and strengthening 4Cs skills among their workforce could be something that organizations can use as an opportunity to develop their individuals and teams in 4Cs skills.

Threats. Threats can be from individuals, teams, or other businesses outside the organization with objectives to decrease the organization’s performance. Threats could be external or internal factors which could place the organization’s mission or operation at risk (Gupta et al., 2014; “SWOT Analysis”, 2009). Organizations can recognize the internal threats among individuals and teams and direct appropriate training and development on defusing such threats, including but not limited to training and developing their workforce in the 4Cs skills.

Strategies Based on SWOT Analysis

The following are the four ways we used the collected data from SWOT analysis conducted with individuals, teams, or groups to create strategies for implementing changes; 1) SO; Using Strengths to take advantage of Opportunities, 2) ST; Using Strengths to avoid Threats, 3) WO; Overcoming Weaknesses by using Opportunities, and 4) WT; Minimizing Weaknesses to avoid Threats. As the above information revealed, no groups, teams, or organizations can attain strengths and opportunities to grow and be productive without individuals’ efforts and influences. At the same time, individuals can have a vital influence on creating weaknesses and

threats for the organization. That being said, it is vital for any organization to consider providing training and development for their workforce to be armed with valuable 21st century 4Cs skills.

Emotional Intelligence for Competency-Based Training & Development in 4Cs Skills

Identifying the organization's perspective on 4Cs skills, workforces' skills gap in 4Cs skills, and recognizing appropriate and effective training and development to increase the presence and use of the 4Cs skills among the workforce is central to this research. Based on this researcher's 27 years of professional experience and also available literature on the subject matter, this researcher believes that people's mindsets and behaviors determine a) their underlying attitude and actions and ultimately their interest in the 4Cs skills (Wayne, 2019; Goleman, 2014; Stevens, 2009; Clarke, 2006), and b) their partnership with their organizations to train them and implement the 4Cs skills at their workplace (Longmore et al., 2018; Martz et al., 2016; Soulé & Warrick, 2015).

Based on reviewing the emerged themes and organizations' professionals display of interest on training and developing their workforces on 4Cs skills, this researcher derived at the Emotional Intelligence (EI) as proposed training that positively assists the organizations on developing awareness among their workforce while training them in soft skills, competencies, communication, and leadership. These trainings have a direct influence on developing leadership competencies among the workforce, including management teams within the organizations. Emotional intelligence training and development model cover all four elements of the 21st century 4Cs: critical thinking, communication, creativity, and collaboration embedded in all aspects of emotional intelligence, that would cause leadership development among the workforces. This type of training covers the management levels and all levels of workforce on production levels on awareness, understanding, and implementation of the 21st century 4Cs skill.

Donahue (2018) described competencies as a combination of a quantifiable and observable collection of knowledge, skills, attitudes, and behaviors (KSABs) that support individuals in performing better at their work and achieving their personal and professional goals. According to Donahue (2018), the term *competency* has become something like a buzzword people are throwing around as something pointless. On the contrary, in today's organization development efforts, competency-based development and education are regarded as the pathway to the future of education/learning, team building, and organization development. "Competencies are the measurable and observable knowledge, skills, attitudes, and behaviors (KSABs) critical to successful job performance" (21). Furthermore, Donahue (2018) pointed at the fact that many organizations have implemented, or are in the process of establishing, official Skills Assessment of their workforce. Competency-based assessments are becoming more and more popular among organizations to evaluate their workforce's preparation, usefulness, execution of their tasks, and overall success in their jobs. "Thus, the level at which a person can demonstrate specific competencies will impact how valuable the person will be to an employer" (Donahue, 2018, p. 21).

For this reason, using EI competency-based assessment and training related to developing the 21st century 4Cs skills is useful and relevant to increasing the presence and use of such skills by the workforce. Assessing employees' current 4Cs skills and the level of their grasp of each competency cluster assists organizations in constructing action plans to improve 4Cs skills where needed. The workforce will increase their effectiveness; they will conduct their work with a higher skill set and, in general, be much better, and more productive employees (Donahue, 2018).

Emotional Intelligence

Regardless of preferences, like it or not, organizations' leaders ought to cope with the mood of their organizations and all sorts of emotional outputs from their workforce, from managers down to the floor personnel. The most effective and competent organization leaders achieve this task by using a peculiar mixture of psychological competencies known as Emotional Intelligence or EI (HBR, 2017). In regard to these types of organization leaders who are aware of EI competencies, the *Harvard Business Review* stated, "They're self-aware and empathetic. They can read and regulate their own emotions while intuitively grasping how others feel and gauging their organization's emotional state" (HBR, 2017, p. 4). Emotional intelligence competencies are defined as "an ability to recognize, understand, and use emotional information about oneself or others that leads to or causes effective or superior performance" (Boyatzis & Sala, 2004, p. 5).

Both OD literature (HBR, 2017; Rothwell et al., 2016; Rothwell, 2015; Cummings & Worley, 2015) and emotional intelligence literature (Wayne, 2019; Goleman, 2015; Goleman, 2014; Stevens, 2009; Clarke, 2006; Goleman, 1998) indicate that emotional intelligence is fed from nature as well as nurture. According to the *Harvard Business Review* (2017) emotional intelligence is a combination of a) genetic predisposition, b) overall personality, c) professional life experience, and d) some old-fashioned training. When consciously and compassionately utilized, emotional intelligence encourages organizations, their leaders, and their workforce to exceptional performance (HBR, 2017). In many ways, our emotions directly influence our mindset, and in some fashion, they rule our daily lives (Bakhshandeh, 2015; Hockenbury & Hockenbury, 2007). We are making decisions based on what we are feeling at that time, such as sad, angry, happy, frustrated, or bored; therefore, unconsciously, we choose some reactions based on the emotions we are inflaming (Bakhshandeh, 2015; Hockenbury & Hockenbury, 2007).

According to Handley (2017), the topic and concept of emotional intelligence have been researched in two approaches, a) mental ability model and b) mixed model, which includes many competencies such as motivation, trait, and skills. This research recommendations for training and development of a workforce for the 4Cs skills are based on a mixed model. “Boyatzis, Goleman, and Rhee (2000) empirically analyzed competencies for emotional intelligence and determined four competency clusters: self-awareness, self-management, social awareness, and social skills” (Handley, 2017, p. 142). This research has divided and organized the emotional intelligence clusters and their related competencies (see Figure 5.2) into four clusters of **1) Self Awareness, 2) Self-Regulation, 3) Social Awareness and 4) Relationship Management**. As a business manager or organization leader, it is vital to provide training and development for their workforce in a set of emotional intelligence knowledge, skills and competencies that would assist them not only on their workforce development but also in their managerial skills, which would directly influence their team, group, departments, and the whole workforce to work with better behavior and display a positive and workable attitude that would impact their productivity in a positive way. There are many characteristics and attributions of people who are understanding and practicing any of these emotional intelligence clusters and competencies. This research displays at least three positive qualities and attributions of people with such competencies.

The following Figure 5.2 displays the four emotional intelligence clusters and their relevant competencies that could assist organization leaders in implementing sets of important and practical emotional intelligence that would be very helpful to train and develop workforces:

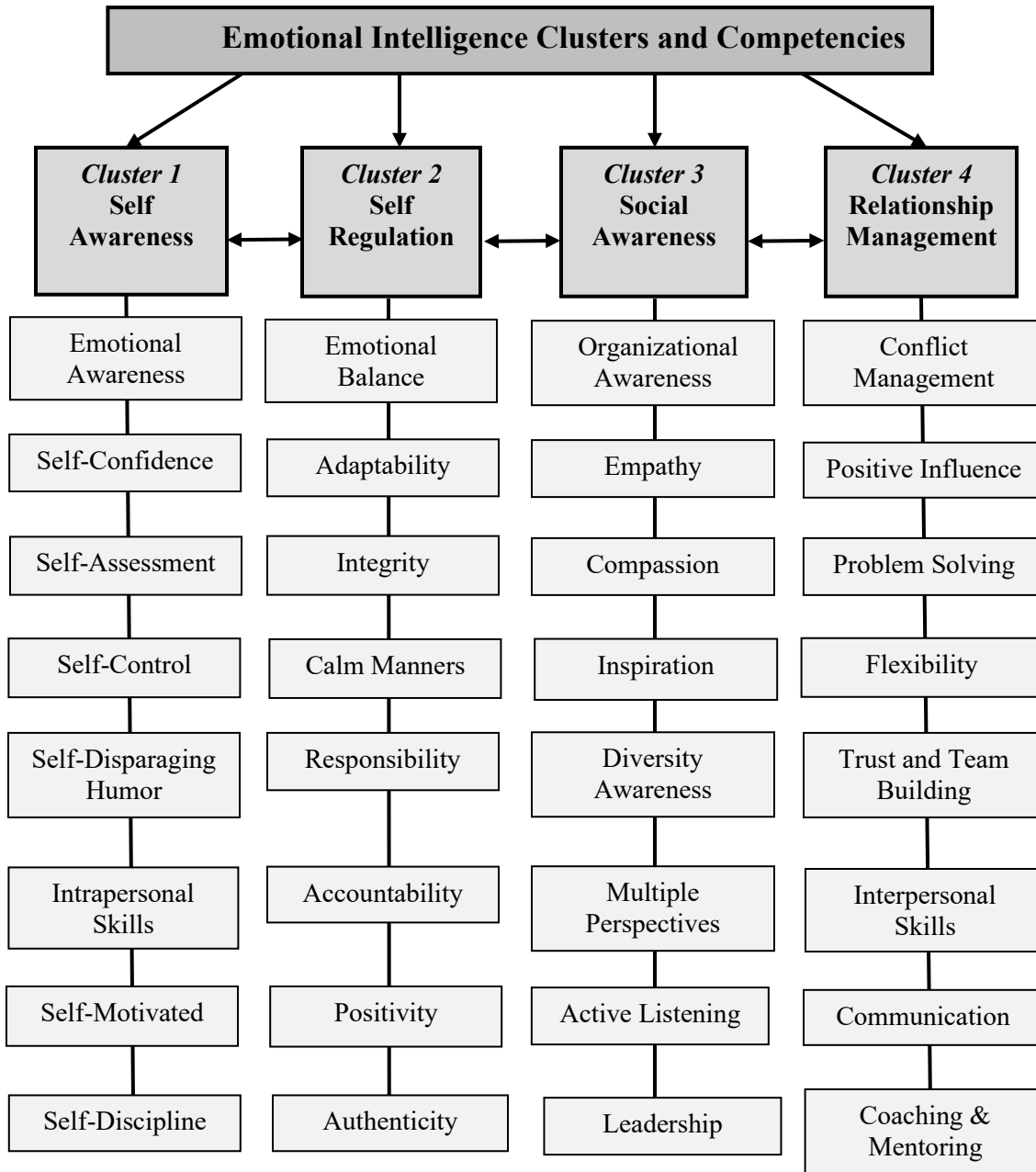


Figure 5.2. Emotional intelligence clusters and competencies. Adapted and inspired from (Wayne, 2019; Donahue, 2018, Rothwell, 2017; HBR, 2017; Rothwell et al., 2016; Rothwell, 2015; Cummings & Worley, 2015; Goleman, 2015; Goleman, 2014; Stevens, 2009; Hockenbury & Hockenbury, 2007; Clarke, 2006; Goleman, 1998).

Cluster 1: Self-Awareness. The view of ourselves and others controls our awareness, and our awareness becomes our new reality that naturally will determine our actions (Bakhshandeh, 2015). Goleman (2014) depicts behaviors associated with self-awareness as those who recognize

how their emotions affect their job performance, those who know when to ask for help, and how to focus on building their strengths and not focusing on what is negative about them. Self-awareness can be described as individuals' capacity to identify and understand their emotions, temperaments, and motives and to be aware of their emotion's impact on other people. The understanding and knowledge of our own self-awareness would give us the opportunity to recognize and understand others' emotions and states of mind, how they view us, how they perceive our behavior and attitude, and how we respond to them (Wayne, 2019; Rothwell, 2015; Goleman, 2015; Stevens, 2009).

Competencies related to self-awareness include but are not limited to i) Emotional Awareness, ii) Self-Confidence, iii) Self-Assessment, iv) Self-Control, v) Self-Disparaging Humor, vi) Intrapersonal Skills, vii) Self-Motivation, and (viii) Self-Discipline (Wayne, 2019; Rothwell, 2015; Goleman, 2015; Stevens, 2009).

(i) Emotional Awareness. This refers to the understanding and knowledge of the individuals' nature of their emotions and what kind of emotions they are feeling at any given moment. According to the Merriam-Webster Dictionary, emotion is "a conscious mental reaction (such as anger or fear) subjectively experienced as a strong feeling usually directed toward a specific object and typically accompanied by physiological and behavioral changes in the body." The Oxford Dictionary defines emotion as "a strong feeling deriving from one's circumstances, mood, or relationships with others". As it is displayed in both dictionary definitions, those notions are associated with one's feelings in a particular way. Some attributes of people with emotional awareness are, a) Concerning others' feelings, b) Realizing misunderstandings, and c) Operating based on trust (Wayne, 2019; Goleman, 2015; Stevens, 2009).

(ii) Self-Confidence. How people view and relate to themselves is another important element of emotional intelligence. However, as Stevens (2009) underlines, “You should keep in mind, however, that the trait test is not a simple case of high means good or low equates to bad in terms of its scoring. On the contrary, each score is contextually based” (p. 53). To some degree, self-confidence is linked to self-assessment, and it is founded further on the perceptions that individuals have of themselves instead of on the actual gauges and measures of their competencies or skills that they possess (Goleman, 2014; Stevens, 2009). “Nevertheless, positive well-being is determined by higher levels of self-esteem, among other actors” (Stevens, 2009, p. 53). Some attributes of people with self-confidence are, a) Trusting their abilities, b) Displaying gratitude, and c) Having inner happiness (Goleman, 2014).

(iii) Self-Assessment. Self-assessment is providing awareness into individuals’ actual comprehension of a set of knowledge, skills, and competencies that can provide insights to detect gaps in their area of expertise and knowledge (Goleman, 2015). In the same context, the University of Reading (2021) reflected an important distinction regarding student self-assessment as “... assessment methods [that] only measure students’ ability to regurgitate knowledge, not how well they understand the topic. Self-assessment can provide insight into students’ true comprehension and can help to identify gaps in students’ knowledge” (“The University of Reading,” 2021). As an important element of creating a feasible and comprehensive self-assessment, some organizations allow some degree of individual engagement in the design, redesign, and development of assessment criteria. This approach creates a more comprehensive and relevant self-assessment with a higher-level of trustworthiness and relevancy (Goleman, 2015; Cummings & Worley, 2015). Some attributes of people who apply self-

assessment are a) Monitoring their learning, b) Monitoring their goals' progress, c) Conducting self-efficacy (Goleman, 2015; Cummings & Worley, 2015)

(iv) Self-Control. One critical skill requisite for having and applying emotional intelligence is the individuals' capacity to channel their emotions instead of pushing them down or forcing them out (Wayne, 2019). Many people make the mistake of thinking emotions can be "controlled," but you can't control your emotions. In this context, "controlling" your emotions means mastering them and learning the best ways to react to them (Wayne, 2019, p. 97).

Emotions are a big part of the human psyche that is intended to notify us that there is something to pay attention to. How people react to the subject matter that their emotions are pointing to in order to pay attention is to decide the level of importance of such subject matter and choose an appropriate and relevant course of action to address the subject matter (Wayne, 2019; Stevens, 2009; Goleman, 1998). "There are no good or bad emotions; there are only good or bad responses to emotions" (Wayne, 2019, p. 98). This way, people's reactions to their emotions are not impulsive. Furthermore, Stevens (2009) pointed out, "Self-control works to increase the process of rational thinking under pressure actively and is meant to encourage and boost productive actions" (Stevens, 2009, p. 45). Some attributes of people with self-control are a) Not making impulsive decisions, b) Controlling their behaviors, c) Possessing conscientiousness (Wayne, 2019; Goleman, 2014).

