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Caribbean Lecturers' Self-Efficacy and Their Perceived Barriers to Technology Adoption

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Walden University
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Abstract

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BEd, York University, 2000

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Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Educational technology is a learning tool that helps lecturers enhance learning through instructional practices; however, it is unclear why lecturers have difficulties adopting technology. The purpose of this study was to examine how lecturers' self-efficacy at one college in Antigua and Barbuda influenced their technology adoption in terms of their instructional practices, including perceived barriers and supports for technology use. The conceptual frameworks for this study were Bandura's self-efficacy theory and Rogers' diffusion of innovation. The study included nine lecturers from a Caribbean college in Antigua and Barbuda as participants. Data were collected through interviews and analyzed using open coding and thematic analysis. Findings from the study were that college lecturers' beliefs regarding technology were positive and technology held value in terms of the learning process. However, the results established that not all lecturers were comfortable adopting technology within their instructional practice and faced barriers when attempting to adopt technology. Lecturers indicated the need for professional training, institutional support, and observational learning of others which would assist with lecturers' pedagogy, content knowledge, and technology adoption. The results of the study may lead to social change by revealing potential barriers that lecturers face during technology use. The study can also provide both lecturers and stakeholders with data that is Caribbean-specific and can provide the most effective plan to support lecturers' adoption of technology.

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Dedication

This dissertation is dedicated to my Tantie Carlene Louise Nickeo who lost her life to Cancer. Tantie, you taught me how to love, dream, fight and never give up. There is not one day my heart doesn't wish you were here. You were there for all my milestones in life. I am saddened that you will never be able to see the true success story of your niece. You will always be etched in my heart. This dissertation is for you!

To my mother, Gweneth Naomi Williams, you have been a pillar of strength and support. You have pushed me to the end of the earth and back. Thank you for instilling how important education is. Thanks for your financial contributions towards my study. This journey could not have been possible without you, and for that, I want to publicly shout to the world, "You are the best mother a woman could ever have!" Your unwavering support and love will never be forgotten. This dissertation is also for you!

To my children, Jaiden, Gadija, and Zendaya Buffonge, thank you for your patience. I love you so much, more than words can ever say. I hope I have set the steppingstone regarding your educational pursuits. I have now shown you that the sky is the limit, and you can aspire to the highest level of education; all it takes is a leap of faith. I have now paved the way for you; it is now up to you to step out!

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To my husband Lorenzo Buffonge and our three beautiful children Jaiden, Gadija, and Princess Zendaya, we did it finally! I will always remember the sacrifices that you made for me so that I could accomplish my dreams. This degree belongs to all of us.

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Chapter 1: Introduction to the Study

The school system in the Caribbean is unique and significantly different from those of developed countries. Many teachers in the Caribbean use corporal punishment to discipline students in the classroom for behavioral issues or to assist students in learning concepts or shaping negative student behavior. Teachers are also referred to as lecturers. Many lecturers conduct their classes through the mode of teacher-centered learning. This mode can become problematic. Within higher education platforms, experienced college lecturers often have trouble adapting to changing students who learn differently from the students they once taught. They may also find it challenging to adapt to the new educational technologies that support and promote learning. As a result, college lecturers may have difficulties effectively executing lessons to their students in ways that support how these individuals now learn.

Prensky (2014) said that contemporary students' brains are different from those of previous generations, which has caused lecturers to face difficulties in terms of effectively understanding the way these students learn. Younger students have grown up in the age of technology and often prefer that their learning is executed in new and exciting ways, preferably through student-centered use of technology. Past generations were subjected to teacher-centered learning, where teachers held the wealth of information and divulged it to their students (Masingila et al., 2019).

Saxena (2017) said technological tools within the lecturers' instructional practices can lead to positive outcomes within the classroom. By working toward this vision, college lecturers can transform the classroom environment into one that will enhance

learning and assist with the preparation of students to become computer literate individuals. These necessary skill sets provide students with the essential skills to acquire necessary computer literacy needed to work competitively within the workforce (Venkatesh et al., 2016). Positive outcomes can only be achieved once technological tools are adequately and successfully implemented (Masingila et al., 2019). Once successful adoption occurs appropriately, it will allow for successful moments within the classroom and a more significant learning experience for all involved.

As new educational technology tools continue to emerge, extensive research supporting education technology's effectiveness and its benefits on students' learning have been established. Many college lecturers still find difficulties employing these tools within their lecturer-based classrooms. These difficulties occur even after knowing that successful adoption of educational technology can lead to changes within the learning process among students. Masingila et al. (2019) said even though technology adoption is a meaningful tool that can promote a positive learning environment in terms of students' success, if the adoption process is not done correctly, it will not provide a better learning environment for students.

Alemu (2015) said despite college lecturers' interest in technology adoption, they face several challenges that prevent them from adopting technology successfully. According to Khodabandelou et al. (2016), these challenges include teachers' lack of professional development in terms of adoption of technology. It is difficult for lecturers to integrate curriculum and technology when used together. However, lecturers continue to see technology adoption as complete and distinct from the classroom environment.

Therefore, lecturers' technology competency and knowledge skills are vital in terms of instructional practices. However, if lecturers lack the confidence to use technology, then both students and lecturers may find themselves at a disadvantage within the classroom environment.

The term *technology adoption* is defined as the lecturer's ability to use technology within their instructional practice to foster students' learning and promote positive student outcomes through curriculum using technology in their instructional practices (Hsu, 2010). As lecturers aspire to adopt technology, they may find hindrances that prevent them from being successful. These hindrances can be seen as barriers and may include lecturers' self-efficacy. It may be because of these barriers that college lecturers have found difficulties with the adoption process, causing adoption within the classroom to move at a slower rate. This may be a contributing factor that can influence college lecturers' technology adoption when they are attempting to use Information Communications Technology (ICT) within the classroom. Self-efficacy is influential. It can influence a person's actions, affect their behavior, and influence how they think and behave when interacting with others (Kul, 2018). Understanding decision-making factors that lecturers contemplate during their adoption process will help explain lecturers' success and/or failure during their adoption process.

Chapter 1 includes an examination of the role that lecturers' self-efficacy plays during the adoption process and barriers and supports that they need during technology adoption. Chapter 1 includes the background of the study, problem statement, purpose of

the study, research questions, conceptual framework, nature of the study, key terms, assumptions, scope, limitations, and delimitations, and significance to social change.

Background of Study

Through globalization, technology has changed society and the life of individuals. In the 20th century, there was a mass change in society due to information diffusion and communication technology. Technology has ultimately caused the information revolution and shaped education (Khodabandelou et al., 2016; Lawrence & Tar, 2018; Wilson, 2018). Globalization and technology have enhanced education in terms of computers, mobile devices, and the Internet (Lawrence & Tar, 2018; Ponte & Cullen, 2013). Adopting technology into the education system can help college lecturers provide quality education to whoever and wherever within the world (Khodabandelou et al., 2016; Lawrence & Tar, 2018). According to Wilson (2018), educators should then try and aspire to learn 21st century skills that meet educational needs and the necessary support to assist the ways students are learning. Promoting digital literacy will help in evoking students' critical thinking skills within the classroom (Wilson, 2018). These skills will help students develop the necessary tools to prepare them for work when they leave school.

According to Onuoha et al. (2016), English-speaking Caribbean countries have been committed to reaching these 21st century skills. Trinidad and Tobago gave away $73,200 in laptops to students and teachers costing $255 million to enhance technology (Phillip et al., 2017). Other regions that participated in this government initiative were St. Vincent and the Grenadines, Jamaica, Trinidad, Antigua, and Barbuda. These countries

distributed laptops to students, teachers, college lecturers, and the local community to promote ICT adoption and promote ICT competency (Iyare et al., 2018; Onuoha et al., 2016). This endeavor was aimed to equip every household with the ability to become technologically literate by providing citizens with the technological skills (Iyare et al., 2018). Antigua and Barbuda were examples of an English-speaking Caribbean territory that supported this task through the implementation of Technological Community Access Centers.

According to Khodabandelou et al. (2016), college lecturers' issues regarding technology adoption include internet connectivity failure, online course tool failure, and outdated or broken devices in computer labs. Within the Caribbean, professional development for college lecturers regarding technology use is insufficient and negatively affects college lecturers' confidence in terms of using technology (Kut, 2018; Onuoha et al., 2016). There is inadequate support when lecturers attempt to adopt technology in the classroom, and they lack time to learn new technological tools (Guzmán, 2018; Kut, 2018; Onuoha et al., 2016). Although stakeholders and persons within the Antigua and Barbuda education system believed in technology adoption, few policies support the initiative of becoming competent and adopting technology within lecturers' classroom.

This study is useful because it will fill a gap in knowledge regarding challenges college lecturers face in terms of technology adoption within their specific subject area from a Caribbean perspective. Presently, there is not much literature on college lecturers' experiences within the Caribbean regarding their technology adoption and the necessary support required with this adoption within their specific subject area. It was found that

most literature was written from a western industrialized perspective, and it proved to be challenging finding current information about Latin America and other developing countries regarding technology adoption.

The study will also provide information that will influence policy and help in terms of making necessary adoption changes. Such changes could lead to policymakers supporting the technology adoption process for college lecturers and students. Once stakeholders are invested in the cause, they will be more mindful of inadequate infrastructure, resources needed, and lecturers' recommendations to bring about educational reform. Although several gaps and problems have been identified within the study, my primary focus was on lecturers' barriers to adoption within the English-speaking Caribbean and beliefs regarding their self-efficacy in terms of adopting technology.

Problem Statement

Research and empirical evidence have revealed the benefits and necessity of equipping students with 21st century tools. It is unclear to college lecturers what barriers they face within their instructional practices and additional supports they perceive that they may need to implement technology in Caribbean tertiary colleges successfully. Lecturers' self-efficacy beliefs may be influential in terms of not adopting technology within their instructional practice. Currently, college lecturers at the Zendejay college are not adequately adopting education technology within the classroom, preventing students from acquiring 21st century skills needed to function adequately within the workforce (Ramorola, 2014). However, college lecturers know the benefits of ICT, but many find it

challenging to make connections using technology at home and transferring it within their instructional practice (Kimmons & Hall, 2016; Onuoha et al., 2016).

Many possible factors may contribute to this problem. These problems may include the preferred mode that lecturers choose to teach, barriers to adoption, culture of adoption, lack of understanding of how to use new technology, inability to evaluate adequately the degree of success or impact that technology has, and college lecturers' status as digital immigrants. These factors may be related to college lecturers' self-efficacy.

Self-efficacy can play a significant role in college lecturers adopting technology within their subject area and has the power to influence tasks that a person may engage in (Bandura, 1977, 1986, 1998). However, the lower the lecturer's self-efficacy is, the more the task will be avoided. Individuals who have a higher self-efficacy level may seem to be more persistent when using technology and will embrace what technology offers to achieve their goals.

This research will help fill a gap within the literature regarding barriers college lecturers perceive when using technology in their instructional practices and additional supports they perceive they may need to implement that technology in Caribbean tertiary colleges successfully. It will also fill a gap in the literature related to lecturers' perceptions of their self-efficacy regarding adopting the technology. At present, information regarding lecturer barriers and their specific self-efficacy level related to technology is unknown.

The Caribbean faces educational challenges compared to some developed and developing countries. There are many constraints to consider in the Caribbean that would not be present within an industrialized country. Although college lecturers agree that technology adoption helps students succeed, they often find it challenging to adopt technology successfully and consistently within their subject area due to barriers (Onuoha et al., 2016).

Purpose of the Study

The purpose of this basic qualitative study is to fill a gap in knowledge regarding perceptions of college lecturers' self-efficacy when implementing technology in terms of classroom instructional practices. This study will contribute to the body of knowledge regarding adoption of technology in the Caribbean. The study will fill a gap in the literature by assisting with understanding barriers to technology adoption experienced by college lecturers outside of North America, specifically focusing on the Caribbean. The study will include information regarding college lecturers' self-efficacy during technology adoption, as well as the barriers and support lecturers need.

With the increasing rise of digital technologies, businesses and the workforce have increased in power and intelligence. However, there is not adequate information regarding the Caribbean. Appropriate training, resources, self-efficacy, confidence levels, and cultural issues need to be explored. Data found from this study may assist policy makers, lecturers and stakeholders during their decision-making process and fill a gap of knowledge.

Research Questions

RQ1: What are college lecturers' beliefs regarding self-efficacy in terms of adopting technology in their current position at Zendejay College?

RQ2: What are college lecturers' beliefs about barriers to technology adoption at Zendejay College and necessary supports they feel would be needed to overcome these barriers?

Conceptual Framework

This study's theoretical frameworks were Bandura's self-efficacy theory and Rogers' diffusion of innovation theory. Bandura (1997) suggested that lack of competency or uncertainty in oneself and one's environment can lead to a resistance to change. This can make it difficult for technology adoption to occur. Self-efficacy influences the activities in which one engages. People's insecurities and beliefs in themselves are the fundamental cause of their successes or failures in terms of situations that they may face. This can, therefore, be a barrier to technology adoption. Based on personal perceptions, past experiences, and comfort levels, individuals perform at the level at which they feel comfortable. This theory helped me to interpret if issues faced by college lecturers in the United States (U.S.) are the same problems faced by Caribbean college lecturers.

If college lecturers are not comfortable using technology, then implementation will be met with resistance, making adoption impossible (Arcelay-Rojas, 2018; Kale & Goh, 2014). Many college lecturers are accustomed to using a teacher-centered approach. It may be difficult for some to learn different instructional strategies; therefore, they may

resist innovation and implementation within the classroom. Arcelay-Rojas (2018) explained that a person's behavior is often governed by their perceptions of self-efficacy rather than their actual capabilities; Hence, many college lecturers may be afraid to attempt technology adoption.

Rogers' diffusion of innovation theory is used to describe ICT adoption. Rogers (2005) stated that adoption is the ability of individuals to use an innovation to enhance their everyday life. Rogers' theory includes five main steps that influence adoption: knowledge, persuasion, decision, integration, and confirmation. Without these steps, adoption cannot take place (Rogers, 2005, 2010). Rogers (2005) said:

1. The decision-maker gains knowledge concerning a particular innovation.
2. The innovator must begin to form ideologies and attitudes concerning the innovation.
3. A decision must be made about whether to embrace or reject the innovation.
4. The innovator decides whether to implement the innovation due to the choices that occurred during the process, allowing the innovator to evaluate whether they will use the innovation.

These steps helped me determine barriers preventing lecturers' adoption of technology at Zendejay College as well as failures and successful experiences. Conceptual frameworks were used to provide an understanding of the phenomena.

Nature of the Study

A qualitative basic study approach involves focusing on a specific population bound by a restrictive commonality (Yin, 2009). The design is used to provide detailed

and in-depth descriptions when looking at a particular phenomenon. This study includes college lecturers who are implementing ICT at Zendejay College. I chose to use a qualitative approach because qualitative research provided me with a lens to examine individuals in their natural environment. It further allowed for the extraction of both large scale and fine details; these details were not available through quantitative analysis, which would only allow for acceptance or rejection of structured hypotheses.

Detailed personal accounts from interviews were used to provide insight and rich content regarding technology adoption perceptions. It further allowed me to learn about participants' inner thoughts regarding lecturer self-efficacy and ICT adoption habits. Information from the interview helped me to answer the research questions.

Definitions

Caribbean: The region of the Americas consisting of the Caribbean Sea, its islands, and surrounding coasts. This includes islands from the Bahamas to Trinidad, Belize, Suriname, and French Guiana. For this study, I focused on the Caribbean islands that were or still dependent on Britain and are a part of Caricom.

Diffusion of innovation: The theory explains why, how and the rate that new innovations gains momentum and spreads through a specific population.

Information communication technology (ICT): Khan et al. (2012) defined ICT as any technologies that includes the internet, podcasting, broadcasting and telecommunication that facilitates instruction and the learning process.

Lecturer-based instruction: (Damodharan & Rengarajan, 2007) defined lecturer-based learning as an instructional approach which lecturers refers to the traditional

learning approach. This form of learning involves lecturers delivering their instruction verbally.

Self-efficacy: How peoples' beliefs impact their ability to perform or succeed in a specific task (Bandura, 1977).

Teacher efficacy: Teachers' judgment regarding their capabilities to bring about desired outcomes from a specific task (Tschannen-Moran et al., 1998).

Technology adoption: Kurt (2014) defined technology adoption as "the use of technology to enhance what we are doing in the classroom" (p. 91). In the context of this study, technology adoption is the lecturer's ability to use technology within their instructional practice to foster students learning and promote positive outcomes through curriculum by using technology in their instructional practices.

Assumptions

Within the study, the following assumptions were made. Participants answered all questions truthfully while taking part in the study. All information gathered from participants were issues that were faced at Zendejay College. Participants chosen for this study had different levels of experience with technology adoption.

Scope and Delimitations

My study was confined to one tertiary institution in Antigua and Barbuda. The population chosen for the study were college lecturers who have been working at the Zendejay college for 3 years and more. I chose to focus on college lecturers based on the lack of information and research that has been found on this specific population.

Limitations

Bias is a limitation in research. As a technology specialist, I am familiar with the study's focus and have seen technology implementation in several organizations. Researchers must explicitly recognize and acknowledge research value-laden nature and understand that biases may be present (Creswell, 2012). Due to Covid-19, I was not able to conduct any face to face interviews because of social distancing. As a result of social distancing, I was forced to conduct all interviews via the telephone.

Significance

Caribbean students within Antigua and Barbuda still lack the skills necessary to function using ICT. Education is ranked as the least technology-intensive enterprise (Lowther et al., 2008). However, unlike the U.S., the islands of the Caribbean are now trying to document empirical data so they can effectively evaluate where they are in terms of technology adoption progress among educational professionals.

The body of knowledge regarding technology adoption may be used to develop steps or assist with specific policies to help the advancement of using education technology within a classroom context. Prensky (2014) said that each generation of children changes dramatically in terms of their roles as students and how their needs are best met. As college lecturers strive to cater to these changing requirements, it is essential to consider that what may work for North America may not work within a Caribbean context, as North American settings are not analogous to the Caribbean. This basic study can add to the body of literature regarding Caribbean perspectives of perceived barriers to technology adoption among college lecturers.