(v) Self-Disparaging Humor. Self-disparaging humor is one of the various kinds of humor individuals use in their conversations with others. As with having and pacing typical humor, it can appear anywhere in the conversation, as a single, short and simple sentence or as a narrative. Self-disparaging humor grants individuals who are speaking to deliver a funny story about themselves in a way that makes them look bad, funny, or failing in something they

attempted (Prigo-Valverde, n.d.). Basically, it is their ability to laugh at themselves without having concern about what others might think of them. Some attributes of people with self-disparaging humor are a) Admitting their faults without resistance, b) Comfortable to laugh at oneself, and c) Not focusing on an impeccable image (Goleman, 2015; Prigo-Valverde, n.d.)

(vi) Intrapersonal Skills. This is the ability of people to distinguish and understand their thoughts, emotions, and feelings. It is a skill for planning and directing their personal and professional lives (Rothwell, 2015; Cummings & Worley, 2015). Individuals with intrapersonal skills are proficient at looking within, inquiring inward, and sounding out their own feelings, emotions, motivations, and objectives. They are characteristically contemplative and thoughtful; by analyzing themselves, they seek self-understanding. Individuals with intrapersonal skills are intuitive and generally introverted. They are mostly learning autonomously and through reflection (Shek & Lin, 2015). “Intrapersonal competencies form the foundation of one’s development, and they are fundamental qualities of leadership competencies” (Shek & Lin, 2015, p. 255). Some attributes of people with intrapersonal skills are a) Appreciation for themselves, b) Awareness of their agenda, and c) Elimination of distractions (Shek & Lin, 2015, Rothwell, 2015; Cummings & Worley, 2015).

(vii) Self-Motivation. This is longing to work for personal and internal motives rather than monetary importance, which is defined as external rewards. It includes individuals’ tendencies to follow their personal goals with a high level of intentionality, energy, and determination. Some attributes of people with self-motivation are a) Exhibiting a high motive for achievement, b) Promoting forward motion activities, and c) Displaying a positive attitude for productivity (Rothwell et al., 2016; Rothwell, 2015; Cummings & Worley, 2015).

(viii) Self-Discipline. This refers to the individuals' power and capability to control themselves and to get themselves to work harder than the minimum and perform without supervision or someone's constant reminders. Self-discipline comes with self-control and self-motivation. Some attributes of people with self-discipline are, a) Skipping immediate gratification, b) Eliminating distractions, and c) Not needing a constant reminder (Rothwell et al., 2016; Rothwell, 2015; Cummings & Worley, 2015).

Cluster 2: Self-Regulation. It refers to the ability to recognize, understand and redirect individuals' distracting impulses, inappropriate reactions, and temperament. They incline to defer immediate judgment and to employ considerations and concerns before acting against others or ideas (Goleman, 2014; Wayne, 2019). Goleman (2014) describes this emotional intelligence cluster as leaders who can stay "calm and clear-headed under stressful situations" (p. 51). Self-regulation competencies move leaders from emotional awareness to managing their emotional impulses and demonstrating a positivity necessary to get the job done via initiative and instituting trustworthiness and productivity (Goleman, 2014; Goleman, 1998).

Competencies referenced to self-regulation include but are not limited to i) Emotional balance, ii) Adaptability, iii) Integrity, iv) Composure, v) Responsibility, (vi) Accountability, vii) Positivity and viii) Authenticity (Wayne, 2019; Rothwell, 2015; Goleman, 2015; Goleman, 2014, Stevens, 2009, Hockenbury & Hockenbury, 2007; Goleman, 1998).

(i) Emotional Balance. Emotional balance is people's state of being mindful of their emotions adequate to handle them sensibly and gently. Being emotionally out of balance is caused by either not allowing themselves to experience their feelings when they are arising and then discarding and suppressing them or being firmly attached to such feelings and being totally consumed by them (Goleman, 2015; Goleman, 1998). Emotional balance arises when individuals

permit themselves to feel the emotions that occur on the surface without feeling restrained or overwhelmed by them. Emotional balance is to learn about feelings and to accept them with no judgment, and act on them in responsible ways. Some attributes of people with emotional balance are a) Accurately identifying their emotions, b) Being mindful of their emotions, and c) Managing impulse emotion (Goleman, 2015; Goleman, 1998).

(ii) Adaptability. Adaptability refers to the degree of strictness and harshness on individuals' ways, mindsets, and approaches and how they are efficient in adapting to new ideas, conditions, or environments (Wayne, 2019; Stevens, 2009). Stevens (2009) pointed at the importance of adaptability by stating, "Considering the only way to bolster teamwork is by putting together a cohesive team and showing a willingness to change their ways, which is something that any good leader should be on the lookout for" (p. 50). Some attributes of people with emotional balance are a) Being open to learning new things, b) adjusting quickly, and c) Embracing new ideas.

(iii) Integrity. According to many philosophers, integrity is a lifelong desire to follow people's moral and ethical principles and, as the old saying goes, 'do the right thing' in every situation and any circumstances (Goleman, 1998). Furthermore, Goleman (1998) described integrity as being true to oneself and not acting in ways that would degrade or disgrace oneself. Bakhshandeh (2015) pointed to integrity as a foundation for responsibility and accountability to work, "Without integrity, responsibility and accountability mean nothing. You cannot be fully responsible or accountable for your actions if you have no integrity" (p. 27). This powerful competency affects every aspect of our day-to-day lives personally and professionally. Some attributes of people who are practicing integrity are a) Being dependable, b) Being honest, and c) Being trustworthy (Bakhshandeh, 2015).

(iv) Calm manners. Calm manners or composure is the ability to control impulsive reactions even under heavy pressure. Individuals with composure don't react immediately. Just because they are not getting what they want or hearing what they don't like, they will reply after careful consideration and critical assessment of the present situation, demonstrating the application of a conscious effort to stay calm and collected (Wayne, 2019; Stevens, 2009). "In cases of conflict, the goal is not to argue but to reach a resolution in order to learn to focus on aligning your actions, thoughts, and emotions with that goal of resolution" (Wayne, 2019, p. 98). Some attributes of people who have composure are a) Having confidence, b) Being relaxed, and c) Being insightful (Wayne, 2019; Stevens, 2009).

(v) Responsibility. Vincent E. Barry, a business historian, has characterized responsibility in the context of the business as "a sphere of duty or obligation assigned to a person by the nature of that person's position, function, or work." (Bivins, 2006). According to Merriam-Webster (2021) dictionary, responsibility is "the state or fact of having a duty to deal with something or of having control over someone" (n.p.). From a mindfulness point of view, people become responsible when they display their willingness to acknowledge all of their thoughts and assume responsibility for every action they take, good, bad, and ugly, altogether without any justifications (Bakhshandeh, 2015). Some attributes of people who practice responsibility are a) Not making excuses, b) Not complaining, and c) Being timely (Bakhshandeh, 2015).

(vi) Accountability. Merriam-Webster (2021) dictionary defined accountability as "the quality or state of being accountable especially an obligation or willingness to accept responsibility or to account for one's actions." One who practices accountability is not into the blame game and avoiding their responsibilities by pointing at and blaming others for what

happens and how it happens. They are not acting like the victims of circumstances, as a replacement for being responsible. They are not procrastinating in their duties and what they are responsible for doing (Rothwell et al., 2016; Goleman, 2015; Bakhshandeh, 2015).

“Accountability and responsibility go hand in hand. When you practice responsibility, you cannot help being accountable and having integrity. This is the essential component of the three-force combination” (Bakhshandeh, 2015, p. 32). Some attributes of people who are accountable are a) Taking responsibility for their actions, b) Not blaming or pointing fingers, c) Being transparent (Bakhshandeh, 2015).

(vii) Positivity. A good, positive attitude has a massive positive effect in the workplace. This positive impact influences people relating to their peers, how managers are leading, or how organizations are dealing with their clients and customers (HBR, 2017). A positive temperament toward other people generates an environment for building relationships, trust, and loyalty among the workforce at every possible organizational level (HBR, 2017). On the other side, when we are not displaying our care and commitment to workability and harmony, distrust will arise and cause massive dysfunction in relationships, in the home or at work, personally and professionally (Goleman, 2015). Some attributes of people who are practicing positivity are a) Being optimistic, b) Being resilient, c) Being grateful (Goleman, 2015).

(viii) Authenticity. How to become authentic is a mixture of having the courage to admit who we have been and what we have done in dealing with challenges of a different situation, taking responsibility for it, and then becoming accountable for the results (Bakhshandeh, 2015). “In facing ourselves, we experience one of the most powerful states of being any human being can have. It is powerful, it is solid, and it is fulfilling because it is authentic” (Bakhshandeh, 2015, p. 33). A typical description of being authentic is the ability for individuals to process their

thoughts and live according to their values and goals, instead of what other people or society dictated (“Mind Tools,” n.d.). “The flip side of authenticity is pretense” (Bakhshandeh, 2015, p. 34). Some attributes of authentic people are a) Being self-reflection, b) Being honest, and c) Not being judgmental (Goleman, 2015; Bakhshandeh, 2015).

Cluster 3: Social Awareness. Social awareness requires social skills. Even with a business leader’s ability to display understanding, empathy, compassion, and controlling one’s emotions, it is not enough to deal with conflicting and difficult situations arising from lack of social awareness and related elements (Stevens, 2009). This cluster of skills applies not only to employees but also to the organization’s customers and clients. “A person manages to do that by obtaining and maintaining a high degree of emotional intelligence, of course!” (Stevens, 2009, p. 48). Additionally, those business leaders who understand social awareness elements, such as workplace diversity and differences at the workplace by disregarding stereotypes and generalizations of people, can demonstrate social awareness results throughout the organizational awareness (Handley, 2017). In this regard, Handley (2017; as cited from Goleman, 2014) stated that “Goleman describes this competency cluster with empathic listening, ability to grasp the others’ perspective, political understanding, organizational awareness, and service to others” (p. 146).

Competencies referenced to self-regulation include but are not limited to i) Organization awareness, ii) Empathy, iii) Compassion, iv) Inspiration, v) Diversity awareness, vi) Multiple perspectives, vii) Active listening, and viii) Leadership (Wayne, 2019; Donahue, 2018; HBR, 2017; Handley, 2017; Rothwell, 2015; Goleman, 2015; Cummings & Worley, 2015; Goleman, 2014, Stevens, 2009, Hockenbury & Hockenbury, 2007).

(i) Organizational awareness. Organizational awareness is the ability to be present to and read a group's and team's current emotional states and recognize people with positive or negative influences and current dynamics within the workforce and the organization (Rothwell et al., 2016; Rothwell, 2015; Cummings & Worley, 2015). One of the most important aspects of proactive business management is organizational awareness. Organizational awareness helps business managers on designing and planning change efforts for their workforce, in team building, improving staffing policies, implementing effective communication channels, building productive culture, and developing effective leadership in all level of organization hierarchy (Rothwell et al., 2016; Rothwell, 2015; Cummings & Worley, 2015). Some attributes of organizational awareness are a) Making informed decisions, b) Building supportive coalition, and c) Developing a workable strategy (Rothwell et al., 2016; Cummings & Worley, 2015)

(ii) Empathy. This is the ability to focus on others as the groundwork for empathy and the ability to develop relationships, personally, socially, and professionally. Business leaders who are able to effectively focus on others are the ones who are able to find common ground with others, and as a result, their opinions and input carry the most respect and acceptance among their people (HBR, 2017). They are the ones who arise as natural leaders in society and in organizations irrespective of their organizational hierarchy or social status (HBR, 2017; Goleman, 2015). One's propensity to identify and appreciate other's emotional status is in dealing with others relating to the present state of their feelings and emotions (Goleman, 2015). Some attributes of empathetic people are a) Recognizing talent, b) Understanding other's emotional state, and c) Being helpful to others (HBR, 2017; Goleman, 2015).

(iii) Compassion. The ability to demonstrate understanding, sympathy, and kindness for others in their time of sorrow, trouble and hardship is displaying compassion. It is the

consciousness of experiencing others' distress and grief and interests and aspirations to ease their pain (HRD, 2017; Goleman, 2015). Compassion is taking empathy a little further and deeper. People with compassion would feel hardship when witnessing another person in hardship and distress and will act to assist them. Compassion is one element of social awareness that distinguishes between having understood someone and caring for them (HBR, 2017). Some attributes of compassionate people are a) Placing oneself in others' situations, b) Practicing active listening, and c) Being okay with others' failures (HBR, 2017; Goleman, 2015).

(iv) Inspiration. Those who affiliate their vision, values and principles with initiatives that generate passion and excitement in others is inspiration. Business leaders with inspiring competence and behavior motivate their workforce to act in a fashion that encourages personal, professional, and organizational growth (Cummings & Worley, 2015). Inspiring people usually go to work for some causes greater than personal gain, which are appealing to people with the same passion and interest. Some attributes of inspiring people are a) wanting to make a difference, b) Being courageous, and c) Always supporting others in their journey (Rothwell et al., 2016; Goleman, 2015; Rothwell, 2015; Cummings & Worley, 2015)

(v) Diversity awareness. Organizations and individuals can attain diversity awareness when they start appreciating and understanding the advantages of cultural diversity and differences among people. A workforce with diversity awareness can establish an organizational culture built on the foundation of dignity, mutual respect and acceptance of the differences among people regardless of their cultural background, ethnicity, age, sexual orientation, gender, religion, socio-economic status and physical abilities (Goleman, 2015; Stevens, 2009). Some attributes of people with diversity awareness are a) Embracing uniqueness

among people, b) Having mutual respect for everyone, and c) Having universal treatment for everyone (Goleman, 2015; Stevens, 2009).

(vi) Multiple perspectives. Park et al. (2000) defined multiple perspectives as a wide term to incorporate many diverse perspectives, statements, and roles that can be adopted in collaborative and a non-collaborative frameworks (Park et al., 2000). It is important to view an issue from multiple perspectives to be able to observe the whole picture that would improve one's chance to locate the root cause of the issue and find a solution that includes the desires and feelings of everybody engaged into consideration (Park et al., 2000). Some attributes of people with multiple perspectives are a) Seeing the whole picture, b) Finding the root cause of an issue, and c) Finding mutual agreed solutions (Rothwell et al., 2016; Cummings & Worley, 2015).

(vii) Active Listening. As one of the most important elements of communication, active listening is a valuable skill that can be developed by practicing. One with active listening is concentrating completely on the person who is talking and the content of the conversation instead of just passively hearing the speakers and their message (Rothwell et al. 2016; Goleman, 2015). Practicing active listening helps the listener to gain the speaker's trust and respect by knowing the listener appreciates their situations. Active listening encompasses a listener's desire to understand and extend support and empathy for the speaker. Active listening is a model of listening and replying to another that enhances mutual appreciation and understanding. It is an essential first step to neutralize a hard situation and pursue a workable solution to potential crises (Rothwell et al., 2016; Cummings & Worley, 2015). Some attributes of people with active listening are a) Paying attention to the speaker, b) Responding appropriately, and c) Providing feedback (Rothwell et al., 2016; Cummings & Worley, 2015).

(viii) Leadership. “Being a leader does not necessarily mean that you aspire to be the CEO of a Fortune 500 company, though you might! It does not even mean that you must become the president of an organization” (Donahue, 2018, p. 19). Being a leader in organizations can include being a supervisor, manager, team leader, faculty chair, or other type of leader. Providing leadership is not necessarily linked to management positions; it could easily include being exceptional employees who take initiatives, are inspiring and are positive role models for the rest of their teams (Donahue, 2018). Leadership is one of the most researched and wrote about competencies in the world of business and workability. Some attributes of leadership are a) Focus on team interest, b) Encouraging language, and c) Positive and inspiring attitudes (Donahue, 2018; Rothwell et al. 2016; Cummings & Worley, 2015).