Research in a Caribbean context regarding technology adoption is minimal. By conducting this study, I will add to information that presently exists. I hope this study may assist with providing meaningful data to the Ministry of Education and other stakeholders. Information gained could help future researchers better understand the complexities of technology adoption within the Caribbean, particularly using Antigua and Barbuda. Such information may be useful in terms of preempting potential hindrances while also bolstering factors that facilitate proper integration of ICT within their learning. Solutions from this study may also prove to be useful for policymakers who need to make informed decisions regarding other colleges and primary and secondary schools across the region.

Summary

The focus of Chapter 1 was to explore rationales and justifications for the proposed study. Chapter 1 included background information regarding technology adoption, both in North America and the Caribbean. The study explored lecturers' self-efficacy and perceptions at Zendejay College regarding technology adoption within the classroom, as well as potential barriers that may affect how technology is integrated. Literacy is about having the technical knowledge and the required 21st century skills needed to function adequately in the world of work. For this to occur, college lecturers must understand the importance of using technologies to enhance learning. Lecturers also must perform these tasks in an environment where technology can be successfully adopted and assist in providing ICT skills needed for students' learning success.

Chapter 1 included the introduction to the study. It also included the problem statement, purpose of the study, and research questions. This was followed by information about the conceptual framework, key terms, assumptions, and scope and delimitations of the study. This was followed by information explaining the significance of the study. Chapter 2 includes an extensive review of literature as well as literature search strategies, theoretical frameworks, barriers to technology, adoption difficulties in terms of ICT integration, self-efficacy and teacher efficacy, and technology adoption within the Caribbean. Chapter 2 includes a discussion of relevant and current peer-reviewed research.

Chapter 2: Literature Review

Research and empirical evidence have revealed the benefits and necessity of equipping students with 21st century tools. College lecturers do not adequately adopt education technology within the classroom, preventing students from acquiring 21st century skills needed to function adequately within the workforce. Many college lecturers know the benefits of ICT but may find it challenging to make connections when using technology at home and transferring it to the classroom (Onuoha et al., 2016). The purpose of this basic study is to understand college lecturers' beliefs regarding barriers to technology adoption experience in the English-speaking Caribbean and their self-efficacy when adopting technology. By understanding barriers to ICT adoption, stakeholders will have a better idea of what policies, implementation strategies, and support are necessary for college lecturers to implement ICT in the classroom.

The literature review includes a discussion of relevant literature relating to technology-based education and ICT and the theoretical foundation for this study. An exhaustive review of recent literature was performed, which indicated a gap in existing knowledge regarding the effect of teachers' self-efficacy in terms of implementing classroom technologies such as ICT.

Literature Search Strategy

There were several strategies employed to review the existing literature regarding ICTs in education. Peer-reviewed journals, books, and other information sources were found using the following databases: Eric, EBSCO, Google Scholar, Education Research Complete, ED/IT Digital Library, and Academic Search Complete. Key terms used to

locate pertinent articles were*: Barriers to technology adoption, difficulties with ICT integration, self-efficacy, diffusion of innovations theory, education technology, ICT, teacher-efficacy, technology integration at tertiary level, technology, teacher attitudes toward technology, technology use in the Caribbean,* and *technology integration within Caribbean territories.*

It was challenging to find information regarding literature that was based in the Caribbean. The Caribbean geographical region has been overlooked within the body of literature. The North America does not have the same conditions faced by developing countries, especially those in the Caribbean and Latin America (Onoucha et al., 2016). Some of the research was published prior to 2013 and outdated. Most sources gathered regarding technology adoption and their barriers were published between 2012 and 2018. However, some older sources were also cited to explain theories and focus on specific barriers to adoption within the Caribbean.

The literature review includes a review of the conceptual framework, which guides the research and provides a lens for the study. I then provide an analytical review of key concepts in the literature relating to the phenomenon being researched. This includes the research context and paradigm shifts in education. Next, I discuss the impact that ICT technologies have on education. I then expound on teachers' self-efficacy, the development of lecturers' efficacy, and barriers to adoption. Lastly, I explain positions of college lecturers regarding educational technology.

Conceptual Framework

The theoretical frameworks that guided this dissertation were Bandura's self-efficacy theory and Rogers' diffusion of innovations theory. The self-efficacy theory is derived from Bandura's social cognitive theory. Self-efficacy is a significant factor in terms of whether college lecturers use educational technology within their classroom (Jamal & Khasawneh, 2011; Krause, 2017). According to Horne et al. (2014), self-confidence is "the confidence that one has in one's ability to do things one tries to do" (p. 1). This makes individuals feel strong enough to try new activities they may not know or be comfortable with. Through self-confidence, individuals may have positive outcomes. Bandura (1977) defined outcome expectancy as "a person's estimate that will lead to certain outcomes" (p. 193). Self-confidence can give individuals the strength to influence positive outcomes. Self-efficacy relates to a person's ability to produce an effect. Bandura said although outcome expectancy and self-efficacy are linked, without self-efficacy, an individual's outcome expectancy will be incorrect.

Self-efficacy is how a person views their capabilities through reflection, internalization, and actions (Bandura, 1977). Xia (2017) defined self-efficacy as the ability or belief that a person has to execute an action and achieve desired outcomes. Self-efficacy influences whether individuals perform specific tasks, which then causes their learning to be controlled by a specific behavior or environmental factor (Xia, 2017). Bandura (1998) said individuals who perform at high levels have high self-efficacy and engage and participate in projects faster and more willingly than those who have low self-efficacy and are slower and disengaged. Persons with high self-efficacy believe in their

capabilities and are not afraid of new challenges or difficult tasks (Lemon & Garvis, 2016). However, individuals with low self-efficacy doubt their skills. Efficacy expectation is dependent on how much exertion is necessary to complete a task and how much time is spent working out challenges. If an individual's perceived self-efficacy is strong, they will put forth greater efforts to accomplish a task than individuals with low self-efficacy. Persisting with activities perceived to be challenging allows individuals to gain experiences strengthening their self-efficacy. Conversely, individuals who do not face challenges and choose not to complete tasks may experience lowered self-efficacy and increased fear in terms of facing challenges and completing tasks (Bandura, 1977, 1986, 1997).

People often become defensive or fearful when they are afraid of failure, for they do not want to look incompetent or have self-doubt. These feelings cause individuals to avoid or choose not to complete difficult tasks. Individuals with low self-efficacy foresee failure in terms of change, and they doubt success can come about through organizational change. Individuals with these qualities will also give up easier if required skills or subskills seem challenging (Bozbayindir & Alev, 2019; Schunk, 1995).

Self-efficacy is a powerful tool that can be used to predict individuals' behaviors and how they perform specific tasks. Self-efficacy is a contributing factor in terms of performing well in academics (Bandura et al., 1996; Xia, 2017). Individuals who have a strong sense of self-efficacy participate more readily in tasks and work more diligently when encountering stressful situations (Bozbayindir & Alev, 2019; Margolis & McCabe, 2004; Xia, 2017). Self-efficacy influences how individuals choose activities and how

long they plan to engage in them (Bozbayindir & Alev, 2019). However, although self-efficacy influences performance, it is not the sole determining factor of behavioral success, especially if an individual's will and abilities are deficient (Bandura, 1977, 1986, 1997).

According to Chemers et al. (2001), when a situation is perceived as challenging or threatening, self-efficacy affects how individuals experience the relationship between situational demands and coping resources. If lecturers coping resources are insufficient, then a threat occurs, and individuals may avoid the challenge. However, if lecturers coping resources are adequate to meet situational demands, then the individual will take up the challenge. People with high self-efficacy will have the confidence to acquire enough resources to meet situational demands (Xia, 2017).

A person's self-efficacy influences people's actions and behaviors more than their skills and capabilities (Bozbayindir & Alev, 2019; Ertmer & Ottenbreit-Leftwich, 2010; Oskay, 2017; Xia, 2017). Therefore, it is crucial to foster and develop self-efficacy in individuals. By encouraging lecturers through support, reinforcement, and incentives, low self-efficacy can be improved. Some strategies to improve self-efficacy as suggested by Bandura (1977) include reinforcing activities. Bandura shared that these activities can assist struggling learners especially when a mentee is able to share their experiences with others. Moreover, going slow so that concepts can be understood; breaking down the frequency of extrinsic reinforcement, providing strategies for improvement and listening to learners' struggles can help better understand problems lecturers face and build confidence level. Lastly, by modelling behaviors with clear outcomes, using verbal

persuasion, which can influence behaviors, and emotional arousal to cope with stressful outcomes and threats, lecturers can use these techniques to build their self-efficacy.

Schunk (1995) provided an intervention strategy to enhance self-efficacy, which included goal setting, feedback to influence self-efficacy, and modelling of effective behaviors. Positive verbal persuasion, mastery, and sharing experiences can encourage individuals to build up their beliefs and improve self-efficacy (Bandura, 1977, 1986, 1998). In support of Bandura's (1977) theory of self-efficacy, Moller et al. (2008) indicated that college lecturers' can increase their self-efficacy with technology adoption by having positive experiences with computers and classroom technologies (Oskay, 2017). If educators can attest to how technology promotes students' success and engage college lecturers in the technologies, then college lecturers' confidence and self-efficacy will increase (Bozbayindir & Alev, 2019; Lee & Lee, 2014; Oskay, 2017).

Rogers (2003) diffusion of innovations theory is a popular theory used to describe ICT adoption. This theory guides understanding as to the why, the how, and the speed with which an innovation is adopted by a population or a community (Rogers, 2005, 2010), Rogers (2003) defined *adoption* as an individual's ability to use an innovation to enhance their daily life. *Rogers defined diffusion* as a way that an innovation is communicated over time through a channel within a community or social system. Rogers considered the various steps of adoption and found five key steps in successfully integrating technological innovations (Hart & Laher, 2015; Rogers, 2005, 2010). These include: (a) knowledge: the decision-maker gains knowledge about an innovation, (b) persuasion: the innovator begins to form ideologies and attitudes about the innovation by

watching others, (c) decision: a decision is made as to whether to embrace or reject the innovation integration, (d) implementation: the stage in which a plan is developed for implementing the innovation for use, and (e) confirmation: the innovator decides whether to implement the innovation based on an evaluation of the choices that occurred during the process (Rogers, 2005, 2010).

Rogers's (2003) diffusion of innovation theory is vital for this study, as it provides insight as to why college lecturers at Zendejay College may be hesitant to use new technology innovations, why some college lecturers may accept the new technology, and why others may reject using technology (Rogers, 2005, 2010). Fishbein and Ajzen (2010) stated that when adopters look at an innovation and feel that they lack the skills to use it or have negative feelings toward it, issues may arise in implementation (Lawrence & Tar, 2018; Rusek et al., 2017).

Rogers (2003) diffusion of innovation theory also suggests that specific attributes may influence a person's likelihood of innovation adoption (Rogers, 2005, 2010). These attributes include the exposure a person may have with the innovation, their ability to use the innovation, and the person's socioeconomic status (Lawrence & Tar, 2018; Rogers, 2005, 2010; Rusek et al., 2017). The innovation must be compatible with cultural norms, and social norms or negative attitudes may be held by the adopter (Hart & Laher, 2015; Rogers, 2005, 2010).

Types of Technology Adopters

Though it would be ideal by stakeholders to want technology adoption to take place all at the same time with educational technology, Rogers (2005) indicated that this

will not happen because there are various rates in which innovators adopt an innovation. These include the following categories innovators, early adopters, early majority, late majority, and laggards (Rusek et al., 2017).

The innovator category. The innovator category consists of the population willing to be the first people to explore and experiment with the new innovation. They enjoy the new ideas that the innovation comes with and are eager to try and risk the unknown. This population rarely needs prodding to experiment in the unfamiliar realm (Rusek et al., 2017).

Early adopters. The early adopter category consists of a population that are willing to embrace change and are change agents. Their views are formed based on leaders who have strong opinions on the innovation and are normally in leadership roles. They understand the importance of making the necessary changes and therefore are comfortable when it comes to embracing a new innovation (Rusek et al., 2017).

Early majority. The early majority is a category of people who are not normally in the leadership position. However, they are willing to embrace changes and adopt new ideas normally before the average person. This type of group is moved by evidence that the innovation truly works before they embrace the idea. This group is moved by success stories, and proof of the effectiveness of the innovation (Rusek et al., 2017).

Late majority. Thirty-four percent of the population belongs to the group of the late majority. This group is a unique group because they are very skeptical toward change and new innovation. They are not quick to conform, and they will only attempt to agree

toward change after seeing the majority doing it. This group is motivated by the number of people who have tried it and the success rate of the innovation (Rusek et al., 2017).

Laggards. This Laggards group represents 16% of society and are seen as very conservative to change. They are usually the group that is resistant to change and are very skeptical about the change process. They are traditional in how they do things and are resigned with the attitude, if it is not broken why fix it. This group, above all the groups is the most difficult to bring aboard and is moved by fear of applied pressure from other adopter groups (Rogers, 2005, 2010; Rusek et al., 2017).

Factors That are Influential to Technology Adoption

For adoption to take place three key things must occur. There must be awareness of the innovation and the need that it serves. The adopter must see that there is indeed a need for the innovation or that it is necessary to adopt the innovation or reject it. There are five major factors that will influence how an innovation is adopted. These are the innovation's relevance, compatibility, complexity, trialability, and observability (Lawrence & Tar, 2018).

Rogers' diffusion of innovation theory assisted with determining the barriers that are preventing adoption at the college. It also will explain why college lecturers have different rates of adoption

Description of the Research Context

The Caribbean consists of many rich and beautiful islands. It consists of the region of the Americas consisting of the Caribbean Sea, its islands and the surrounding coasts (Puntigliano & Briceño-Ruiz, 2017). The study will focus only on the Caribbean

islands that were once or still is colonized by Britain. These islands are referred to as the English- Speaking Caribbean.

The basic study was conducted in the geographical location of Antigua and is a part of the English-Speaking Caribbean. The present population is approximately 90,000 persons. The island was formerly a British Colony and therefore is considered an English-speaking island (Younger & George, 2013). At present, there are two tertiary institutions on the island. For the purpose of the study, I have protected the institution's identity that I will be using. It is for this reason; I have given the institution a pseudonym, Zendejay College. Zendejay College is one of the leading institutions. People come from all over the Caribbean wanting to attend the various programs. The institution has more than 1,000 students presently enrolled and hosts various departments. The staff compliment is about 100 persons.

Understanding the Paradigm Shift in Education

Traditionally in the Caribbean, the chalk, beat, and talk method of teaching has been many educator's method of choice (Cockayne & Cockayne, 2018; Prensky, 2008; Ray, 2018). According to Dexter et al. (1999), this method is widely used because college lecturers' instructional styles are determined by the way college lecturers prefer to learn. However, some college lecturers face difficulties educating students in ways that students can benefit most from. Hur et al. (2016) found that using ICT in the classroom, with clear objectives, appropriate pedagogical and instructional methods, positively impacts students' learning. However, though many studies have shown the positive impact of technology integration in education, other studies have demonstrated that there has been

no significant impact with using technology adoption on learning (Pechenkina & Aeschliman, 2017). Prensky (2014) highlighted that students are disengaged from education and college lecturers because of college lecturers' instructional methods. This may be causing a digital divide between students and educators (Jarrahi & Eshraghi, 2018).

Before the information technology age, college lecturers did their best to ensure students were equipped with the three Rs: reading, writing, and arithmetic (Keane et al., 2016). These fundamentals were deemed as essential tools required for a proper education. However, Collins and Halverson (2009) argued that in the 21st century, students need to know more than the three Rs. Students must learn to function adequately in the world of work. Having appropriate technological skills may enable students to function in school, life, and work. College lecturers must look at technology as a valuable tool for teaching (Reigeluth, 2016).

According to Kumutha and Hamidah (2014), traditional teaching methods are a cause for concern. Because some college lecturers avoid technology learning within the classroom, students cannot function adequately and be productive in a working environment. New literacies are not being taught within many school environments, and this causes students to be deficient in technological skills as well as college lecturers who are not using the appropriate skills to impact learning effectively (Onuoha et al., 2016).

If technology is adequately integrated into education, positive impacts on education and student outcomes may occur (Ahad et al., 2018; Onuoha et al., 2016). This can facilitate changes in how college lecturers teach and how students learn and

communicate with each other (Farjon, Smith & Voogt, 2019; Wilson, 2018). There are many positive outcomes of educational technology on teaching, the learning process, and the broadening of educational opportunities (Farjon, Smith & Voogt, 2019; Khan et al., 2012; Onuoha et al., 2016; Wilson, 2018).

Lecturer-centred learning is no longer an instructional method of choice for students (Machado & Chung, 2015). Students prefer a facilitator who guides them and empowers them to use and explore through new literacy skills and student-centered learning (Jarrahi, 2018). The International Society for Technology in Education (ISTE) highlighted that college lecturers should integrate technological-based learning opportunities into curricula and classrooms. College lecturers must be cognizant that students are calling out for a transition to be made from traditional education to one that is more technologically enhanced (Kurt, 2010). Schools need to keep up with the digital world's demands if they wish to adequately serve their citizens (Van Niekerk & Blignaut, 2014). In current classrooms, pedagogy is shifting from teacher-centered to student-centered teaching (Machado & Chung, 2015). Though technology-based learning is not the same as student-based learning, it can lead to students experiencing increased engagement and thus increased academic outcomes.