Cluster 4: Relationship Management. The quality of life is connected and influenced by relationships individuals have with other people, both positively and negatively. On a personal and professional level, there is no need to have relationships that do not add anything and do not bring value to the relationship. People who are aware of emotional intelligence know this valuable concept (Wayne, 2019; Stevens, 2009). To have a quality relationship, besides looking for values and developing quality, people must also invest in maintaining the relationship and strive to improve it. “Emotional intelligence provides you the cognizance you need to maintain your valuable relationships and do away with the toxic ones” (Wayne, 2019, p. 119). Similar to a personal relationship, in a professional relationship, a business leader needs to find out how to effectively employ their intelligence in a fashion that will let them realize and identify opportunities, effectively communicate, attempt to solve problems, and successfully collaborate with their workforce and customers (Goleman, 2015; Stevens, 2009). “This ability to integrate is a crucial steppingstone to becoming a strong business leader. To be more specific, managerial

positions have found that emotional intelligence is a critical part of relationship building and the development of dynamic leadership (Stevens, 2009, p. 31).

Competencies referenced to relationship management include but are not limited to i) Conflict management, ii) Positive influence, iii) Problem solving, iv) Flexibility, v) Trust and team building, vi) Interpersonal skills, vii) Communication, and viii) Coaching and Mentoring (Handley, 2017; Rothwell, 2015; Goleman, 2015; Cummings & Worley, 2015; Goleman, 2014, Coatley, 2012; Stevens, 2009, Spencer & Spencer, 1993; Boyatzis, 1982).

(i) Conflict management. This refers to the ability to employ practices for solving disputes effectively while it is fair and reasonable. When business professionals properly administer conflict management, they can avoid intensifying the conflicts. Having disagreements among people are a natural element of working together in any organization. However, when handled with emotional intelligence competencies and conflict management skills, these disagreements can lead the organizations to new ideas, innovative resolutions, in addition to building unified professional relationships (Rothwell et al., 2016; Rothwell, 2015; Cummings & Worley, 2015). Some attributes of someone with conflict management skills are a) Being impartial, b) Being patient, and c) Not playing the blame game (Rothwell et al., 2016; Rothwell, 2015; Cummings & Worley, 2015).

(ii) Positive influence. This capability and skill seeks to impact and influence another person's mindset, behavior, character building, or personal and professional development. In relationship building, positive influence is the impression they can employ on themselves or on another individual by indicating their strengths and underlining their qualities to empower and encourage them. Their influence becomes their nature; it will show who they are, what they do, and how they think (Longmore et al., 2018; Martz et al., 2016). Being used positively and for

their good and others can be an effective tool to empower others, encourage them and direct them to a better result in life and profession. Some attributes of those with positive influence are a) Being charismatic, b) Being humble, and c) Striving to help (Longmore et al., 2018; Martz et al., 2016).

(iii) Problem-solving. Problem-solving is the ability to exert skills to impact others' personal and professional environment. Problem-solving competency and its outcomes are vital to individuals' and organizations' success. The problem-solving skill provides business managers with a useful method and effective process for finding what is the actual problem (without getting engaged in symptoms of the problem), realizing a solution or solutions to the problems, and defining a productive course of action to come up with a remedy for such problems (Donahue, 2018; Rothwell et al., 2016; Rothwell, 2015; Cummings & Worley, 2015). That required mindset for someone to attempt the problem-solving approach within organizations means that everyone involved with the problem must be receptive to a new realm of possibilities. This environment is possible by providing additional training and development, the opportunity for additional education, and some special training on areas of conflict (Longmore et al., 2018; Martz et al., 2016; Soulé & Warrick, 2015). Some attributes of those with problem-solving skills are a) Recognizing the perceptions in the problem, b) Redefining the problem, and c) Not being attached to experience (Longmore et al., 2018; Martz et al., 2016; Soulé & Warrick, 2015).

(iv) Flexibility. According to behavior science, mental flexibility is not as much a mindset or personality trait, rather it is a combination of behaviors that can be altered or improved (Coatley, 2012). Everyone is capable of being flexible about some matters and not being flexible about other matters. People can create a workable and productive environment at

home or work by relating to the concept of flexibility as something they do rather than who they are. That would be the beginning of employing this capability for creating lasting results and positive outcomes (Coatley, 2012). This would be the time not to be attached to a firm approach, strict schedule, and nearly perfect plan of actions, and become appropriately flexible by welcoming other ideas and fresh thoughts (Coatley, 2012). Some attributes of someone with flexibility ability are a) Dealing with the unexpected, b) Not being reactionary, and c) Not being attached to a firm approach (Coatley, 2012).

(v) Trust and team building. This competency refers to ability to build trust with others perhaps lining up with other personality traits and self-concept characteristics (Handley, 2017). Forming a foundation of trust is critical to building an effective team because having trust among team members gives an impression of safety. Without trust among teams and groups, there will not be as much collaboration, expressions of creativity and innovation, and not much productivity, while people devote their time to shielding themselves from others and protecting their interests (Handley, 2017; Rothwell et al., 2016; Rothwell, 2015). According to Rothwell (2015), the concept of team-building is one of the most common forms of organizational development. Business professionals consider the interpersonal relationships between team members to be an indispensable component of trust-building, given that team cohesiveness and understanding of one another are vital to the success of the trust and team-building process. Some attributes of someone with the ability to build trust and teams are a) Being friendly and approachable, b) Being respectful to others' ideas, and c) Practicing integrity and accountability (Rothwell et al., 2016; Rothwell, 2015).

(vi) Interpersonal skills. These skills refer to the ability to interact, relate, understand, and effectively co-operate with others, at home or at the workplace. Interpersonal skills are

powerful aptitudes for building relationships and establishing cooperation with others (Spencer & Spencer, 1993; Boyatzis, 1982). While professional position hard skills are very important to workers' ability to perform their work- and job-related duties, effectively demonstrating abilities to work with others, delivering clear communication and displaying self-confidence as interpersonal skills are as important as one's hard skills, and it can make a difference in one's professional advancement. Some attributes of someone with interpersonal skills are a) Being aware of themselves and others, b) Being collaborative, and c) Caring about relationships (Rothwell et al., 2016; Rothwell, 2015).

(vii) Communication. This is the ability to act on transferring information from one location, individual or team to other people or places. All forms of communication include a minimum of one message, one sender and one receiver (Jones, 2015a). Steinfatt (2009) expressed his view of communication and its vital role in human connectedness as follows: "The central thrust of human communication concerns mutually understood symbolic exchange" (p. 295). Steinfatt's view of communication might not be accepted as a general definition of communication, but it sheds light on the importance of this essential skill. However, in general, the term 'communication' is commonly referred to as transferring information from one person to another, in both personal or professional environments (Steinfatt, 2009). Communication is one of the concepts that has been and continues to be the topic of many theories and research about the human connection (Jones, 2015a). Simply said, without communication, there is no workability or teamwork. Teams are synchronized when they are communicating effectively. Furthermore, peace, harmony and fulfillment arise in communication. Without effective communication, there will be no effective connection and productivity at home or at work (Bakhshandeh, 2015). Some attributes of someone with communication skills are a) Being aware

of non-verbal communication, b) Delivering clear and concise messages, and c) Showing courtesy and listening keenly (Jones, 2015a; Goleman, 2015; Steinfatt, 2009).

(viii) Coaching and mentoring. The professional coaching process concept is about one's performance, and it is designed to enhance and increase on-the-job performance. Commonly, professional coaches receive a form of special training to be able to guide people in their professional field for achieving their intentions and goals (Rothwell et al., 2016). There are diverse definitions of coaching by different professional associations. The International Coach Federation (ICF) defines coaching as “Using an interactive process to help individuals develop rapidly and produce results, improving others’ ability to set goals, take action, make better decisions, and make full use of their natural strengths” (Arneson et al., 2013, p. 45).

Compared to coaching, mentoring is relatively on the development side, not just working on professional performance and goals but also on general career development. Generally, mentoring doesn't encompass any particular or formal training, making it much leaner than coaching (Rothwell et al., 2016). As a general concept, mentoring is a relationship based on individuals' development and focuses on mentors passing on their experience, knowledge, and skills and to a mentee. Some attributes of someone with coaching and mentoring skills are a) Being encouraging, b) Being empowering, and c) Being knowledgeable (Rothwell et al., 2016; Arneson et al., 2013).

Summary of Emotional Intelligence Cluster and Competencies

As a result of suggestion, review, and consideration for using the concept of emotional intelligence as a form of training for developing 4Cs skills among the workforce, the following table (table 5.1) displays the results of emotional intelligence clusters, related competencies, attributions, and qualities of someone with such competencies and capabilities, and at least two

of their relevance to the four elements of 21st century 4Cs skills; critical thinking, communication, creativity, and collaboration.

Table 5.1

Summary of Emotional Intelligence Clusters, Competencies/Capabilities, Attributions/Qualities and Their Connection to the 4Cs Skills Development

Emotional Intelligence Clusters, Competencies/Capabilities, Attributions/Qualities and Their Connection to the 4Cs skills Development			
Clusters	Competencies	Attributions & Qualities	Linked to 4Cs
Self-Awareness	Emotional Awareness	<ul style="list-style-type: none"> Concerning other's feelings, Realizing misunderstandings, Operating based on trust. 	<ul style="list-style-type: none"> Critical thinking Communication
	Self-Confidence	<ul style="list-style-type: none"> Trusting their abilities, Displaying gratitude, Being happy within. 	<ul style="list-style-type: none"> Communication Collaboration
	Self-Assessment	<ul style="list-style-type: none"> Monitoring their learning, Monitoring their goals progress, Conducting self-efficacy. 	<ul style="list-style-type: none"> Critical thinking Communication
	Self-Control	<ul style="list-style-type: none"> Not making impulsive decisions, Controlling their behaviors, Having conscientiousness. 	<ul style="list-style-type: none"> Critical thinking Collaboration
	Self-Disparaging Humor	<ul style="list-style-type: none"> Admitting their faults without resistance, Being comfortable to laugh at oneself, Not focusing on an impeccable image. 	<ul style="list-style-type: none"> Communication Creativity
	Intrapersonal Skills	<ul style="list-style-type: none"> Appreciating oneself, Being aware of their agenda, Overcoming distractions. 	<ul style="list-style-type: none"> Creativity Collaboration
	Self-Motivated	<ul style="list-style-type: none"> Having a high motive for achievement, Promoting forward motion activities, Displaying a positive attitude for productivity. 	<ul style="list-style-type: none"> Critical thinking Collaboration
	Self-Discipline	<ul style="list-style-type: none"> Skipping immediate gratification, Eliminating distractions, Not needing a constant reminder. 	<ul style="list-style-type: none"> Critical thinking Creativity
Self-Regulation	Emotional Balance	<ul style="list-style-type: none"> Accurately identifying their emotions, Being mindful of their emotions, Managing impulse emotion. 	<ul style="list-style-type: none"> Critical thinking Collaboration
	Adaptability	<ul style="list-style-type: none"> Can be open to learning new things, Can adjust quickly, Can embrace new ideas. 	<ul style="list-style-type: none"> Collaboration Creativity
	Integrity	<ul style="list-style-type: none"> Being dependable, Being honest, Being trustworthy. 	<ul style="list-style-type: none"> Critical thinking Communication
	Composure	<ul style="list-style-type: none"> Having confidence, Being relaxed, Being insightful. 	<ul style="list-style-type: none"> Critical thinking Creativity

	Responsibility	<ul style="list-style-type: none"> • Not making excuses, • Not complaining, • Being timely. 	<ul style="list-style-type: none"> - Creativity - Collaboration
	Accountability	<ul style="list-style-type: none"> • Taking responsibility for their actions, • Not blaming or pointing fingers, • Being transparent. 	<ul style="list-style-type: none"> - Communication - Collaboration
	Positivity	<ul style="list-style-type: none"> • Being optimistic, • Being resilient, • Being grateful. 	<ul style="list-style-type: none"> - Communication - Collaboration
	Authenticity	<ul style="list-style-type: none"> • Self-reflection, • Honesty, • Not judgmental. 	<ul style="list-style-type: none"> - Critical thinking - Communication
Social Awareness	Organizational Awareness	<ul style="list-style-type: none"> • Making informed decisions, • Building supportive coalition, • Developing a workable strategy. 	<ul style="list-style-type: none"> - Critical thinking - Creativity
	Empathy	<ul style="list-style-type: none"> • Recognizing talent, • Understanding others' emotional state, • Being helpful to others. 	<ul style="list-style-type: none"> - Communication - Collaboration
	Compassion	<ul style="list-style-type: none"> • Placing oneself in others' situations, • Practicing active listening, • Being okay with others' failures. 	<ul style="list-style-type: none"> - Critical thinking - Communication
	Inspiring	<ul style="list-style-type: none"> • Wanting to make a difference, • Being courageous, • Always supporting others in their journey. 	<ul style="list-style-type: none"> - Communication - Collaboration
	Diversity Awareness	<ul style="list-style-type: none"> • Embracing uniqueness among people, • Displaying mutual respect for everyone, • Having universal treatment for everyone. 	<ul style="list-style-type: none"> - Critical thinking - Collaboration
	Multiple Perspectives	<ul style="list-style-type: none"> • Seeing the whole picture, • Finding the root cause of an issue, • Finding mutually agreed solutions. 	<ul style="list-style-type: none"> - Critical thinking - Creativity
	Sensitivity	<ul style="list-style-type: none"> • Paying attention to the speaker, • Responding appropriately, • Providing feedback. 	<ul style="list-style-type: none"> - Communication - Creativity
Relationship Management	Conflict Management	<ul style="list-style-type: none"> • Being impartial, • Being patient, • Not playing the blame game. 	<ul style="list-style-type: none"> - Critical thinking - Collaboration
	Influence	<ul style="list-style-type: none"> • They are charismatic, • They are humbling, • They strive to help. 	<ul style="list-style-type: none"> - Creativity - Collaboration
	Problem Solving	<ul style="list-style-type: none"> • Recognize the perceptions in the problem, • They redefine the problem, • They are not attached to the experience. 	<ul style="list-style-type: none"> - Critical thinking - Creativity
	Flexibility	<ul style="list-style-type: none"> • Dealing with unexpected, • Not being reactionary, • Not being attached to a firm approach. 	<ul style="list-style-type: none"> - Creativity - Collaboration
	Trust and Team Building	<ul style="list-style-type: none"> • Being friendly and approachable, • Being respectful to other's ideas, • Practicing integrity and accountability. 	<ul style="list-style-type: none"> - Communication - Collaboration
	Interpersonal Skills	<ul style="list-style-type: none"> • They are aware of themselves and others, • They are collaborative, • They Care about relationships. 	<ul style="list-style-type: none"> - Communication - Collaboration

	Communication	<ul style="list-style-type: none"> • Aware of non-verbal communication, • Deliver clear and concision message, • Show courtesy and listen keenly 	<ul style="list-style-type: none"> - Communication - Creativity
	Coaching & Mentoring	<ul style="list-style-type: none"> • Encouraging, • Empowering, • Knowledgeable. 	<ul style="list-style-type: none"> - Critical thinking - Communication

Note: Adapted and inspired from (Wayne, 2019; Donahue, 2018, HBR, 2017; Rothwell, 2015; Cummings & Worley, 2015; Goleman, 2015; Goleman, 2014; Goleman, 1998; Stevens, 2009; Hockenbury & Hockenbury, 2007; Clarke, 2006).

Important note. Regardless of connecting at least two of four 4Cs skills to any of the emotional intelligence competencies, it is notable that these competencies, capabilities, attributions, and qualities would positively be impacting all the 21st century 4Cs skills and assisting organizations in training and developing their workforces on the quality and usefulness of 4Cs skill.