Impact That ICT Technologies Have on Education

Within the classroom, ICT has led to shifts and changes in education, allowing for progress in ways that could never be imagined (Jarrahi, 2018; Farjon, Smith & Voogt, 2019). Over the last 10 years, an influx of information technology has led to what is known as the information revolution (Scott, 2006). Scott (2006) referred to the

information revolution as to how information technology has developed and provides wide information availability. In contemporary education, technology adoption is a leading trend (Jarrahi, 2018; Farjon, Smith & Voogt, 2019). Over the last 20 years, extensive research has demonstrated that the development and advancement of technologies have led to educational reform (Onuoha et al., 2016). Through globalization, the world has shifted toward digital and information communication technology. That is why students must be equipped with the necessary 21st-century skills necessary to function adequately in the world today (Alemu, 2015; Banas & York, 2014). New technologies will have great potential in reviving the curriculum and supporting students' learning. College lecturers can no longer deny that technology-supported learning is now essential to the learning process, for when used correctly, it provides a wider variety of ways to learn (Jarrahi, 2018; Onuoha et al., 2016). By adopting technology into the classroom, the lecturer's role has now been transformed from a primary dispenser of knowledge to one of being a facilitator of learning (Tarbutton, 2018).

Tarbutton (2018) further stated that the knowledge that is imparted by the lecturer as a facilitator will now provide an enriching environment for which the student becomes an active learner instead of a passive one. These new literacies will allow students to have a deeper understanding of ideas. Technology use can lead to improvements in critical thinking skills and students' interactions within the subject area. It can further foster a good relationship between students and educators concerning learning and providing a quality learning environment (Coffey, 2012). Voogt et al. (2011) noted that through technology use, student learning improvement in kindergarten through Grade 12 showed

significant improvement. The study showed that ICT implementation had provided the following skills: Collaboration, communication, digital literacy, citizenship, problem-solving, critical thinking, creativity, and productivity.

Greaves et al. (2012) conducted a study that looked at the correlation between educational technology and any impact on learning. The sample was taken from 997 schools within the United States. It consisted of private, public and charter schools. The findings revealed that when technology was implemented correctly, it can impact the academic success of students. Therefore, it is essential for stakeholders, especially principals, to play a critical role in using technology within schools and ensuring that technology is used appropriately. If this is sought then, stakeholders will see numerous benefits. This may include cost savings, collaboration through online tools that can increase engagement and motivation among students, and the use of technology can help improve learning and support students with learning difficulties.

Johnson et al. (2015) suggested that when technology is adopted correctly and used under the right conditions, one can then see the value and the effectiveness of it as an instructional tool. Technology also will allow college lecturers to customize their learning to improve students' knowledge while at the same time assist with the learning needs of students (Ayaz & Şekerci, 2015). By doing this, college lecturers will begin "teaching in ways that are culturally relevant" (Philip & Garcia, 2013, p. 308). Johnson et al. posited educational transformation is not because of the tool, education becomes transformed due to educators implementing ICT tools within the curriculum which only then has the most significant impact on learning.

Another benefit of technology within education is that it fosters ICT literacy among a population. This allows citizens to be productive, creates an enriched learning environment, promotes a community of learners and supports those with learning disabilities by providing them with a voice where they were once marginalized (Alemu, 2015; Keengwe & Maxfield, 2015; Moreillon, 2009).

Khan et al. (2012) and Keengwe and Maxfield (2015) stated that there are various ways in which ICT implementation can enhance education. It assists primary education, provides online learning to people out of school, assists students outside of a classroom setting, and enhances schools' management. ICT provides an enhanced learning environment for individuals to excel (Khan et al., 2012; Krish & Zabidi, 2017). It also aids in motivating others while engaging students in the learning environment. Khan et al. shared that instructors can better understand their learning goals once technology is adequately implemented by instructors. ICT can also be used to assist in reinforcing learning concepts and to help students understand and achieve learning goals. The use of ICT promotes a community of learners who can have online discussions and receive peer support that leads to deeper understandings of course materials (Farjon, Smith & Voogt, 2019). Higher education has also received benefits from technology and has promoted the following: Storage of information and faster communication; integration into subject areas providing suitable learning strategies and support to learners; enhancement of learning through multimedia, interactive learning and assist in improving quality, equity, and access needed in a higher education environment; and ICT provides a student-centered approach. Technologies can assist educators with enhancing the pedagogical

practices (Xia, 2017) while promoting student skills through interactive learning, motivation and the reinforcement of knowledge.

Students are more engaged within their learning environment when ICT has been implemented (Hidayat et al., 2018). ICT has provided an opportunity to learn hands-on while allowing the technological tools to be used to enhance learning through various subject areas. Individuals no longer must attend school in the confinement of regular school time. They now can learn beyond the walls of the classroom and tapping into their learning any time they wish (Hidayati, 2016; Krish & Zabidi, 2017). Blogs, wikis, podcasting, and YouTube have become dynamic learning methods (Coffey, 2012; Xia, 2017). Individuals have become engaged in their task and motivated in learning activities (Day & Kroon, 2010).

Discussion boards and interfaces such as Moodle have also allowed individuals to move away from their comfort zone by providing them with an opportunity for collaboration among peers and freedom to discover online. These tools help foster a classroom community and social interaction among students (Keegwee & Maxfield, 2015; Xia, 2017). ICT enables individuals to think outside the box; this has empowered individuals to no longer rely solely on the lecturer to teach them the information in a particular space. Learning can now take place at any time and at any location around the world. Through collaboration, individuals can now work together to solve problems and create projects, which are an essential attribute to employers, and it creates a sense of comradery (Keser et al., 2012; Teras et al., 2012).

Teacher Efficacy

Teacher efficacy is defined as a lecturer's attitude or feelings about his or her ability to perform a task (Bandura, 1977, 1986, 1997). Hoy (2000) defined teacher efficacy as the confidence needed to promote student learning. It allows college lecturers to step out of their comfort zone and increase their willingness to invest their efforts to support students' learning and promote persistence. According to Tschannen-Moran et al. (1998), when a lecturer has a high level of self-efficacy, college lecturers will improve their performance while increasing their self-confidence. It is vital to examine a lecturer's self-efficacy level to improve the present education system (Hatlevik, 2017; Oskay, 2017).

However, several researchers have demonstrated that the knowledge college lecturers hold regarding technology is a clear indicator of whether the knowledge obtained would influence the technology adoption (Keengwe & Maxfield, 2015; Kim et al., 2013; Sadaf et al., 2012). Kim et al. (2013) further explained that college lecturers whose pedagogy included the need for student-centered learning were often the ones that used technology within their subject matter more passionately. Teacher efficacy is an important mediating factor in the decision-making process to use technology appropriately by educators within the classroom (VanderNoor, 2014). Teacher efficacy influences the lecturer's belief of whether the students can absorb information under the lecturer's instruction (Banas & York, 2014). A teacher's efficacy will ultimately assist with the lecturer's judgments and feedback over their years, assisting in constructing college lecturers' beliefs. Through these beliefs, college lecturers analyze whether their

beliefs and the outcome will be successful (Siddiq & Scherer, 2016). An analysis of their teaching task or competency skills comes into question. It is at this point that their perceived sense of efficacy will influence decisions either negatively or positively. Lastly, the outcome of the performance will be displayed based on the decision made by the lecturer.

Yerdelen et al. (2019) acknowledged that a lecturer's belief is more influential than the lecturer's knowledge. The lecturer's belief can powerfully impact teaching practices either negatively or positively. Kim et al. (2013) indicated that although one wishes to discover the impact of self-efficacy and teacher efficacy on lecturer's adoption, their fundamental beliefs need to be addressed to understand better how technology is fundamental to education.

Developing Lecturers' Efficacy

A lecturer's level of confidence can be influenced by past experiences and the culture of the education system they are a part of. However, stakeholders and administrators can assist in reforming these beliefs. Hoy (2009) stated that vicarious experiences of watching other educators perform successful outcomes would help them build their self-esteem and encourage college lecturers to feel that they can reach the same outcome. Social persuasion is another way to build up a teacher's self-efficacy. Social persuasion could take the form of feedback, training, consultation and pep talks (Hoy, 2009). Lastly, the use of professional learning also can enhance efficacy. If one wishes to bring about change, a more in-depth investigation of how one can alter one's self-efficacy beliefs is necessary (Krause et al., 2017). Pajares (1992) postulated that

understanding lecturer's beliefs, as well as their implementation strategies can help inform stakeholders of educational practices.

Issues with Technology Adoption For College Lecturers

Technology has proven to be the most instrumental factor in students' learning experience and the world (Alemu, 2015; Bai et al., 2016; Keengwe & Maxfield, 2015, Durff & Carter, 2019). Technology has brought significant benefits to the lives of individuals and has provided significant advancement to society (Alemu, 2015; Keengwe & Maxfield, 2015; Durff & Carter, 2019; Fargon, Smith & Voogt, 2019). Within the context of education, ICT has taken education to a new level by reshaping how learning is being carried out and reconfiguring how teaching is displayed by college lecturers (Jarrahi, 2018). Khan et al. (2012) noted, "The use of ICT offers powerful learning environments and can transform the learning and teaching proofs so that students can deal with knowledge in an active, self-directed and constructive way" (p. 62).

Although technology benefits have been overwhelming in other fields, technology still has not displayed a tangible impact in the way it should in education (Alemu, 2015, Farjon, Smith & Voogt, ,2019). Though educators are already aware of how technology has been impacting learning and have agreed to the empowerment that it provides to both students and college lecturers alike; college lecturers are having significant difficulty implementing technology within their classroom (Durff & Carter, 2019). Kimmons and Hall (2016) stated, "When asked if school technology is cutting edge, only 10 % of students, 9% of college lecturers, and 17 % of IT professionals think so" (p. 312).

Many issues prevent college lecturers from integrating technology into their classes (Alemu, 2015; Alkahtani, 2017; Kim et al., 2013; Machado & Chung, 2015; Ramorola, 2014; Saxena, 2017). College lecturers face difficulties such as being unable to use technology effectively due to insufficient supportive infrastructure, awful internet connectivity, and the inability to connect the content with the appropriate technology to help support learning. Other issues may stem from age, attitude, cultural beliefs, lack of training and self-efficacy issues and ICT knowledge gaps, among other factors (Inan & Lowther, 2010; Otttenbreit-Leftwich, 2010).

College lecturers have been complaining about integration issues for more than 20 years (Kurt, 2010). Technology is not being used as an instructional tool, but it is being used minimally for non-instructional tendencies (Robinson & Wizer, 2016). Saxena (2017) shared that there are college lecturers within the school system that are presently struggling with integrating technology within a subject classroom setting. One of the many cries by college lecturers are that there is an inability to translate their knowledge of technology into a classroom setting. Consequently, this leads to a noticeable gap among college lecturers in their technology use and ICT knowledge base (Nikolopoulou & Gialamas, 2016b). College lecturers' confidence level has been shaken, which may influence the lack of ability to promote integration within their class. With the high demands and pressures made by schools and stakeholders to promote technology, college lecturers are not receiving the required support system by the necessary institution and stakeholders, leading to a lack of integration.

To further compound the issue, stakeholders do not include the college lecturers when making ICT policies. At times, these policies may not be practical, which causes college lecturers to have a negative attitude about the process (Saxena, 2017). Not all college lecturers have the same level of technological expertise, which helps explain why not all college lecturers integrate ICT at the same rate (Nikolopoulou & Gialamas, 2016a; Saxena, 2017; Van Niekerk & Blignaut, 2014). In a global study that consisted of various schools nationwide, across 26 countries, Kurt (2010) revealed that the two most significant issues within secondary and primary schools were found. It was identified that there was a deficiency by teachers as to their skills and the lack of necessary training they needed to be competent to implement technology tools within the classroom effectively.

Although college lecturers accept the value of ICT integration, it may become difficult for college lecturers to manipulate ICT into the subject matter (Durff & Carter, 2019; Robinson & Wizer, 2016). Many preservice and in-service college lecturers lack the ability to use technology to support educational learning. This may be because they may not be technologically savvy (Durff & Carter, 2019; Ramorola, 2014). College lecturers may also have difficulties following the new technological trends such as blogs, wikis, podcasting, and animation creation. The need for support is pivotal, and many of these educators may have none at the educational institution they work at (Ramorola, 2014). ICT should be included in the curriculum and should not be used in isolation of the curriculum (King et al., 2019; Ramorola, 2014).

College lecturers did not find that their school had a clear vision for how ICT was to be used; or how it would fit within the curriculum (Alkahtani, 2017; Kimmons & Hall, 2016). Other researchers found that many developing countries had issues with funding getting equipment while still ensuring that their readiness to use the technology was at its best (Rivers et al., 2015). Instructors also found that it was challenging due to time constraints to experiment with the technologies while learning the necessary strategies and attending professional development opportunities to sharpen their skills (Alkahtani, 2017; Khan et al., 2012; Kimmons & Hall, 2016).

College lecturers also found that there were significant difficulties accessing technological tools due to funding. They felt they lacked pedagogical support while still forced to teach in overcrowded classrooms and still be productive using technology without the essential tools (Alemu, 2015; Saxena, 2017). However, Trucano (2009), who specifically focused on developing countries and ICT integration, shared that the issues that were found in the developed countries may not be specific to the ones in the developing countries (Kozma, 2002). Kozma (2002) further shared that adequate policies are necessary to see the relevant change within the education system within many developing countries and the integration of technology. Though lack of policies is an issue, issues such as lack of ICT infrastructure, First-Order barrier, and an unenthused culture about bringing technology into the school culture also played a factor (Alkahtani, 2017; MacKinnon & MacKinnon, 2013). By identifying the issues that college lecturers faced within their integration process, stakeholders will have a better working experience

as to the issues that college lecturers are facing and how they would go about rectifying these issues so that clarity and support can be given to the relevant participants.

Barriers to Technology Adoption

Within the integration process, college lecturers are instrumental and necessary. There is no question that technology plays an essential role in educational success sustainability (Kearney et al., 2018; Ozerbas & Erdogan, 2016). College lecturers' and their technology adoption practices and lessons learned can lead to solutions as to how to better understand the integration process. A barrier can be defined as anything that prevents a specific objective from occurring. Within the area of technology adoption, studies have demonstrated that college lecturers appreciate the importance of technology adoption and how it is valuable to students' motivation while promoting students' engagement (Castro & Nyvang, 2018; Ottenbreit-Leftwich et al., 2010). Even though this may be so, college lecturers are experiencing considerable difficulties in the integration process due to barriers (Ertmer et al., 1999). For these reasons, researchers have been driven to gain an in-depth understanding of `the various factors that contribute to technology adoption (Castro, 2016; Castro & Nyvang, 2018).

Inan and Lowther (2010) shared that "achieving technology adoption into classroom instruct is a slow and complex process that is influenced by many factors" (p. 38). These may include lecturer's beliefs, culture, age, lecturer's willingness to embrace ICT, and its impact on learning (Chen, 2008; Christensen, 2002; Papanastasioa & Angele, 2008); having lack of knowledge into the specific innovation, vision, professional development, access and time (Villalba et al., 2017). Some of the most common barriers

are lecturer-related variables that include the self-confidence of college lecturers and the lecturer's belief in the usefulness of the technology (Hur et al., 2016; Tondeur et al., 2016). However, leadership is a factor in technology adoption (Becuwe et al., 2016). Other researchers have shown that barriers can be categorized into many parts. Durff and Carter (2019) divided them according to technical support and skills, pedagogical beliefs, and tolls and infrastructure.

Ertmer et al. (1999) broke the barriers down further into first-order (external factors) and second-order (internal factors) barriers. Ertmer et al. described the first-order barriers as being external to the lecturer. This includes a lack of adequate equipment, support from technical support, training, and knowledge (Chen, 2012; Ertmer et al., 1999; Hew & Brush, 2007). Second-order barriers are hindrances to technology adoption. These include school-level factors, an organization's culture, lecturer-level factors, and college lecturers' beliefs (Tsai & Chai, 2012). The last barrier, according to Tsai and Chai (2012), is the third-order barrier. This barrier refers to the lack of design and thinking skills by college lecturers (Özdemir, 2017; Tsai & Chai, 2012).

Barriers can stand alone or be interrelated. However, by removing these barriers, college lecturers will be further helped with the adoption process. If college lecturers remove their first-order barrier, they will become more encouraged using technology (Castro & Nyvang, 2018; Tsai & Chai, 2012). If the second-order barrier is removed, college lecturers will be more dedicated to technology empowerment for the students and be more committed to using and promoting a positive attitude to change toward technology (Tsai & Chai, 2012). By removing the third barrier, college lecturers will be

competent with their technology use, allowing them to readably be able to use technology when needed without any issues. Barriers will always be present. However, understanding the various barriers and their causes will allow for a better grasp into technology adoption.

New Ways of Learning

The shift of traditional learning has been apparent in many higher learning institutions, especially with the changes that digital technology and educational technologies have provided students (Delgado et al., 2015; Fu, 2013; Hart & Laher, 2015). These digital technologies have shaped education and have supported both lecturers and students in facilitating learning (Delgado et al., 2015; Hart & Laher, 2015). These tools have transformed learning and prepared students for the world of work (Smith, 2020). The tools help students practice new concepts and allow for a holistic type of learning within the classroom, which will develop students' knowledge base using various forms of technology (Smith, 2020).

According to Januszewski and Molenda (2008), educational technology is defined as “the study of ethical practice of facilitating learning and improving performance by creating, using and managing appropriate technological processes and resources” (p. 1). The primary goal of educational technology is to help others learn. Learning has always been the final product of educational technology. As college lecturers strive to promote excellence within their classrooms, educational technology will help promote their cause. Once educational technology is integrated correctly, it can provide the students with efficiency and higher test scores (Hart & Laher, 2015). However, Ozerbas and Erdogan

(2016) disagreed with this statement and shared that the use of technology innovation does not necessarily mean that students will achieve better learning and results.

Within the school system, tests are generally used to evaluate students' progress or ability to understand what has been taught. One of the methods frequently used is standardized testing. This form of testing is used in today's classroom for evaluating learning outcomes. These tests are typically done using paper and pencil test format. However, through educational technology, a more authentic way of testing can be carried out. This may include the use of concept mapping, blogs, wikis, podcasting, using Moodle and other web tools that will promote learning, creativity, and reinforcement (Wade et al., 2013).