Levels of Self-Awareness

This researcher's opinion, based on nearly three decades of working in the personal and professional development industry, is that when people change their mindset and behaviors, they are literally changing their life paths. When individuals relating to themselves as the power of their mindset and self-focus, they can create anything in their lives (Bakhshandeh, 2009). The way we perceive ourselves and others around us is controlling our awareness. Furthermore, that awareness has become our new reality, determining our actions toward ourselves and others (Bakhshandeh, 2015). This research emphasizes self-awareness levels because by recognizing one's level of self-awareness, individuals can realize how they are not aware of their relationships, self-motivation, behaviors, attitude, and thought processes underlining their mindset and productivity. As is displayed in Figure 5.3, the level and depth of one's self-awareness depends on the individuals' self-awareness and also the degree that they are consciously or intentionally hiding it from others (Wayne, 2019; Goleman, 2015; Rothwell,

2015; Stevens, 2009). The level and depth of the individuals' self-awareness vary by their own awareness, and the degree that they are consciously hide it from others. Identifying the workforce's self-awareness levels would assist trainers to pay more attention to developing certain levels of emotional intelligence in their development of such individuals. The self-awareness levels are as follows:

Identified. People are aware of their emotions, mindsets, and behaviors, which are also known and understood by others around them. They can manage the potential impact of their emotions and thoughts on their body and mind and are able to change their states of mind by changing their thought process. At this level, people are completely identified as their emotions and thought processes that cause their attitude, behavior, and decision-making processes (Wayne, 2019; Goleman, 2015; Rothwell, 2015; Stevens, 2009).

Blind Spot. They are not aware of their emotions, mindsets and thoughts, and behaviors, while other people can see and recognize those emotions and behaviors. For that reason, this level is called a blind spot. These individuals are not aware of why people around them are acting the way they do! (Wayne, 2019; Goleman, 2015; Rothwell, 2015; Stevens, 2009).

Concealed. They are very much aware of their emotions, thoughts, mindsets, and behaviors caused by such emotions, but they are attempting to hide it from others. Because of this hiding action, other people are not aware of their emotions, mindsets, and thoughts. This is a kind of basic level of self-awareness in which an individual are aware of their own thoughts and assessments about their emotions and behaviors, but they are hiding them (Wayne, 2019; Goleman, 2015; Rothwell, 2015; Stevens, 2009).

Unidentified. Individuals are totally unconscious and unaware of their own emotions and thought processes. At this level, their self-awareness is not identified by either themselves or

others. This is the deepest individual unawareness of their behavior. (Wayne, 2019; Goleman, 2015; Rothwell, 2015; Stevens, 2009).

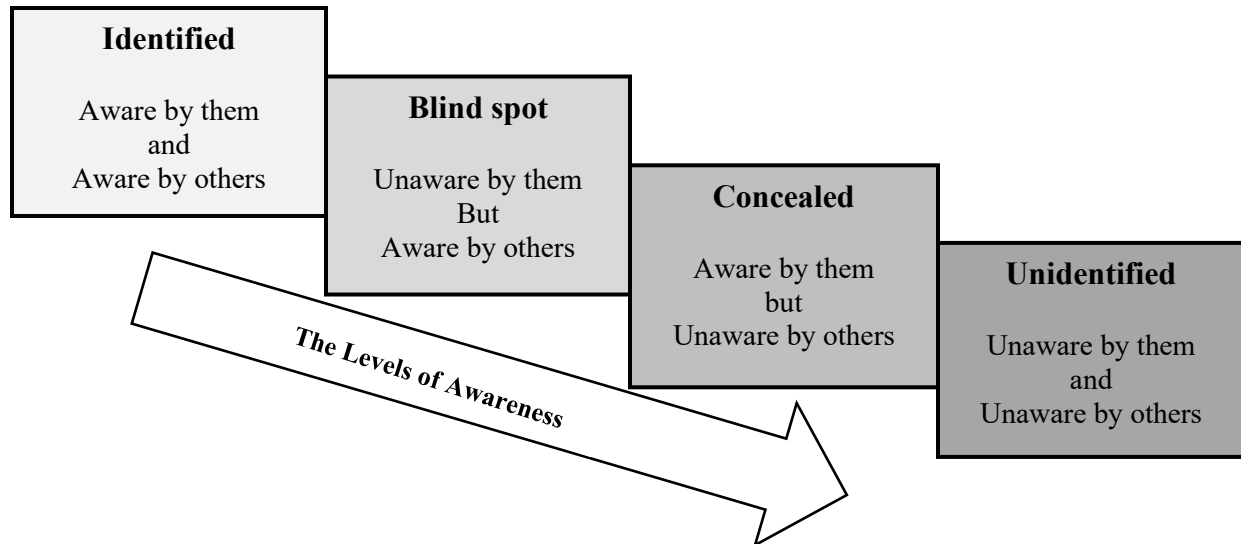


Figure 5.3. Model for level of self-awareness. Inspired by the Johari Window and adapted from Rothwell (2015).

Evaluation of Training and Development

One of the methods of realizing the effectiveness and validity of a training and development process or undertaking, from both the organization and also the trainer or facilitator is to evaluate the effectiveness and impact of the training and development programs. The approach to the evaluation varies depending on the design of the program and the trainer or facilitator's style of delivery and evaluation. Some evaluate at the end of the program, and some at the beginning, during, and the end of the training and development programs. This researcher finds *The Four Levels of Evaluation* by Dr. Donald Kirkpatrick, Ph.D. an effective evaluation model for training and development programs. This model is also known as *Kirkpatrick Evaluation Model*. Originally designed and published in the 1950s in a trade journal, and then

polished and published in 1975 by Dr. Kirkpatrick as a book, called *Evaluating Training Programs*. (Kirkpatrick & Kirkpatrick, 2016). The four levels of evaluation are as follows:

Level One – Reaction. This level is designed to solicit participants’ opinions about their learning experience by the end of the program. Usually, the reaction to questions is to discover 1) the degree of participants’ satisfaction, 2) if they received value during the program, 3) whether they experienced engagement with the program, and 4) if they found the training program relevant to their work. Many professional sources estimated that close to 80 percent of training and development programs incorporate this level of evaluation in their programs (Kirkpatrick & Kirkpatrick, 2016).

Level Two – Learning. This level evaluates the degree to which participants obtained the anticipated skills, knowledge, and attitudes as an outcome of the program. This level is designed for training company and organization’s executives to ascertain if the program’s intentions and objectives were recognized. Organizations can implement their necessary changes or improvements, by defining what participants have learned, or not. Level two can be used as both pre-event and post-event evaluations, or just as a post-evaluation at the end of the training program (Kirkpatrick & Kirkpatrick, 2016).

Level Three – Behavior. This level measures the extent and degree of participants’ behaviors alteration or attitude adjustment as an outcome of the training program. Bottom line is the organization needs to know if the content of the program and collected skills, and knowledge from the training program has been employed on the job by the participants. This dimension may be a manifestation of whether participants in fact learned the content and topic of the training program. Level three evaluation includes either pre-program and post-program volume of the learner’s attitude and behavior. (Kirkpatrick & Kirkpatrick, 2016).

Level Four – Results. This level is designed to determine what Kirkpatrick called “tangible results” of a training program such as: 1) reduced cost of operation, improved condition of working and effectiveness, 2) increase in organization’s productivity, and increased employee retention, 3) increased levels of sales and caused higher employee morale. Although these benchmarks are not that easy or low-cost to quantify, performing such measurement is critical and the only method that organizations, as well as the trainer can use to verify the vital return on investment (ROI) for their training and development programs. Level four requires both pre-program and post-program measurement of the anticipated intentions and outcomes of the training (Kirkpatrick & Kirkpatrick, 2016).

Summary of Research Themes and Recommendations for EI Training

Figure 5.4 represents the summary of research findings related to **(i)** the main research topic, **(ii)** the three main research questions in regards to a) the degree of value placed on the 4Cs by organizations, b) impact of the 4Cs skills gap on team performance, c) effective trainings for 4Cs development, **(iii)** the combination of main emerged themes related to the research questions, **(iv)** recommendation for using emotional intelligence clusters for training and developing workforces on the 21st century 4Cs skills, a) self-awareness, b) self-regulation, c) social-awareness, and d) relationship management, **(v)** resulting in producing trained and developed workforce equipped with 21st century 4Cs skills, such as a) capable to imply critical thinking, b) communicate effectively, c) innovation and use creativity, and d) collaborating with others, and as the final outcome, **(vi)** preparing the 21st century workforce for the 21st century organizations.

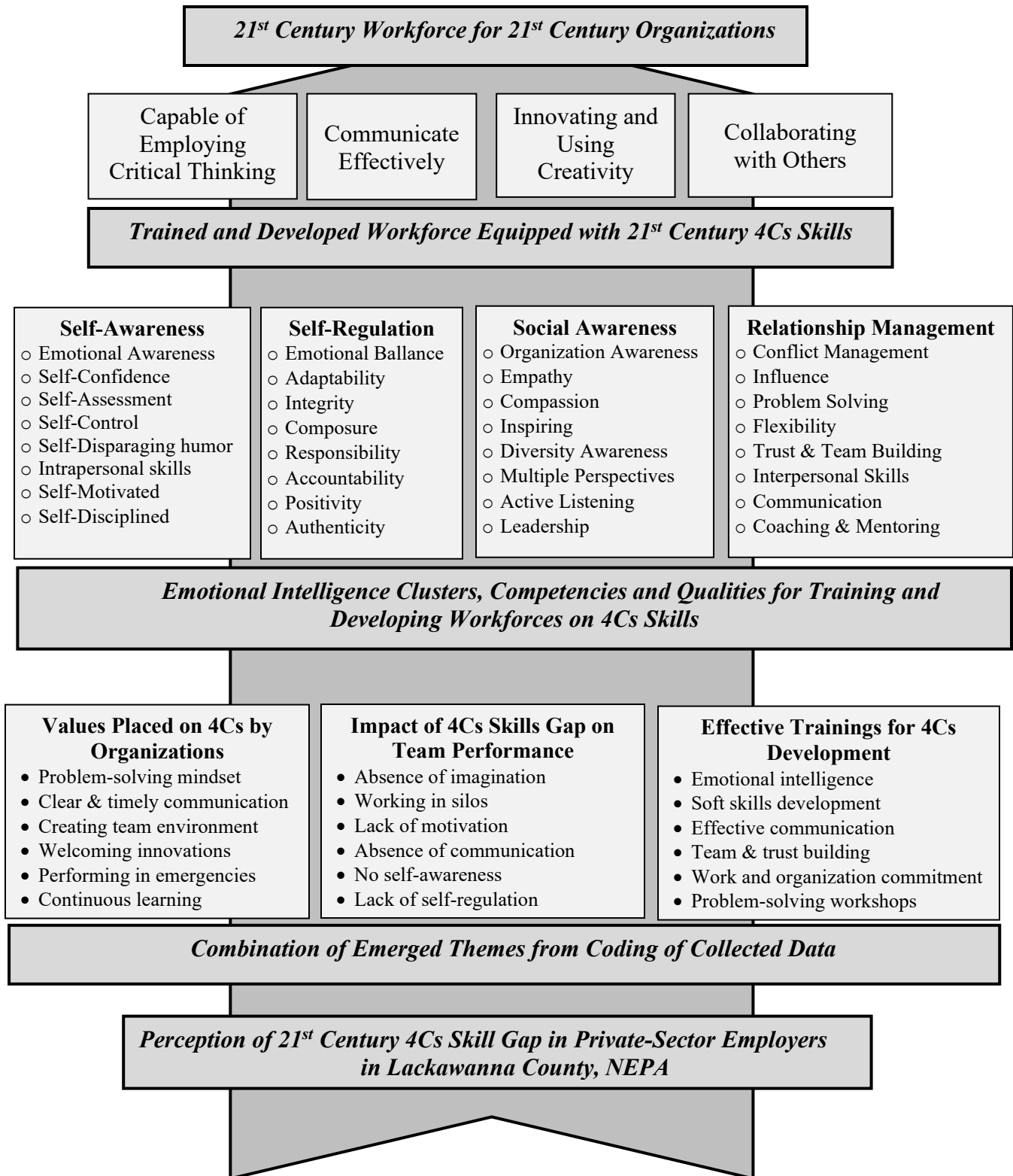


Figure 5.4. Summary of research findings related to the three research questions and recommendation for training and developing workforces on the 21st century 4Cs skills.

Implications and Recommendations

In this segment, this research is briefly looking at implications of its literature review as well as findings in regard to the role of emotional intelligence competencies for training workforce not only at the soft skills such as 4Cs skills but also on the hard skills, using EI and 4Cs. Furthermore, this researcher will briefly express some recommendations for implementing such training and looking at the potential outcomes for a) organizations, b) current workforce, c) educational systems, d) workforce education professionals, e) local, state, and the federal government.

Figure 5.5 outlines a framework for the possible development of the future skilled workforce equipped with the hard technical skills and soft skills, such as the 4Cs skills. This framework included elements of implementing aspects of 21st century 4Cs skills and the element of emotional intelligence not only on organizations but also in the education system, including middle schools, high schools, colleges, and universities. Research indicates a connection between elements of emotional intelligence clusters and their competencies and qualities and workforce development during the early stages of their career and developing their skills, knowledge, and abilities for enhancing and furthering their career. Research highly suggests the vital connection between emotional intelligence and soft skills and technical skills development (Sheck & Lin, 2015; Cherniss et al., 2010; Bartram, 2005; Lopes et al., 2004). This well-established association between elements of emotional intelligence and skills development is a key for these recommendations and the implication of the need for emotional intelligence education in the educational systems and training and development within the organization's technical programs. However, nobody suggests that these implementations into educational curriculums or organizational developments would be easy and without challenges.

Usually, observing, defining, and locating the presence or lack of emotional intelligence competencies is not as easy as it might sound (Handley, 2017; Rothwell & Lindholm, 1999; Spitzberg & Cupach, 1989). According to Handley (2017), research on interpersonal intelligence with early-career engineers supports the complexities of defining and pinpointing and developing interpersonal competencies. However, as Handley (2017) pointed out “Spencer and Spencer’s (1993) conclusions regarding the difficulty in developing hidden underlying characteristics such as motive, trait, and self-concept” (p. 153). Industry and subject matter experts agree that identifying and attempting to develop hidden characteristics presents a much bigger challenge for the educational system, educators, and organization trainers (Handley, 2017; Cherniss et al., 2010; Rothwell & Lindholm, 1999).

At this point, it is important to point to the fact that the findings of this research about a) workforce’s behaviors in connection to having or lacking the 21st century 4Cs skills and b) their emotional intelligence relevancy to such behaviors do not represent the findings as to the final remedy to any persistence issue related to productivity, turnover or just plain attitudes and behaviors of workforces. Assembling, building up, and developing emotional intelligence competencies is predominantly a complicated task, especially with the variety of opinions, hypotheses, theories, and arguments concerning the validity and struggle in assessments in the presence or lack of the EI competencies among individuals, groups, or organizations (Cherniss et al., 2010; Murphy, 2006; Cherniss, 2000; Rothwell & Lindholm, 1999). However, as Handley (2017) mentioned, “Emotional intelligence research suggests a strong and positive base for school-based emotional intelligence programs (Cherniss et al., 2010)” (p. 154).

Organizations

The workforce's commitment to their work and career, as well as their commitment to their organization, are significant to the organization's current and future development and overall wellbeing. Understanding of workforce's commitment to the organization could help organization professionals to develop the training and development programs for their workforces, or at least understand the potential resistance or lack of interest from the workforce in connection to such programs. According to Yousef (2017), researchers have recognized the three forms of organizational commitment:

Affective commitment: A form of commitment when employees have an emotional connection with the organization they are working with because they 'want' to work there with their strong will (Yousef, 2017).

Continuance commitment: This is a form of commitment that implies a situation when an employee feels that they will lose much more by quitting their current job than leaving the organization. This form of commitment is based on fear and concern for leaving. Usually, these concerns are about income, personal connections with other employees, prestige related to the title, or social loss (Yousef, 2017).

Normative commitment: This is a form of commitment when an employee feels an obligation to stay with the organization for some reason. These senses of obligation could be because of an individual's morals and personal ethical desires, maybe because the organization is a charity or invested time, effort, resources, and money in training and developing the individual (Yousef, 2017).