Gardner (2003) discovered that all students do not learn the same. Some students may be visual learners, while others are kinesthetic learners. He further shared that there are seven different types of intelligence. However, when lecturers are assessing or preparing for testing, these intelligence bits are disregarded since the time frame necessary to perform these skills is not allowed

Pedulla et al. (2003) revealed that college lecturers' pressures while doing standardized testing affect how they carry out their instructional practices. It was also revealed that college lecturers might be guilty of teaching only what they plan on testing. Thus, only touching the surface instead of providing students with in-depth learning so that students can have a more extensive inquiry base. Moreover, through inquiry-based learning, students take an active role in their learning and use technology to open this door. Students no longer must rely on college lecturers to provide them with all the

information; they can now use technology to expand their knowledge. This can be achieved through problem-based learning, virtual field trips, and the flipped classroom.

Educational technology creates a more humane instruction. It is more appealing to students, and it is more efficient and effective (Prensky, 2014). Learners are more inclined to learning once the parameters to learning are appealing. Similarly, Januszewski and Molenda (2005) demonstrated a strong correlation between students' emotional state, concentration, engagement, and gratification. Educational technology can tap into these various needs.

College lecturers support educational technology. However, their unwillingness stems from the barriers they face instead of the concept of technology (Arsić & Milovanović, 2016). Nonetheless, there is a gap within the literature regarding the lack of observation evidence among college lecturers and their new pedagogical knowledge around technology adoption. A further gap regarding.. how technology relates to transforming lecturer performance and the outcome of students' performance is also needed (Westberry et al., 2015). Similarly, there is limited evidence as to the change that professional development has on college lecturers regarding the implementation of educational technology among college lecturers and their technology engagement (Durff & Carteer, 2019). Even with these disparities, one thing is for certain that college lecturers' role and attitude are of utmost importance in the integration process (Arsić & Milovanović, 2016; Buabeng-Andoh, 2012; Deng et al., 2014; Ertmer et al., 2012). Subsequently, college lecturers' roles cannot be minimized in the process of educational

technology because they are central to sustaining and instituting change within the educational process.

College Lecturers' Implementation of New Educational Technologies

Lecturers today are now using educational technologies to promote online communities and allow students to interact with one another and collaborate with others which is a key skill needed later on in the working environment. According to Smith (2020), college lecturers are using educational technologies to diversify learning. This diversity will help students be more engaged with subject content, reinforcement of concepts while assisting in problem-based learning through the use of different modalities (Delgado, Wardlow, McKnight, & Omalley, 2015; Hart & Laher, 2015). Lecturers now have the option for students' learning to be synchronous and asynchronous (Smith, 2020). These methods help facilitate learning in various ways, providing a partnership between lecturers, students and knowledge.

Lecturers have realized that the variety of learning can be seen as beneficial to students because learning can be facilitated through recorded lessons and tutorials, discussion posts, PowerPoints and other software to support student's presentations (Delgado, Wardlow, McKnight, & Omalley, 2015). Lecturer's implementation of Educational technologies can promote collaboration learning during tutorials through discussions led by their students (Smith, 2020).

Open Resources

Lecturers also uses external technologies to facilitate learning. According to Smith (2020) External educational technologies can be defined as hardware, software,

and online and mobile technologies that individuals can use and or interact with. Some examples of these tools are social media, YouTube, communication tools (e.g., Skype, Zoom, WhatsApp), podcasting and blogging. Though there are benefits to these tools, there are also risks, such as students' inability to use the technology responsibly (Henderson et al., 2015). Other risks may include bullying during discussion posts, plagiarism, and passing off others' work as their own, which is academic dishonesty (Smith, 2020).

Self-Efficacy and Use of Educational Technologies

As lecturers realize that technology has become an integral part of their instructional practices, the lecturer's self-efficacy has prevented them from implementing these educational technologies successfully (Henderson et al., 2015). O'Neil and Krause (2019) shared that lecturers' inexperience with technological skills may cause this. They further stated that it is essential for lecturers to have technological skills when attempting adoption. These include both based knowledge, instructional knowledge with digital technologies, and the ability to shadow faculty that are proficient with technology (O'Neil & Krause, 2019). Karsh (2018) concurred with O'Neil and Krause and expresses that one of the main problems that lecturers face during implementation is their lack of ability to adopt the technology (Durff & Carter, 2019). They further expounded that lecturers have even had technology anxiety due to lack of competence and inadequacy with technology training (Karsh, 2018). This impacts the lecturer's self-efficacy. In a study conducted by Olson and Appunn (2017), 264 individuals participated in a quantitative survey, and it was found that there was a correlation between technology

adoption and self-efficacy. A lecturer's attitude and or beliefs can determine whether or not they will adopt the technology. Another study by Jokisch et al. (2020) also demonstrated that self-efficacy is influential on the lecturer's action to use educational technology tools. They concluded by saying that today's current generation, specifically looking at older lecturers, may be experiencing difficulties with technology adoption. This may be occurring because they have low self-efficacy when attempting to facilitate learning through technology adoption. These lecturers do not have the requisite training or any substantial learning to technology within their formative years. However, their study demonstrated that lecturers who successfully used technology and adopted it more efficiently within their instructional practice had a higher self-efficacy level related to modern technology and were competent with technology skills.

Summary

For technology adoption to be effective within Zendejay College, consideration must be given to college lecturers' beliefs and willingness and the barriers affecting their instructional practices. College lecturers are crucial in the technology adoption process and without understanding their input and willingness, adoption will not occur effectively or efficiently. This literature review has highlighted gaps in the literature that needs to be filled to provide information to researchers and practitioners regarding the barriers to technology adoption experienced by college lecturers outside of North America specifically focusing on the English-speaking Caribbean (Onuoha et al., 2016). With the aid of more literature regarding technology adoption from a Caribbean perspective it can assist Caribbean college lecturers as to the step's others have used to overcome perceived

barriers. This in turn will allow college lecturers to feel comfortable and not to feel so alone in the process. The current research has demonstrated limited information as to the presented problem (Onoucha et al., 2016). The information found is outdated and recent information on this phenomenon is lacking. Once more updated material is more readily available, it will serve as support tool to aid college lecturers with their technology adoption.

I demonstrated the hinderances that college lecturers are facing within technology adoption within their specific subject area within the English-speaking Caribbean as well as lecturer's self-efficacy in relation to technology adoption.

Chapter 3: Research Method

Introduction

The purpose of this basic qualitative study is to understand Zendejay College lecturers' perceptions of their self-efficacy in terms of implementing technology in classroom instructional practices. The goal of this chapter was to demonstrate the rationale for choosing the selected study. It includes information about the research design and rationale used, the researcher's role, methodology, instrumentation, data collection instruments, and procedures that were used for recruitment and data analysis. This chapter highlights ethics issues within the research to ensure that this basic qualitative study was reliable, trustworthy, valid, and credible during data collection.

Research Design and Rationale

Research questions were designed to explore a contemporary issue. The research questions for this study were:

RQ1: What are college lecturers' beliefs regarding self-efficacy in terms of adopting technology in their current position at Zendejay College?

RQ2: What are college lecturers' beliefs about barriers to technology adoption at Zendejay College and necessary supports they feel would be needed to overcome these barriers?

The research design was used to provide me with an in-depth and holistic analysis of why the specific social phenomenon was chosen as well as decisions, processes, and results that were made within a specific group. This Qualitative research helped me to understand the particular phenomenon, which in turn led to meaningful judgments .

Qualitative inquiry is a viable tool when one wishes to study a particular group or problem that needs to be thoroughly explored while conveying others' stories.

There were many qualitative designs I could have chosen. Some of these designs included narrative, ethnography, phenomenology, and grounded theory. The primary focus of narrative research is to explain individuals' lives or anecdotal stories (Creswell, 2012). Phenomenology involves understanding a specific perspective or experience. By using this framework, the participants should have the same shared experience. I chose not to use this framework because the same shared experience was not the same for all participants.

Grounded theory was not adopted because I was not generating a theory. The ethnography design was considered because I initially wanted to look at whether the group's culture was the cause of barriers to adoption. However, the focus of the study changed, and therefore, this framework was disregarded. After comparing all designs, I found it was best to engage in a basic research study that would examine lecturers' barriers to technology adoption and their self-efficacy in terms of technology adoption. Zendejay College is a pseudonym given to the college under study. It is located in Antigua and has a student population of approximately 1000 persons. The college is very diverse and has approximately 100 persons teaching on staff.

Role of the Researcher

I was the sole individual who collected the data and interacted with participants involved in the research. My role was to carry out research, collect appropriate data, and report findings. For this study, I identified participants, conducted interviews with each

participant, used transcribing software to transcribe data, analyzed and coded data, and discussed the findings.

As a supervisor of the Advanced Level department faculty, I decided not to use members of this department because of the problems that it would cause ethically. Instead, I selected a research sample from other faculties outside my supervisory scope. These departments included the Departments of Business, Teaching Education, Pharmacy, and Undergraduate Studies. By using these participants, I avoided conflicts of interest. This allowed those participating to express themselves freely. I am known around the campus since I have been working at this institution for over 16 years. The staff and I have a good working relationship, and we are comfortable with each other, so college lecturers were not concerned if they saw me. My presence did not cause anxiety.