Unlike educational systems, corporations and organizations are not bound to many red-tapes, regulations, and governmental policies to educate their workforce and implement training programs. Empirically reviewed research on training and development programs employing

emotional intelligence competencies, recommend the following four important components for implementing successful emotional intelligence training and learning initiatives: 1) identify participant's motivation for change, 2) create long-lasting practices that would be used and apply by participants for a long time, 3) model the interventions, and provide periodic feedbacks and 4) provide support by establishing a safe environment for expressing concerns and reservations (Cherniss et al., 2010; Murphy, 2006; Cherniss, 2000; Rothwell & Lindholm, 1999; Dubois, 1993).

Current Workforce

Besides the organization's commitment to train and develop their workforce, the workforce's commitment, desire, and interest are playing the biggest portion in the successful implementation of these interventions. The introduction and literature review chapters of this research included many researchers expressing their views of the importance of non-technical skills, such as soft skills and 4Cs for the current and future of workforces (Longmore et al., 2018; Handley, 2017; Marts et al., 2016; Boyles, 2012). According to Handley (2017), the relevancy and importance of providing the technical skills training and set of non-technical skills training in workforce education and development surfaced mostly around early 2000 and were consequential in the development of numerous leadership development programs which included non-technical skill such as soft skills.

Many soft skills require a different type of learning approach; therefore, the current workforce must have a positive and supportive mindset and attitude toward education, training, and development associated with non-technical and soft skills (Charoensap-Kelly et al., 2016; Cherniss, 2000). This necessary undertaking suggests a need for complete support from the entire workforce education and training and will entail a commitment from current industry

leaders, professional associations, and organizations in supporting, validating, investing, and legitimizing the essential needs for non-technical and soft skills training (including the 4Cs) and the acknowledgment and support of the variance methods in learning for current and future workforce approaches. "... leaders must also be willing to model effective behaviors associated with ideas such as emotional intelligence as modeling is a key aspect of emotional learning (Cherniss, 2000)" (Handley, 2017, p. 159).

Educational System

One of the biggest avenues of learning about the impact of soft skills (including 4Cs) and understanding emotional intelligence elements is during schooling in the educational system. As Handley (2017) quoted Dubois (1993), "The research underscores the importance of education and training programs that take into account both the cognitive *and* emotional domains of learning which can address the development of hidden underlying characteristics (Dubois, 1993)" (p 153). Academic and educational establishments, such as high schools, colleges, and technical vocational institutes, should modify and adapt their curriculums to face this critical need by including the 21st century skills, such as 4Cs and soft skills, as part of their education (Martz et al., 2016). This research's findings can help the educational system and teachers create and design a curriculum for teaching emotional intelligence competencies.

It is not a mystery that there is a recognizable issue facing educational institutes and employers when it comes down to developing a skilled workforce. Regardless of high school graduates' plans to enter the labor market directly after graduation or after going through vocational schools or obtaining a college degree, in order to be a productive member of an organization or even to be considered as a new hire, they need to demonstrate specific skills, knowledge, and abilities. Besides the technical skills and their ability for performing cognitive

learning such as science, math, and physics (Handley, 2017) they need to have strengths and soft skills to think critically, be creative, and have competencies to communicate effectively and solve problems in their workplace (Soule & Warrick, 2015; Martz et al., 2016). This is where teaching the younger generation the elements of emotional intelligence and its related competencies would have an excellent payoff for building the future workforce. Founded on the current research, effective communication, team building, conflict resolution, and problem-solving require understanding and implementing interpersonal behaviors to be more present in the surrounding environment and become effective with people. Therefore, being educated on emotional intelligence and learning about its clusters and competencies in the classrooms become essential to developing the future workforce (Longmore et al., 2018; Handley, 2017; Marts, et al., 2016; Soule & Warrick, 2015; Goleman, 2015; Boyles, 2012). The educational system should incorporate various educational methods for impacting student's learning of emotional intelligence and its competencies and encompass teaching and practicing modeling and experiential learning while providing feedback to students and empowering their emotional learning (Handley, 2017; Cherniss, et al., 2010; Cherniss, 2000).

Workforce Education Professionals

This research's findings can benefit workforce education professionals such as OD, HRD, and WLP practitioners working to develop leadership competencies among current workforces. This research uncovered the importance of learning emotional intelligence in developing 21st century 4Cs skills, where training and development curriculums should include policies and strategies comparable to the educational system methods noted on the above segment. These proposed strategies should consist of experiential learning methods, practicing scenarios, providing constructive feedback, and empowering support (Handley, 2017; Cherniss,

et al., 2010). Using the cluster and elements of emotional intelligence, HR, HRD, OD, and WLP professional practitioners and trainers must train and develop higher-level HR and HRD professionals in organizations who are accountable for on-the-job training, employee performance evaluations, or mentoring employees on the importance of emotional intelligence learning and working environments to build the emotional intelligence competencies recognized in this study for developing not only the 4Cs skills but also hard skills (Handley, 2017; Cherniss, et al., 2010). To accomplish such an undertaking, OD, HR, HRD, and WLP professionals in partnership with other corporate trainers and professionals must educate corporate executives and create a strong buy-in from them for incorporating emotional intelligence programs.

In addition to these efforts, providing and training coaching skills for managers would be crucial support in developing and supporting creating an emotional intelligence learning environment in organizations. Creating an emotional intelligence learning environment requires implementing strategies to influence behavioral change among workforces. The goal and intention of coaching are to effect constant change in the workforce's behaviors that positively impact their performance (Lazar & Bergquist, 2008). This effective and practical approach manifests by fostering a "manager-as-coach" model that orbits around giving positive and constructive feedback to influence positive changes and inspire the best among people (Joo, Sushko, & Mclean, 2012).

Developmental Programs

This research's findings can be beneficial to constant efforts to increase relevancy and overall effectiveness of development and training programs, realizing their goals of creating a central approach to an emotional intelligence learning environment. "Developmental programs require researching the transfer of knowledge and skill from the training program. The body of

knowledge on transfer of training is broad and ultimately concludes a relationship between cognitive ability and transfer” (Blume et al., 2010; Handley, 2017, p. 158).

As Cherniss (2000) points out that this is a complicated research topic considering that emotional intelligence learning encompasses distinct practices compared to cognitive learning, and outcomes are both longitudinal and susceptible to obstacles or relapses.

Local and State’s Agencies

Local, State and Federal government policies and legislation and how they have been carried on or expanded have a direct impact on the availability of skilled labor in the workforce market. This research’s findings and training recommendations can be beneficial to local and state’s government agencies for defining their local and state’s educational systems including use of such recommendations on technical training schools and other establishments involved with adult education and producing skilled labor such as CTEs ready to enter the labor pool and the workforce in different local and state’s municipalities. Training and developing CTE teachers in emotional intelligence competency-based programs are essential to this undertaking, given the shortage of CTE teachers. According to Gordon’s (2014) study, between 1991 and 2001, there was at least a 10 percent decrease in higher education establishments offering CTE teachers’ training programs. Furthermore, some local and statewide communities are facing a concerning level of CTE teacher shortages and attributing it to the lack of CTE teachers’ programs in their states’ colleges and universities (Gordon, 2014).

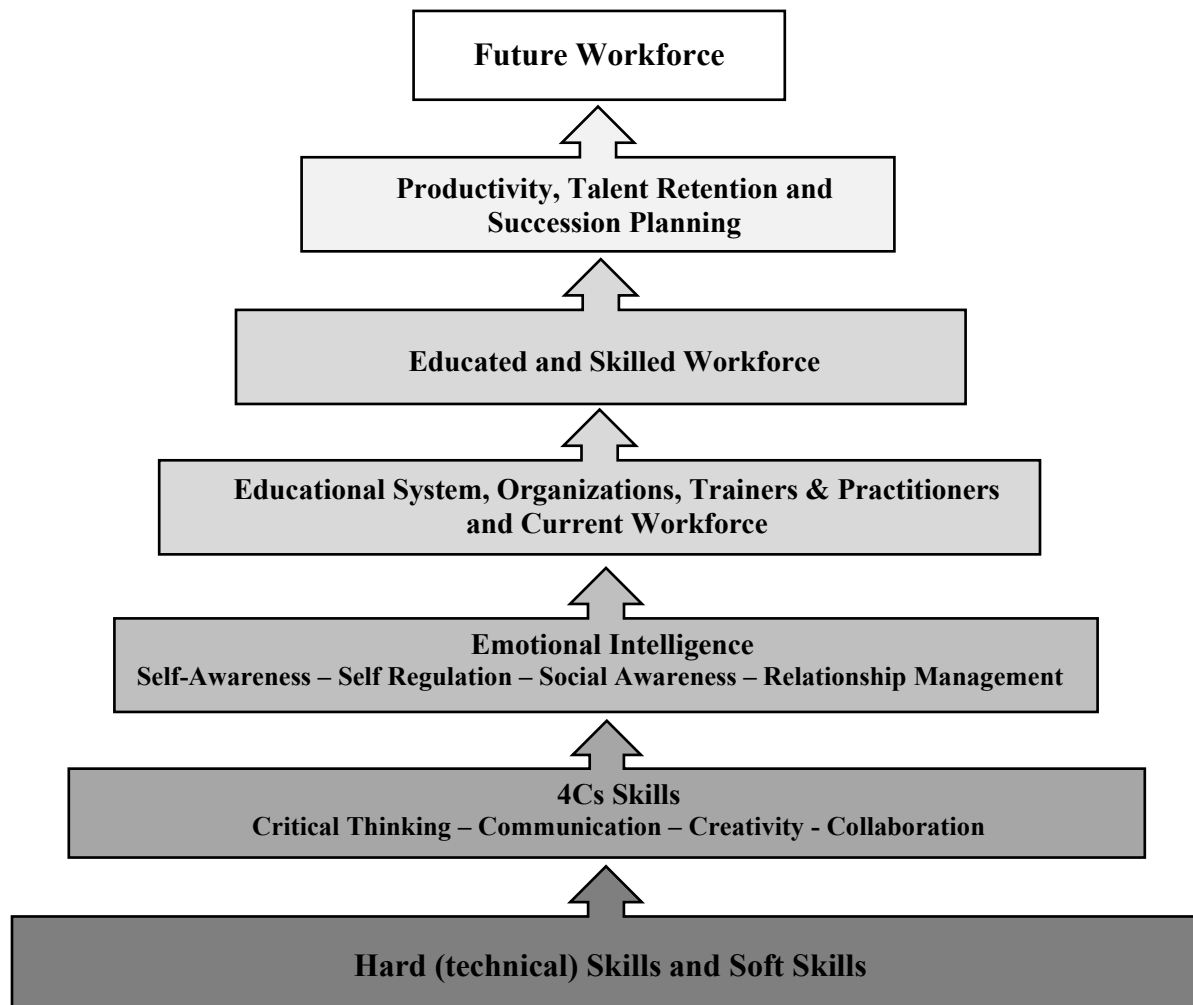


Figure 5.5. A framework for emotional intelligence training related to developing workforce for productivity and talent retention.

Recommendations for Future Research

The following section is about recommendations for potential future research on elements that impact providing training and development in emotional intelligence soft skills (including the 4Cs) in the workforce.

Training Educators and Trainers

It is this researcher's opinion that there is a need for deeper research on training the educators and professional workforce education trainers who are involved with high school and college students on learning emotional intelligence competencies. This researcher is recommending a comprehensive study on the impact of emotional intelligence competency-based training on a variety of management levels within several organizations in different industries. The influence of such training on learning and developing a deeper understanding and use of 4Cs skills in particular and learning skills (hard and soft) in general would be measured. The emotional intelligence competency-based model would distinguish the workforce's behaviors correlated with all the competencies related to developing the 4Cs skills and soft skills and leadership skills.

Cognitive Learning and Emotional Intelligence Competencies

There is no question that emotional intelligence requires understating and implication of emotional learning, which will necessitate the usage of many neural paths, compared to just cognitive learning (Goleman, 2000; Goleman, 1998). It is this researcher's opinion and recommendation for research on other ways of learning emotional intelligence competencies beyond only cognitive learning and existing educational, training, and developmental strategies. This will include new exploration on existing current approaches and patterns that need reprogramming or redesigning for emotional intelligence learning to take place in connection to the new generation of the workforce entering the market. Handley (2017) pointed to this delegate need, "The emotional learning that takes place not only requires reprogramming learned responses and habits but also involves change related to core personal identity (Cherniss, 2000)" (p. 154). To tackle these new challenges, emotional intelligence learning environments entail new and completely different strategies than traditional and conventional cognitive learning

environments (Handley, 2017) that are available in the educational systems or organization development industries. Therefore, there is an essential need for some strategic research that would pinpoint these needs for new learning approaches.

Training and Developmental Programs

This researcher recommends that despite the difficulties mentioned above regarding the design development programs, there is a need for more comprehensive research on the effectiveness and longevity of development training programs regarding emotional intelligence training programs (Handley, 2017). These potential new inquiries are crucial to recognizing the best and more effective ways for developing emotional intelligence learning programs that would positively impact the workforce's learning and applying soft skills and 4Cs skills in particular and learning hard skills in general.

Managers-as-Coach

There is a need for further research on the existing managers-as-coach approach to focus on the effectiveness of coaching training and development programs on organizations managers' coaching and mentoring skills and behaviors (Joo et al., 2012). This researcher recommends research on outcomes of managers-as-coach approach on developing emotional intelligence competencies-based learning and implications, particularly regarding their subordinates or mentees (Handley, 2017; Joo et al., 2012).

Research Limitations

In this segment, this researcher is looking at research limitations to be responsible and mention some restricted elements that could make a difference in producing broader research to this topic.

Geographic Area

The geographical area of this research was limited to the Lackawanna County of Northeast Pennsylvania. The decision to select this particular geographic area was two-fold: 1) Considering applying the same research on the entire state of Pennsylvania or even all counties located in Northeast, PA would be a massive undertaking which would take at least two to three years to complete, working with samples from other counties in Northeast, PA, and 2) The fact that the researcher was a resident of Lackawanna County, Northeast, PA. However, the option of conducting similar research on other NEPA counties and collecting data from a much broader sample is something that is in a realm of possibility, with assistance from the State of Pennsylvania.

Organizations

Given the same exact reasons mentioned above regarding the size of the geographic area of the research, the number of private-sector and non-profit organizations operating from Lackawanna County, NEPA is also a large number. So, the decision was made to select a sample of only ten private-sector companies from this area. This is another limitation for collecting data from a much larger number of organizations to be able to present a broader view of organizations' perception of 4Cs skills among their workforce in the NEPA area as a whole, or even the state of Pennsylvania's labor pool.

Research Participants

The research's interview participants were invited from a pool of executives, senior, middle, and junior managers, human resources directors or managers, and supervisors. The researcher invited three participants from each of the ten organizations, and a total of 27 participants accepted the invitation for the interviews. The concern is that maybe the research could get more valuable data if it interviewed more participants from each organization or from a

different level of the organization's management structure. Perhaps in the future, it would be a better data gathering approach if research shed light on perceptions and opinions of management levels, separate and independent of other levels. For example, all executives, all middle managers, and all supervisors, as separate groups, independently. This approach would require much more time and effort, but it would produce much more details in participants' viewpoints, which could be used for management training and supervisors' development.

Employees

This research did not gather data from any of the staff or floor employees. This matter by itself is a limitation to this research. On the one hand, the topic of the research was to collect perceptions of organizations on 4Cs skills among their workforce, so it forced the research to only collect data from people who are running the organization, and on the other hand, the research missed the opportunity for employees to express their views about their perception of having or lacking the 4Cs skills among themselves.

Conclusion

The purpose of this applied qualitative study was to examine, explore, and describe perceptions of private-sector employers operating from Lackawanna County, Northeastern Pennsylvania concerning the 21st Century 4Cs skills gap, which is impacting their productivity.

The research started by introducing the overall issue of soft skills gap, including the 4Cs in the United States and as a global issue for organizations and businesses. Organizations and businesses began to face a dramatic alteration in business concepts and the environment in the 21st century as compared with previous decades; they were forced to adopt a whole new learning

process to stay competitive and thrive in this new environment (Longmore et al., 2018; Soulé & Warrick, 2015).

This research shed light on the complexity of soft skills, including 4Cs, and use of them by organizations. Broussard, Lindsly, and Troy (2016) described soft skills as associated with emotional intelligence and placed soft skills into categories such as self-regulation, self-awareness, empathy, motivation, and social skills. Charoensap-Kelly et al. (2016) linked soft skills to career traits and skills such as communication, teamwork, problem-solving, leadership, and customer service. Very similar to Charoensap-Kelly et al. (2016), Levasseur (2013) described soft skills as classifications of skills and competencies such as self-awareness, communication, leadership, interpersonal skills, and collaboration. The biggest complaint is the notion that an extensive shortfall of labor with the basic skills is related to the new employees and not to the existing labor force. Those who support this argument attribute this shortfall to the current education system's problems and breakdowns, especially issues related to K-12 public education (Cappelli, 2015; Soulé & Warrick, 2015; Boyles, 2012). Robles (2012) argued that soft skills are as significant as cognitive skills. Students who have developed soft skills have a much better chance of being hired in their desired field. Lack of soft skills can severely damage students' opportunities with learning and implementing technical ability and professional skills but no people skills.

Furthermore, through chapters one and two (Introduction and Literature Review), this research looked into industry understanding and perspective of how the lack of soft skills and 21st century 4Cs skills has become a global issue among organizations. We covered reasons for not understating the issue thoroughly, including the issues with a) the educational systems and related policies, b) individuals' motivation and behavior, c) issues of local, state and federal

government political policies, d) individuals' families and society in general, and e) other relevant issues impacting the present and developing the soft skills including the 4Cs.

This research looked into the critical relevancy of 4Cs and soft skills to the 21st century's economy and having a skillful workforce, given that the 21st century economy has developed more quickly and vigorously when compared to the 20th or 19th-century economies (Tindowen, Bassig & Cagurangan, 2017; Soulé & Warrick, 2015). Swift development of technology, the fast pace of the global economy, and fierce competition both nationally and internationally have altered the workforce's fabric and organizations' social and economic lives (Soulé & Warrick, 2015). This matter was pointed out by Tulgan (2015) who argued that soft skills might be perceived as less palpable and not as easy to describe and measure as hard skills. However, soft skills are categorically vital to personal and professional success or failure in the workplace, indirectly influencing organizations, cost, employees' growth, and stability. Given the above findings, more and more organizations realize the importance of competencies and skills and their role in hiring, recruiting, and retaining strong employees that would directly impact their business growth and success. Because of this realization, educational establishments are paying more attention to developing competency-based learning and development to support the needs of a competency-based workforce for the present and future needs of the workforce market (Donahue, 2018; Rothwell, Stavros & Sullivan, 2016; Cummings & Worley, 2015).

This research work followed up with some suggestions for strategies that educators can employ for the integration of the 4Cs and soft skills with some pedagogical ideas and strategies that can be implemented by teachers and educators to become the conduit to provide the 4Cs in conjunction with other vital skills such as problem-solving and innovation into their schools' curriculum. These strategies, accompanied by technology, can generate a more comprehensive

teaching and learning environment and create a space for fostering the learning of 21st century skills (Levin-Goldberg, 2012). There is no uncertainty that organizations demand a workforce with the ability to apply a set of functional skills. Experts in workforce development emphasize the importance of these skills by referring to them as the Survival Skills of the new economy (Soulé & Warrick, 2015). According to Charoensap-Kelly et al. (2015), in recent years, organizations recognized the value of soft skills training, and employers have gradually devoted more time and capital in soft skills training for their employees. Unlike hard skills, measuring and evaluating the effect of soft skills are not easily obtainable (Charoensap-Kelly et al., 2015). Several elements such as characteristics and the trainer, format, content of the training, and the degree of organizational support can affect the outcome of soft skills training and development (Charoensap-Kelly et al., 2015). Many studies show that teachers overwhelmingly indicate that the greatest influential learning experiences happen in an integrated learning environment. When teachers fundamentally link 21st-century skills teaching to their class curriculums, they can be much more effective in their teaching approach and in turn, create a more effective learning environment (Urbani et al., 2017; Tindowen et al., 2017; Soulé & Warrick, 2015; Levin-Goldberg, 2012; Boyles, 2012).

As a result of the data-gathering process via interviewing participants, conducting coding and recognizing emerged themes and subthemes, this research came up with 18 themes that are representing a) the values placed by organizations on the 4Cs skills among their workforces, b) the impact for having the 4Cs skills on the workforce on the team performance, and c) the most impactful and relevant training and development approaches for training the workforces on the 4Cs skills. Teaching the workforce and developing them to learn about these themes and use or

eliminate them is vital to their training and is valuable to organizations and businesses in having a skillful and productive workforce.

Additionally, this research recommended using several organization's diagnosis models such as a) Individual and group behavior model, b) The great place to work model, and c) SWOT analysis for what organizations can use to recognize 4Cs skill gap among their workforce's and extend the workforce's development on 4Cs skills or understanding of who needs to be more trained or developed on which of the 4Cs skills.

In conclusion, based on analyzing emerging themes and their connection to emotional intelligence clusters and competencies, this research offered using emotional intelligence training as competency-based training and development to develop 4Cs skills among the workforces. Research highly suggests the vital connection between emotional intelligence and soft skills and technical skills development (Sheck & Lin, 2015; Cherniss et al., 2010; Bartram, 2005; Lopes et al., 2004). The recognized emotional intelligence clusters are a) Self-awareness, b) Self-regulation, c) Social awareness, and d) Relationship management. Within these four emotional intelligence clusters, this research came with a total of 32 competencies and capabilities related to any or all 4Cs skills that organizations can use to train and develop their workforce on not only the 4Cs but also on soft skills in addition to building their workforce's knowledge and competencies to be able to learn hard skills in much easier ways.

In the end, this research a) recommended implications of these emerged themes and emotional intelligence competency-based training for organizations, current workforce, educators and trainers, and developmental programs, b) came up with several recommendations for future research on the emotional intelligence competency-based training, and c) expressed several limitations about this research.

Final Thoughts

There is no doubt on the essential role of 4Cs and soft skills in developing skilled and productive workforces. This researcher believes that the implication of emotional intelligence competency-based training and development is one of the future approaches to developing the workforces.

Individuals' mindsets and behaviors are crucial for a successful workforce. Developing the workforce to recognize a) their mindset through self-awareness, b) their ability to control their mindset, attitude, and behavior through self-control, c) their understanding and consciousness of their work environment and co-workers through social-awareness and d) their knowledge and abilities to manage their relationships with others are essential to developing a productive, workable and skilled workforce. These trainings on personal and professional development should not be minimized and overlooked in favor of training and developing the workforce on technical knowledge and hard skill. The role of emotional intelligence competencies and needs for their development is very apparent across all ten organizations in this research in relation to the final 18 emerged themes resulting from 27 interviews.

Recommendations from this research include exploiting the emotional intelligence competency-based trainings as a background and context to coach the workforces in their positive and productive mindset, behavior and attitude. This endeavor requires a strong effort on research in conspiracies and compatibility of what cognitive learning offers versus what emotional intelligence competency-based provides for the workforce, regarding comprehension of both soft and hard skills. For this reason, given the findings, this research suggests the implementation of emotional intelligence for competency-based training in the form of a coaching curriculum for the training and development of educators and teachers, trainers and

practitioners, and managers. Educational systems and organizational associations should stress the importance of developing 4Cs and soft skills side-by-side with their commitment to developing the workforce on the hard and technical skills. This only results in a much stronger and skilled workforce with a much deeper knowledge of being productive and relating to others around them. However, taking on the implementation of this approach to the educational and organizational systems is not an easy undertaking and needs strong support and backing from states and federal government for revamping the educational systems, providing funding for industries, and overall, public support, which altogether is making it a massive undertaking, worthy of the outcomes, for our nation, our organizations and our workforce.

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Appendix A

Semi-Structured Interview Protocol

A. Logistical Information

Interview date:	Interview location:
Organization's name:	Organization's code:
Participant's name:	Participant's code:
Participant's position:	Participants' position code:
Interview platform:	Recorded:
Starting time:	Ending time:
Transcript sent for review:	Result of review:

B. Participant Descriptions:

1. What is your current role in this organization?
2. How long have you been working in this role?
3. How long have you been in a management or leadership role in your career?
4. How many senior and junior managers, supervisors or employees you are currently managing or overseeing?
5. How many positions have you occupied throughout your career?
6. How many companies have you worked with before your current position?
7. How many varieties of positions have you occupied throughout your career?
8. Have you acted as a mentor for new managers or supervisors?
9. How do you rate yourself from 0 to 10 (0 being the lowest and 10 being the highest) on possessing and using the 4Cs skills when working with your workforce; a) Critical Thinking, b) Communication, c) Creativity, d) Collaboration?

C. Interview Questions:

1. What do 4Cs skills (critical thinking, communication, creativity, and collaboration) would look like to you in a skilled workforce? Please describe your viewpoint.
(Please reply separately for the each of the four skills).
2. What do you observe about the 4Cs skills gap among the workforce at your organization?
(Please reply separately for the each of the four skills).
3. What degree of value (rate from 0 to 10) are you placing on 4Cs skills among your workforce?
(0 being the lowest and 10 being the highest) (Please reply separately for the each of the four skills).
4. How do you rank the importance of each 4Cs skills in a positive impact on team performance?
(The most impactful being 1 on the top to the less impactful being 4 on the bottom).
5. Can you talk about a time when an employee demonstrated a positive outcome because of any of the 4Cs skills that impacted the team performance? Describe the situation. What behaviors did you observe? What was the impact or result?
6. Can you talk about a time when an employee demonstrated a negative outcome because of a lack of any of the 4Cs skills that impacted the team performance? Describe the situation. What behaviors did you observe? What was the impact or result?
7. From your point of view, what would a practical 4Cs training look like for your workforce? What should be part of this training?
8. From your point of view, how does the 4Cs skills development among workforce provide organizations with a competitive edge?
9. From your point of view, what would be the influence of developing 4Cs skills on the workforce's attitude and behavior?
10. From your point of view, what would be the influence of developing 4Cs skills on training and developing leadership competencies among the workforce?
11. Is there any experience about having or lacking 4Cs skills in your organization or among your workforce, would you like to share or add to this interview process?
12. Do you have any questions about this interview or what is next?

Appendix B

Letter of Invitation to Participate in Research

Date:

To: (Name of the Organization)

Attn: (Name of the Manager)

Dear Mr./ Mrs.

We are inviting you to participate in a research study conducted by Behnam Bakhshandeh, a doctoral student in the Penn State, College of Education, Department of Learning and Performance Systems, Workforce Education & Development program. The faculty in charge, and academic and thesis advisor is Dr. William J. Rothwell, Professor of Education.

Dissertation Topic

Perception of 21st Century 4Cs (Critical Thinking, Communication, Creativity, and Collaboration) Skills Gap Impacting Local Labor Market in Private Sector Employers in Lackawanna County, NEPA.

The Purpose Statement

The purpose of this qualitative study is to examine and assess the over-arching lack of both the present and pre-employment training for 21st century skills known as 4Cs in the workforce currently availing itself to business and industry nationwide, especially in Lackawanna County, Pennsylvania.

As part of this research, we are conducting interviews to increase our understanding of how 4Cs (Critical Thinking, Communication, Creativity and Collaboration) skills gap among the workforce is impacting organizations in Lackawanna County, NEPA. As one of the large private sector organization in Lackawanna County, you are in an ideal position to give us valuable firsthand information from your perspective.

The interview takes around 45 to 60 minutes and is very informal. We are merely trying to capture your thoughts and perspectives on being an employer, and your experience with facing a workforce lacking 4Cs skills. Your responses to the questions will be kept confidential.

Your participation in this study is entirely voluntary. If you choose to participate, you can discontinue participation at any time. You may choose not to answer any of the research questions that you do not wish.

If you are willing to participate, please suggest a day and time that suits you, and we will accommodate your availability.

Feel free to contact me at bzb9@psu.edu or 760-518-9804 or Dr. William Rothwell at wjr9@psu.edu or 814-863-2581 if you have questions.

Sincerely,

Behnam Bakhshandeh
Ph.D. Candidate
Pennsylvania State University

Appendix C

The 4Cs In Context

(For Our Interview Participants)

To have a better understanding of 21st century (4Cs), this study will review general ideas and descriptions of critical thinking, creativity, communication, and collaboration. It is worth noting the large variety of descriptions and definitions of soft skills among researchers and management professionals, which this study has mentioned in the above segments. It is important to note that the state of Pennsylvania's definition of 21st century skills (4Cs) do not differ from the general understanding and descriptions used by other states, nationally or even internationally.

Critical Thinking

In explaining the meaning and definition of critical thinking, Moor (2013) conducted a study that examined notions of critical thinking from the context of academics from three disciplines: 1) philosophy, 2) history and 3) cultural studies. Furthermore, on a study conducted by Moor (2013) called *Critical thinking: seven definitions in search of a concept*, Moor presented seven elements which describe and define critical thinking as “(i) as judgment; (ii) as skepticism; (iii) as simple originality; (iv) as sensitive readings; (v) as rationality; (vi) as an activist engagement with knowledge; and (vii) as self-reflexivity” (p. 506). The Moor e(2013) study was part of a research survey conducted in an Australian college, interviewing university students in a variety of disciplines such as history, philosophy, literary/cultural studies. Moor (2013) intentionally selected these disciplines given their relevance to educational sagacity. Moor (2013) thought these meanings had significant implications on teachings & learning in schools and colleges. Critical thinking and problem-solving (as one of the outcomes of critical thinking) are qualities that employers look for in college graduates entering professional employment. In the year 2010, *American Management Association (AMA)* conducted a *Critical Skills Survey*, on 2,115 executives and senior managers, asking them to rank the top skills they are looking for when hiring new talent. Critical thinking was the second most desirable, with communication skills being the most desired (Martz et al., 2016). It is understandable that organizations are looking for new hires with technical skills and other qualities and abilities related to the job. However, for many employers, the concept of problem-solving is considered

as critical for mathematical skills, written communication, and teamwork among their workforce (Martz et al., 2016). In the 21st century job market, these two sets of skills go hand in hand; they are not separate but encouraged to be used in conjunction with one another (Martz et al., 2016).

Creativity

According to Runco and Jaeger (2012), the typical definition of creativity is twofold: 1) originality, and 2) effectiveness. Some might ask whether both are necessary elements. For sure originality is essential to creativity. If an idea, thought or act is not unique, unconventional or uncommon, then it is routine, conventional, unoriginal, and consequently, not creative. The second element is effectiveness; which underlines the value of originality and creativity (Runco & Jaeger, 2012). Without the idea, thought or act of being effective, and not producing the results that are expected from such creativity and originality, then it is not creative (Runco & Jaeger, 2012). Ahmadi and Besançon (2017) point at increasing interest during the last several years to implement creativity as a topic of study in schools. This interest is due to increased attention in the importance of competencies and skills for current and future workforce. However, some studies have looked at the difficulty teachers face in the integration of creativity in their classrooms due to overloaded class schedules that interfere with implementing 4Cs and needed competencies (Ahmadi & Besançon, 2017).

Communication

Steinfatt (2009) expressed his view of communication and its vital role in human connectedness as “The central thrust of human communication concerns mutually understood symbolic exchange” (p. 295). Steinfatt’s view of the communication might not be accepted as a general definition of communication, but it sheds light on the importance of this essential skill. This is the way that Steinfatt (2009) explains the functions of communication and its elements of the message, channel and receiver, and its definition of communication. The concept of communication is used in many ways, from a simple description of conversing and connecting via language, to complex technological uses in information technology, and everything in between (Steinfatt, 2009). However, in general, the term ‘communication’ is commonly referred to as transferring information from one person to another, in both personal or professional environments (Steinfatt, 2009). Given the human ability to converse and use language as a tool to communicate with others, the concept of communication is vital to human connection. Especially for developing professional skills and teamwork to increase accuracy, save time and

increase productivity (Steinfatt, 2009). Communication is one of the concepts that has been and continues to be the topic of many theories and research about the human connection (Jones, 2015a). From verbal to nonverbal, from visual to sounds, body language or sign language, all humans are communicating their intentions and messages. In today's electronic and technological environment, digital methods of communication can help individuals and organizations communicate swiftly, through vocal and visual communication platforms and apps (Jones, 2015a).

Collaboration

In addition to being one of the 21st century's skills, collaboration is also a style of teaching in classrooms. Most teachers and organizations are interested in collaboration as a skill that would produce faster results of teaching among students and working teams that would also cause different solutions to a problem (Ahmadi & Besancom, 2017). Collaboration gives rise to diverse opinions, expresses different views and helps to resolve issues faster than just one person's ideas (Ahmadi & Besançon, 2017). However, Ahmadi and Besancom (2017) also argued that in spite of collaboration being credited as a vital element for developing creativity, there are few studies that underline the relationship between collaboration and creativity. According to Jones (2015b), in today's society, most students are mostly connected through their 'collaborators' such as tablets, smartphones, and social media platforms. Educators and organizations can harness this phenomenon and plan collaborative tasks among students or workforce by taking advantage of their digital awareness to create collaboration and faster productivity (Jones, 2015b). *The Global Digital Citizen Foundation* calls this a collaboration fluency, similar to teachers working with students on their fluency in other subjects like a foreign language, math, science, or creativity (Jones, 2015b). Jones (2015b) also added; "Simply put, better collaborators make better students—and better citizens" (p. 24). Either at their places of employment, working and collaborating with colleagues, team-mates and co-workers, or at home, neighborhoods, communities, and society, collaborating with others for the benefit of society without self-interest, bias or political and social agendas (Jones, 2015b).

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Appendix D

Consent and Confidentiality Form for Exempt Research

The Pennsylvania State University

Title of Project: *4Cs Skills Gap*

Principal Investigator: *Behnam Bakhshandeh*

Telephone Number: *760-518-9804*

Faculty Advisor: *Dr. William J. Rothwell, PhD*

Faculty Advisor Telephone Number: *814-863-2582*

Dear (Participants name):

You are being invited to volunteer to participate in a research study. This summary explains information about this research.

- The purpose of this applied qualitative study is to examine, explore and describe perceptions of private sector employers operating from the Lackawanna County, NEPA in regards to the 21st Century 4Cs (Critical Thinking, Communication, Creativity and Collaboration) skills gap which is impacting their productivity and the local labor market.
- We will make an appointment with you to conduct an interview contained two sets of questions, one about your work history and positions, and others about your perception of 4Cs Skill Gap within your workforce. Our interview could be in person, or on an audio or video platform. You will have a choice to select the interview format in term of in-person or not. After we explained all the interview's procedures, we will ask your 'in writing' consent to the interview. The interview will be around 45 to 60 minutes. Your name and the organization's name will be confidential. We will record the interview for the purpose of making an 'interview transcript' which we will send to you for your review, edit, and approval before we use the content. The interview recording will be destroyed after your transcript approval. The interview transcript will be saved on the Penn State's Box site.

- There is a risk of loss of confidentiality if your information or your identity is obtained by someone other than the investigators, but precautions will be taken to prevent this from happening. The confidentiality of your electronic data created by you or by the researchers will be maintained as required by applicable law and to the degree permitted by the technology used. Absolute confidentiality cannot be guaranteed.
- We will not be using your name or the organization name on the research. Participants and organizations will be designated by numbers, such as Participant's #1 or Participants #2 of the organization #1. The actual interview transcript will be saved on the Penn State Box site.
- Information collected in this project may be shared with other researchers, but we will not share any information that could identify you.
- We will use and disclose your research records when we are required to do so by law. This includes laws that require us to report child abuse or abuse of elderly or disabled adults. Your research records can be opened by court order. Your records also may be provided in response to a subpoena or a legal request for the production of documents.

If you have questions, complaints, or concerns about the research, you should contact Behnam Bakhshandeh on 760-518-9804 bzb9@psu.edu or Dr. William J. Rothwell at 814-863-2581 wjr9@psu.edu. If you have questions regarding your rights as a research subject or concerns regarding your privacy, you may contact the Office for Research Protections at 814-865-1775.

Your participation is voluntary, and you may decide to stop at any time. You do not have to answer any questions that you do not want to answer.

Participant's name: _____

Participant's signature: _____

Date: _____

Appendix E IRB Approval Letter



Office for Research Protections
Vice President for Research
The Pennsylvania State University
205 The 330 Building
University Park, PA 16802

814-865-1775
Fax: 814-865-8699
orp@psu.edu
research.psu.edu/orp

EXEMPTION DETERMINATION

Date: September 30, 2019

From: Brigitt Leitzell,

To: Behnam Bakhshandeh

Type of Submission:	Initial Study
Title of Study:	Perception of 21st Century 4Cs (Critical Thinking, Communication, Creativity, and Collaboration) Skill Gap Impacting Local Labor Market Across Top Ten Private Sector Employers in Lackawanna County, Northeast Pennsylvania (NEPA).
Principal Investigator:	Behnam Bakhshandeh
Study ID:	STUDY00013164
Submission ID:	STUDY00013164
Funding:	Not Applicable
Documents Approved:	<ul style="list-style-type: none"> • HRP-591 (4), Category: IRB Protocol • Semi-Structured Interview Protocol (2), Category: Other

The Office for Research Protections determined that the proposed activity, as described in the above-referenced submission, does not require formal IRB review because the research met the criteria for exempt research according to the policies of this institution and the provisions of applicable federal regulations.

Continuing Progress Reports are **not** required for exempt research. Record of this research determined to be exempt will be maintained for five years from the date of this notification. If your research will continue beyond five years, please contact the Office for Research Protections closer to the determination end date.

Changes to exempt research only need to be submitted to the Office for Research Protections in limited circumstances described in the below-referenced Investigator Manual. If changes are being considered and there are questions about whether IRB review is needed, please contact the Office for Research Protections.

Penn State researchers are required to follow the requirements listed in the Investigator Manual ([HRP-103](#)), which can be found by navigating to the IRB Library within CATS IRB (<http://irb.psu.edu>).

We would like to know how the IRB Program can better serve you.
Please fill out our survey; it should take about a minute: <https://www.research.psu.edu/irb/feedback>.

ID27

Appendix F

Audit Trail and Coding

Followings are examples of the coding and extracts employed throughout this research to complete the data analysis and identifying emerged themes. Code and extract examples were pulled using an export feature in the Dedoose software. Give a large amount of coding and emerged themes and sub-theme, this audit trail just used the following examples:

- 1) Two main research question,
- 2) One code title example for the research question (total of two),
- 3) One excerpts examples for each of the 4Cs skills (total of eight), and
- 4) One emerged theme related to each of the 4Cs skills (total of eight).

Based on the Research Question One: What value is placed on 4Cs in an industry setting in Lackawanna County, NEPA?

Code Title (1) How 4Cs skills look like among skilled workforces.

Critical thinking

Title: 12-4C.docx

Doc Creator: BehnamB

Doc Date: 12/4/2020

Descriptor Info: Gender: Male - Name: (confidential) - Years at Job: 6-10 - Years of Experience: 11-15 - Position: Senior Manager

Codes Applied: Critical Thinking-Look Like

Emerged Theme: *“Seeing a Bigger Picture”*

Excerpt Creator: BehnamB

Excerpt Created on: 12/24/2020

Excerpt Range: 4330-4738

“So somebody who has Critical thinking I think I mentioned earlier, somebody who deliberates, somebody who thinks through decisions that need to be made, somebody who consults with others, and then somebody who is able to look at the larger picture. So if somebody can only see this much in a very narrow way, that person made think critically but not necessarily the breath to really go beyond a certain level [*sic*]”.

Communication

Title: 15-5C.docx

Doc Creator: BehnamB

Doc Date: 12/4/2020

Descriptor Info: Gender: Female - Name: (confidential) - Years at Job:1-5 - Years of Experience: 6-10 - Position: Executive
 Codes Applied: Communication-Look Like
 Emerged Theme: “*Clear Communication*”

Excerpt Creator: BehnamB
 Excerpt Created on: 12/24/2020
 Excerpt Range: 3096-3519

“So looking at communication, I really thought that this person would really be able to relate to others by successfully expressing yourself, being able to have the other person understand what you’re saying, your view, or your viewpoint, not necessarily agree with it. I think that sometimes it gets confusing, but to really make the other person understand and hear, you know, what you’re thinking or what you’re saying [*sic*]”.

Creativity

Title: 19-7B.docx
 Doc Creator: BehnamB
 Doc Date: 12/4/2020
 Descriptor Info: Gender: Male - Name: (confidential) - Years at Job: 1-5 - Years of Experience: 16-20 - Position: HR Director
 Codes Applied: Creativity-Look Like
 Emerged Theme: “*Thinking Outside the Box*”

Excerpt Creator: BehnamB
 Excerpt Created on: 12/25/2020
 Excerpt Range: 3310-3663

“For creativity, I want people to think outside the box; I know that’s so cliché. I want people to think differently. I want them to have the ability to have the imagination of a child. To look at things completely differently. Be open-minded to different thoughts and different processes. To see the world as brand new, that again that child in there [*sic*]”.

Collaboration

Title: 24-9B.docx
 Doc Creator: BehnamB
 Doc Date: 12/4/2020
 Descriptor Info: Gender: Female - Name: (confidential) - Years at Job: 21-25 - Years of Experience: 26-30 - Position: Senior Manager
 Codes Applied: Collaboration-Look Like
 Emerged Theme: “*Trust and Team Building*”

Excerpt Creator: BehnamB

Excerpt Created on: 12/28/2020

Excerpt Range: 4206-4750

“Collaboration definitely goes back to communication in relationship building. So, are they accepting of other people? Do they have the ability to work and listen to people with diverse backgrounds? Who may not come from the same background that you do, either culturally or professionally? If you had someone like me when I started this field, I actually had no idea what I was applying for; I just needed the job. So, you have to have someone who is willing to work with all different types of people. Understand that differences are benefits *[sic]*”.

Based on the Research Question Two: How do the 4Cs skills gap impact workforce team performance in an industry setting in Lackawanna County, NEPA?

Code Title (2) Observation of 4Cs skill gap among the workforces.

Critical Thinking

Title: 19-7B.docx

Doc Creator: BehnamB

Doc Date: 12/4/2020

Descriptor Info: Gender: Male - Name: (confidential) - Years at Job: 1-5 - Years of Experience: 16-20 - Position: HR Director

Codes Applied: Critical Thinking-Present Gap

Emerged Theme: “*Lack of Autonomy*”

Excerpt Creator: BehnamB

Excerpt Created on: 12/25/2020

Excerpt Range: 5358-5731

“In Critical Thinking, maybe it’s partly because people haven’t been put in situations where they’ve had to make decisions on their own? Or empowered to make decisions on their own. I’m not just talking about work; I think that leads to what you can do and don’t do at work. I think a lot of people have relied on and still rely on other people just telling them what to do *[sic]*”.

Communication

Title: 23-9A.docx

Doc Creator: BehnamB

Doc Date: 12/4/2020

Descriptor Info: Gender: Female - Name: (confidential) - Years at Job: 6-10 - Years of Experience: 26-30 - Position: Senior Manager
 Codes Applied: Communication-Present Gap
 Emerged Theme: *“Working in Silos”*

Excerpt Creator: BehnamB
 Excerpt Created on: 12/28/2020
 Excerpt Range: 7154-7905

“Communication could always be a gap. We try on several different levels among faculty and faculty to staff and faculty with staff. To administration and administration, we’re constantly looking at those ideas of the best kinds of communication lines. Making sure we keep those lines of communication open. There’s been a big metaphor over the years on college campuses that are talking about silos. Academics work in a silo, and they don’t talk about admissions. The administration is a silo, and they don’t talk about financial aid. We have tried on so many different levels, I so many different ways to pull those silos down and make sure we’re talking with each other. Not just in our own little echo chambers. That could always be a gap *[sic]*”.

Creativity

Title: 11-4B.docx
 Doc Creator: BehnamB
 Doc Date: 12/4/2020
 Descriptor Info: Gender: Female - Name: (confidential) - Years at Job: 16-20 - Years of Experience: 6-10 - Position: HR Director
 Codes Applied: Creativity-Present Gap
 Emerged Theme: *“Suppressed Imagination and Creativity”*

Excerpt Creator: BehnamB
 Excerpt Created on: 12/24/2020
 Excerpt Range: 6209-6682

“Creativity, I also think that this could be part and parcel of management. So if you have a top-down structure where all the rules and everything is coming from here, what opportunities are there for employees to explore their creativity and grow their ability to be creative. So if we are stuck in, this is the way we always do it, or this is the way we’ve always done it, you know, you’re going to find yourself falling behind, I guess, and no be able to be progressive *[sic]*”.

Collaboration

Title: 2-1B.docx
 Doc Creator: BehnamB
 Doc Date: 10/5/2020

Descriptor Info: Gender: Male - Name: (confidential) - Years at Job: 16-20 - Years of Experience: 16-20 - Position: Executive
Codes Applied: Collaboration-Present Gap
Emerg'd Theme: "*We have always done it this way.*"

Excerpt Creator: BehnamB

Excerpt Created on: 12/21/2020

Excerpt Range: 9503-9842

"... collaboration, it takes effort to bring other people to make a decision in the process. Maybe some people think that they know best. So, they are not going to ask other's opinions; they are not going to bring anybody else to bounce ideas off. I have been doing this for so long, and I know the best way to do it. So, they don't collaborate [*sic*]"

Appendix G

Literature Review Records

#	Date	Key Words	Search Engines, Databases, Libraries	Journals, Associations, Conferences, Publishers	Results of Research (Book, Article, etc.) Titles
1	2/12/19	21st Century Skills, 4Cs	LionSearch, Penn State Library - Taylor & Francis Online	<i>Roeper Review</i>	Twenty-First Century Creativity: An Investigation of How the Partnership for 21st Century Instructional Framework Reflects the Principles of Creativity
2	2/12/19	21st Century Skills, 4Cs	LionSearch, Penn State Library - ProQuest	<i>Voices from the Middle</i>	Read Talk Write: Developing 21st-Century Skills
3	2/12/19	21st Century Skills, 4Cs	LionSearch, Penn State Library - ProQuest	<i>Knowledge Quest</i>	Implementing instructional & evaluating partnerships
4	2/12/19	21st Century Skills, 4Cs	LionSearch, Penn State Library	<i>Journal of Education and Information Technologies</i>	Beyond traditional literacy: Learning and transformative practices using ICT
5	2/12/19	21st Century Skills Gap	Google Scholar- Sage Journals	<i>Journal of Transformative Education</i>	Closing the 21st-Century Knowledge Gap: Reconceptualizing Teaching and Learning to Transform Business Education
6	2/12/19	21st Century Skills, 4Cs	LionSearch, Penn State Library - ProQuest	<i>Journal of Psychology of Aesthetics, Creativity, and the Arts</i>	Defining 21st century readiness for all students: what we know and how to get there
7	2/12/19	21st Century Skills, 4Cs	LionSearch, Penn State Library - Directory of Open Access Journals	<i>Journal of Education Research International</i>	Creativity as a Stepping Stone towards Developing Other Competencies in Classrooms
8	2/12/19	21st Century Skills, 4Cs	LionSearch, Penn State Library - ERIC	<i>Journal of Instructional Research</i>	Teaching Generation TechX with the 4Cs: Using Technology to Integrate 21st Century Skills
9	2/12/19	21st Century Skills, 4Cs	LionSearch, Penn State Library - ProQuest	<i>Journal of Entrepreneurship Education</i>	21st Century Knowledge, Skills, and Abilities and Entrepreneurial Competencies: a Model for Undergraduate Entrepreneurship Education
10	2/12/19	21st Century Skills, 4Cs	LionSearch, Penn State Library - Sage Open	<i>SAGE Open</i>	Twenty-First-Century Skills of Alternative Learning System Learners
11	2/12/19	Creativity as 21st Century Skill	LionSearch, Penn State Library - ProQuest	<i>Journal of Computer Information Systems</i>	Creativity and problem-solving: Closing the skills gap
12	2/14/19	21st Century Skills, 4Cs	Google Scholar - Sage Journals	<i>Journal of Intervention in School and Clinic</i>	Scaffolded Academic Conversations: Access to 21st-Century Collaboration and Communication Skills
13	2/14/19	Communication as 21st Century Skill	Google Scholar - ASCE Library	<i>Journal of Professional Issues in Engineering Education and Practice</i>	Communication Skills for the 21st Century
14	2/14/19	21st Century Skills, 4Cs	Google Scholar - ERIC	<i>Journal of Education and Practice</i>	21 st Century Standards and Curriculum: Current Research and Practice
15	2/14/19	Collaboration as 21st Century Skill	Google Scholar - ProQuest	<i>Journal of children's technology and engineering</i>	21st century skills: collaboration
16	2/14/19	Communication as 21st Century Skill	Google Scholar - ProQuest	<i>Journal of children's technology and engineering</i>	21st century skills: communication
17	2/17/19	21st Century Skills, 4Cs	Google Scholar - JSTOR	<i>Journal of Educational Technology & Society</i>	E-learning in School Education in the Coming 10 Years for Developing 21st Century Skills: Critical Research Issues and Policy Implications.

18	2/17/19	21st Century Skills, 4Cs	LionSearch, Penn State Library - ProQuest	<i>Social Studies Review</i>	Global Education in the 21st Century
19	2/21/19	Definition of Critical Thinking	LionSearch, Penn State Library - EBSCOhost	<i>Studies in Higher Education</i>	Critical thinking: seven definitions in search of a concept
20	2/21/19	Definition of Creativity	LionSearch, Penn State Library -Taylor & Francis Online	<i>Creativity Research Journal</i>	The Standard Definition of Creativity
21	2/21/19	Definition of Communication	LionSearch, Penn State Library - EBSCOhost	<i>Journal of Medical Education</i>	Creativity in clinical communication: from communication skills to skilled communication
22	2/21/19	Definition of Communication	LionSearch, Penn State Library - Gale Virtual Reference Library	<i>In S. W. Littlejohn & K. A. Foss (Eds.), Encyclopedia of Communication Theory (Vol. 1)</i>	Definitions of Communication
23	2/21/19	Definition of Collaboration	LionSearch-Penn State Library-IEEE Xplore Digital Library	<i>IEEE Transactions on Learning Technologies</i>	When does collaboration lead to deeper learning? Renewed definitions of collaboration for engineering students
24	2/23/19	Soft Skills Gap	Academy of Management Journal-Penn State Library-JSTOR	<i>Academy of Management Journal</i>	People skills: developing soft skills - A change management perspective.
25	2/23/19	Soft Skills Gap	Academy of Management Journal-Penn State Library-JSTOR	<i>Academy of Management Journal</i>	Whose skill is it anyway? 'soft' skills and polarization.
26	2/23/19	Soft Skills Gap	Academy of Management Journal-Penn State Library-JSTOR	<i>Academy of Management Journal</i>	Wanted: Soft skills for today's jobs.
27	2/23/19	Soft Skills Gap	Human Resource Development Review-Penn State Library-Sage Journals	<i>Human Resource Development Review</i>	Rethinking the soft skills deficit blame game: Employers, skills withdrawal and the reporting of soft skills gaps.
28	2/23/19	Soft Skills Gap	Human Resource Development Review-Penn State Library-Sage Journals	<i>Human Resource Development Review</i>	Executive perceptions of the top 10 soft skills needed in today's workplace.
29	2/23/19	Soft Skills Gap	Human Resource Development Review-Penn State Library-Sage Journals	<i>Human Resource Development Review</i>	Evaluation of a soft skills training program.
30	2/23/19	Soft Skills Gap	Human Resource Development Review-Penn State Library-Sage Journals	<i>Human Resource Development Review</i>	Teaching soft skills to business students: An analysis of multiple pedagogical methods.
31	2/23/19	Soft Skills Gap	International Journal of Training and Development-Penn State Library	<i>International Journal of Training and Development</i>	Bridging the Soft Skills Gap: How to Teach the Missing Basics to Today's Young Talent.
32	2/25/19	21st-century Skills	Lion Search-Penn State Library – ProQuest	<i>Teacher Education Quarterly</i>	Developing and modeling 21st-century skills with preservice teachers
33	3/6/19	Skill Development	Lion Search-Penn State Library – JSTOR	<i>Oxford Journal</i>	The Skill Content of Recent Technological Change: An Empirical Exploration.
34	3/6/19	Skills Development	Lion Search-Penn State Library – JSTOR	<i>Techniques: Connecting Education and Careers</i>	The future of jobs and careers. Techniques: Connecting Education and Careers
35	3/13/19	Gap in Soft Skills	Lion Search-Penn State Library – ProQuest	<i>European Journal of Training and Development</i>	The effect of soft skills and training methodology on employee performance
36	3/13/19	Gap in Soft Skills	Lion Search-Penn State Library – Sage Journals	<i>ILR Review</i>	Skill Gaps, Skill Shortages, and Skill Mismatches
37	3/13/19	Gap in Soft Skills	Lion Search-Penn State Library – ProQuest	<i>Competition Forum</i>	Mixed signals: Do college graduates have the soft skills that employers want?
38	3/19/19	Soft Skills & Business	Lion Search-Penn State Library – IEEE	<i>IEEE Computer Graphics and Applications</i>	Live theater on a virtual stage: Incorporating soft skills and teamwork in computer graphics education.

39	4/5/19	Interpersonal competencies	Provided by Dr. William Rothwell	<i>Penn State Student Dissertation</i>	An interpersonal behavioral framework for early-career engineers demonstrating engineering leadership characteristics across three engineering companies.
40	4/5/19	Qualitative Research	Provided by Dr. William Rothwell	<i>Penn State Student Dissertation</i>	Unintended outcomes of leadership sensemaking in a continuously reconfigured business model change initiative.
41	4/20/19	Employability	Google Scholar-Pennsylvania Department of Education	<i>PACTT Alliance</i>	Employability and soft skills manual, forth version.
42	5/6/19	Qualitative Research	Lion Search-Penn State Library	<i>Sage Publication</i>	Qualitative inquiry and research design: Choosing among five approaches.
43	5/6/19	Qualitative Research	Lion Search-Penn State Library	<i>Sage Publication</i>	The sage handbook of qualitative research.
44	5/6/19	Qualitative Research	Lion Search-Penn State Library-ProQuest	<i>Forum: Qualitative Social Research</i>	The logic of qualitative survey research and its position in the field of social research methods.
45	5/6/19	Qualitative Research	Lion Search-Penn State Library-ProQuest	<i>Forum: Qualitative Social Research</i>	Cultivating the under-mined: Cross-case analysis as knowledge mobilization.
46	5/6/19	Qualitative Research	Lion Search-Penn State Library	<i>Jossey-Bass</i>	Qualitative research: A guide to design and implementation.
47	5/6/19	Qualitative Research	Lion Search-Penn State Library	<i>Sage Publication</i>	Qualitative data analysis: An expanded sourcebook (2nd ed.)
48	5/6/19	Qualitative Research	Lion Search-Penn State Library	<i>Sage Publication</i>	Qualitative evaluation and research methods (2nd ed.).
49	5/6/19	Qualitative Research	Lion Search-Penn State Library	<i>Health Services Research</i>	Enhancing the quality and credibility of qualitative analysis.
50	5/6/19	In-Depth Interview	Lion Search-Penn State Library	<i>Pathfinder International</i>	Conducting in-depth interviews: A guide for designing and conducting in-depth interviews for evaluation input.
51	5/6/19	In-Depth Interview	Lion Search-Penn State Library-ProQuest	<i>Journal of Phenomenological Psychology</i>	Ten standard objections to qualitative research interviews.
52	5/6/19	In-Depth Interview	Lion Search-Penn State Library-Sage Researchmethod	<i>Sage Researchmethod</i>	Qualitative Research kit: Doing interviews.
53	5/6/19	In-Depth Interview	Lion Search-Penn State Library-Routledge	<i>Routledge</i>	Interview studies.
54	5/8/19	What is Qualitative Research?	Lion Search-Penn State Library-Oxford Academic	<i>International Journal for Quality in Health Care</i>	Qualitative Research Methods
55	5/8/19	What is Qualitative Research?	Lion Search-Penn State Library-EBShost	<i>Qualitative Research Reports in Communication</i>	What is qualitative research?
56	5/8/19	What is Qualitative Research?	Lion Search-Penn State Library-Wiley Online Library	<i>Medical Education</i>	The qualitative research interviews.
57	5/8/19	What is Qualitative Research?	Provided by Dr. Michael Harvey	<i>Médecins Sans Frontiers-Filed Research</i>	A guide to using qualitative research methodology.
58	5/8/19	In-Depth Interview in Qualitative Research	Lion Search-Penn State Library-Sage Journals	<i>Sociological Methods & Research</i>	Flexible coding of in-depth interviews: A twenty-first-century approach.
59	5/8/19	In-Depth Interview in Qualitative Research	Lion Search-Penn State Library-Springer Link	<i>Archives of Sexual Behavior</i>	Sample size policy for qualitative studies using in-depth interviews.
60	5/8/19	In-Depth Interview in Qualitative Research	Lion Search-Penn State Library-Sage Journals	<i>Sociological Methods & Research</i>	Coding in-depth semi-structured interviews: Problems of unitization and intercoder reliability and agreement.

61	5/20/19	Standards for Qualitative Research	Lion Search-Penn State Library-ProQuest	<i>American Psychologist</i>	Journal article reporting standards for qualitative primary, qualitative meta-analytic, and mixed methods research in psychology: The APA publications and communications board task force report.
62	5/20/19	Theoretical & Conceptual Framework	Lion Search-Penn State Library-ResearchGate	<i>International Journal of Scientific Research</i>	Theoretical and conceptual framework: Mandatory ingredients of a quality research.
63	5/20/19	Sampling Strategy in Qualitative Research	Penn State Faculty	<i>SAGE Publications Ltd.</i>	Applied Social Research Methods: Survey research methods (4 th ed.).
64	5/20/19	Sampling Strategy in Qualitative Research	Lion Search-Penn State Library-Elsevier/Clinicalkey	<i>Early Human Development,</i>	Sampling in Qualitative Research
65	5/20/19	Sampling Strategy in Qualitative Research	Lion Search-Penn State Library-Wiley Online Library	<i>Leading Global Nursing Research</i>	Data collection and sampling in qualitative research: Does size matter?
66	5/20/19	Data Collection Instrument for Qualitative Research	Lion Search-Penn State Library-BMJ Journal	<i>Evidence-Based Nursing</i>	Data collection in qualitative research.
67	5/20/19	Data Collection Instrument for Qualitative Research	Lion Search-Penn State Library-PMC-US National Library of Medicine.	<i>The Canadian Journal of Hospital Pharmacy</i>	Qualitative Research: Data Collection, Analysis, and Management.
68	5/20/19	Ethical Issues in Qualitative Research	Lion Search-Penn State Library-ProQuest	<i>The Qualitative Report</i>	Ethical and methodological issues resulting from recording lapses in qualitative research.
69	5/23/19	Ethics in Quantitative Research	Google Scholar	<i>Rehabilitation Counselors & Educators Journal</i>	Skype a cost-effective method for qualitative research.
70	5/23/19	Ethics in Quantitative Research	Offered by a colleague	<i>Bloomsbury Academic.</i>	What is online research? Using the Internet for social science research.
71	5/23/19	Ethics in Quantitative Research	Lion Search-Penn State Library-Taylor & Francis Online	<i>International Journal of Qualitative Studies in Health and Wellbeing</i>	Skype interviewing: The new generation of online synchronous interview in qualitative research
72	5/31/19	Video Conferencing	Google Scholar	<i>The Hilltop Review</i>	Skype: An appropriate method of data collection for qualitative interviews?
73	5/31/19	Trustworthiness	Penn State Faculty	<i>Journal of Emerging Trends in Educational Research and Policy Studies</i>	Ensuring the quality of the findings of qualitative research: Looking at trustworthiness criteria.
74	6/2/19	Data Analysis	Penn State Faculty-Lion Search-Penn State Library-SAGE Journals	<i>Field Methods</i>	Using pooled kappa to summarize interrater agreement across many items.
75	6/2/19	Data Analysis	Penn State Faculty-Lion Search-Penn State Library	<i>McGraw-Hill</i>	The research act: A theoretical introduction to sociological methods
76	6/2/19	Data Analysis	Penn State Faculty-Lion Search-Penn State Library-ProQuest	<i>The Qualitative Report</i>	Are we there yet? Data saturation in qualitative research.
77	6/2/19	Data Analysis	Penn State Faculty-Lion Search-Penn State Library-SAGE Researchmethods	<i>SAGE Publications, Inc.</i>	The SAGE encyclopedia of qualitative research methods
78	6/2/19	Data Analysis	Penn State Faculty-Lion Search-Penn State Library-SAGE Journals	<i>Family Health International</i>	How many interviews are enough? An experiment with data saturation and variability
79	6/2/19	Data Analysis	Penn State Faculty-Lion Search-Penn State Library-JSTOR	<i>Biometrics</i>	The measurement of observer agreement for categorical data.
80	6/2/19	Data Analysis	Penn State Faculty-Lion Search-Penn State Library	<i>SAGE Publications, Inc.</i>	Naturalistic inquiry
81	6/2/19	Data Analysis	Penn State Faculty-Lion Search-Penn State Library-Wiley Online Library	<i>Human Communication Research</i>	Content Analysis in Mass Communication
82	6/3/19	Theoretical and Conceptual Framework	Google Scholar-Taylor & Francis Online	<i>Journal of Social Science</i>	Is There a Conceptual Difference Between Conceptual and Theoretical Frameworks?

83	6/3/19	Theoretical and Conceptual Framework	Penn State Faculty-Lion Search-Penn State Library-EBSCOhost	<i>Administrative Issues Journal: Connecting Education, Practice and Research</i>	Understanding, Selecting, and Integrating a Theoretical Framework in Dissertation Research: Creating the Blueprint for 'House'.
84	6/3/19	Theoretical and Conceptual Framework	Google Scholar-SAGE Publications, Inc.	<i>SAGE Publications, Inc.</i>	Qualitative Research: Bridging the Conceptual, Theoretical and Methodological.
85	6/3/19	Theoretical and Conceptual Framework	Google Scholar-Ingenta Connect	<i>Journal of Vocational Educational Research</i>	Formulating and Evaluating Theoretical Frameworks for Career and Technical Education Research.
86	6/3/19	Theoretical and Conceptual Framework	Penn State Faculty-Lion Search-Penn State Library-SAGE Journals	<i>Educational Researcher</i>	The Goodness of Qualitative Research.
87	6/3/19	Theoretical and Conceptual Framework	Google Scholar-ANS Advance in Nursing Science	<i>Advances in Nursing Science</i>	Middle Range Theory: Spinning Research and Practice to Create Knowledge for the New Millennium.
88	8/21/19	Operational Definitions in Research	Penn State Faculty-Lion Search-Penn State Library-ProQuest	<i>The Journal of Mind and Behavior</i>	Using operational definitions in research: A best-practices approach.
89	9/11/19	Generalizability	Penn State Faculty-Lion Search-Penn State Library	<i>Journal of Family Med Primary Care</i>	Validity, reliability, and generalizability in qualitative research

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Founder, President, Program Designer and Project Manager – San Diego, CA & Carbondale, PA
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Publications

Rothwell, W. J., Imroz, S. M., & Bakhshandeh, B. (2021) (in press). *Organization-Development Interventions: Executing Effective Organizational Chang*. New York, NY: Taylor & Francis Group. CRC Press.

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