Though all researchers have their personal biases, participants would not know my personal biases since we have minimal interaction with each other. When conducting research, personal biases sometimes emerge. However, during interviews, my personal biases were never displayed. One way to ensure that this did not occur is by using member-checking. This strategy involves determining if participants still have the same views they shared prior to interviews. This strategy allowed research participants to review and give feedback regarding any overall conclusions I made after data analysis. It also allowed them to comment on conclusions and helped me to identify any personal biases. This included identifying participants, conducting adequate interviews, transcribing data, and analysis of data and coding of the data.

Methodology

The design selected for this study was a qualitative basic study. This design was chosen to provide a rich and in-depth analysis of the situation. Basic research is a method which involves acquiring knowledge into a phenomenon (Calvert, 2006). The phenomenon was barriers to technology adoption that were experienced by college lecturers in the English-speaking Caribbean and their beliefs regarding self-efficacy.

Participant Selection Logic

According to Drew et al. (2008), when selecting participants for a research study there are several elements that needs to be addressed. The participants selected were chosen due to their ability to answer the research questions. The participants were a representative sample of the population studied. I found the appropriate sample size so that the study revealed soundness while also providing a rich description of the studied phenomenon.

Within the research study, the college lecturers from the various departments at Zendejay College were the population used. They were chosen for they answered the research questions and provided an understanding into the phenomenon being investigated. The college lecturers were taken from the Department of Education, the Department of Business, the Department of Pharmacy, and the Department of Undergraduate Studies.

The desired sample size for this study was between 10 to 12 participants. However, the sample size obtained for the study was eight persons due to many lecturers, not volunteering. A representative sample from each department was achieved. Yin

(2014) shared that when conducting research, the sample size must be such that the researcher has adequate control and achieves saturation. A Basic Study can bring forth new knowledge that can help explain when and why while developing new information about the process and the outcomes (Calvert, 2006). For the study, this sample size provided relevant information. The size chosen allowed for the acquisition of enough data to answer the research questions. Saturation was achieved once the study participants all began saying the same thing after a while or when the researcher found the answers to the problem, and no further explanation was needed. The sample size chosen for the study was eight because in another study, a smaller sample size was used in a similar study conducted by Çoklar and Yurdakul (2017) that used four participants and saturation was achieved. I focused on the technology adoption experiences of college lecturers. The research design was a qualitative design and the sample size used was four college lecturers. I decided that doubling the number within my study provided a more in-depth analysis.

A representative sample was expected within the study for I used criterion sampling as the method to recruit the adequate participants needed for the research. The selection strived to be representative of the population and highlighted the various barriers that are affecting the college lecturers at Zendejay College. I also strived to analyze whether self-efficacy was a significant cause among the decision-making factors when adopting technology. However, if I achieved saturation using a smaller number, I will not interview any additional participants. Instead, I would thank them for their willingness to participate without interviewing them.

According to Patton (2001), this form of sampling would allow me to set predetermined criteria when choosing participants for a study. For this study, the criteria set was as follows: College lecturers must have more than 3 years' experience lecturing at the Zendejay College to express clearly their views that they have experienced over enough years to answer the questions with useful insights. It also allowed them to discuss any fundamental changes that they noted during their tenure. The second criterium was the cross section of the participant age. Although it is not the main focus of the study, I felt that by providing different cross sections of the participants' ages, it would provide be with a better understanding as to different barriers experienced by different age groups as well as a wide range of perspectives. This strategy assisted me in gaining as much detailed information as possible. It also allowed me to use participants that provided the greatest insight in terms of variation in attitudes toward technology and technology usage.

Instrumentation

The instrumentation that a researcher uses in data collection is vital to any research that is being conducted (Maxwell, 2020). The data collection instrument helped to provide the information that answered the unresolved questions that arose during the research investigation. For the purpose of this study, interviews were the instrument used to collect data. The interview questions were designed to answer the research questions and provided credence to the conceptual framework and literature review. The interview questions are found in Appendix A.

The timeline was as follows: I conducted a demographic and qualifying participants survey using Survey Monkey, an online survey tool to recruit participants. This process took me 1 week to complete. Secondly, I reviewed the information submitted by Survey Monkey and then chose the best candidates for the study. This process was completed within a week. Thirdly, I sent a consent form via e-mail to those who expressed interest. Fourthly, once consent was completed, I immediately began conducting interviews, which took 2 weeks to be pursued.

Interviews

I created the interview questions so that the participants' answers provided a rich narrative along with a detailed description of the problems faced. The interview questions provided the answers to the research questions. It also afforded alignment with the conceptual framework, background and the literature review illustrated in Appendix A.

For this study, participants from the various department who consented to be a part of the study were used in the data collection method. Interviews allowed me to collect the appropriate data that captured the participants' personal beliefs regarding the educational technology barriers they faced, and the appropriate support needed to assist them with their adoption journey. Patton (2002) shared that the use of interviews provides insight into an individual's human emotion and helps to understand the complexity of a problem while enabling the participant to express their stories orally. Using interviews allowed me to go back to the participants and ask follow-up questions in cases where there was any form of uncertainty after transcribing the participants' information. Interviews allowed for a better understanding of the problems because they explained

their issues and their point of view (Yin, 2018). The interview questions allowed for in-depth ideas to be expressed. Rich narrative as to the lecturer's barriers, their confidence level was also allowed to be revealed

The interviews were conducted on a one-on one-basis and done via the telephone. All interviews were conducted within a two weeks duration. Because of the interview questions' length, lecturers were given the option to have the interview split into two sessions; this was to prevent the participants from feeling overwhelmed or taxed with the number of questions being asked. If the participant was comfortable with the interview length, the interview was then done within one session. Surprisingly, no participant wanted to conduct their interview in two parts. The interview questions were constructed in such a way, as to have a form of guided conversation with the participants (Yin, 2018).

Interviews allowed me to get a greater sense of truth. This was achieved by me listening to what was said and analyzing the participant's voice modulation, especially when expressing things to me that were heart-felt. The interview questions were constructed by me. The instrument was designed to capture the present Caribbean context as well as the present Caribbean culture. I chose this instrument because it brought about rich detailed stories about the participants' experiences while adopting technology into the classroom. The data collection process took 2 weeks to conduct.

Table 1

Research Questions Alignment With the Data Collection Instruments Within the Study in Interview

Research question	Interview question
1. What are the college lecturers' beliefs about the barriers to technology adoption at Zendejay College and the necessary support they feel would need to overcome these barriers?	1. Describe any experiences that have strengthened or weakened your ability to use a specific technology innovation? 2. How has your experiences with technology adoption, influenced your decision to use it within your instructional practice? 3. What are some reasons that may influence your existing attitude toward using new technology at the college? 4. When using technology are you more likely to use it outside of school or at work? 5. Describe some of the support systems that are available for adopting technology with your subject area?
2. What are college lecturers' beliefs about their self-efficacy in adopting technology in their current position at Zendejay College?	6. What are some reasons that may influence your existing attitude toward using new technology at the college? 7. What are your views about Caribbean college lecturers moving toward technology adoption? 8. What would influence your ability from trying a new innovation within your instructional practices? 9. How much has your attitude changed since your first encounter to a new innovation that you used? 10. What are some of the events that may influence your existing attitude toward using new technology at the college? 11. How would trying and learning a new innovation influence how you interact with it? 12. How much does your self-efficacy level play a factor when attempting to try a new technology? 13. Describe your confidence levels regarding technology adoption during your instructional practice? 14. Within your specific subject area, how does your self-efficacy beliefs influence technology adoption? 15. How would you describe your feelings toward the impact technology has on your instructional practice?

Procedures for Recruitment, Participation, and Data Collection

Recruitment of participants is an essential step when carrying out data collection. Within this study, there were many steps taken in the process of procedures for recruitment of participants, participation and data collection that needed to be adhered to. I received Walden University IRB Approval 06-12-20-0133367 and the necessary approval from the Principal at Zendejay College. I then used the college faculty e-mail and sent an invitation and the link to the survey to the college lecturers who fit the required criteria and would provide a vast background to allow the acquisition of maximal insights through interviews. The survey illustrated in Appendix C, was compiled by Survey Monkey, and I chose the participants that fit the criteria.

The qualifying and recruitment survey was used to make a point as to the following criterion: This included age, gender, department at the campus, years of service, self-assessment of technology adoption and technology usage. The last question within the survey ensured that the lecturer's technology use was just not limited to just using a cellphone or using a pen. The question ensured that the participants used various forms of technology to give credence to the research by allowing me to select persons in a way that would be appropriate for the study.

The data was collected through interviews, and data protocols were followed. My initial plan deviated because originally, I planned to use a sample size of 12 persons. However, the actual sample size for this study consisted of 8 persons. During the 8 interviews all participants were informed that the interview was voluntary. Moreover, all 8 of the interviews were conducted over the telephone. The allotment of time given for

each interview was a minimum of 1-hour minimum. I recorded each of the interviews for accuracy purposes. Each recording was saved to my computer and uploaded to Rev.com for transcribing purposes. After all of the interviews were transcribed, the transcriptions were read multiple times to ensure accuracy and to confirm that a proper understanding of the participant's narrative was derived so that the data could sufficiently answer each research question.

Data Analysis Plan

Data is an integral part when researching for it provides the empirical evidence needed to draw conclusions. Data analysis was ongoing from the beginning to the time of transcription to ensure all questions were answered thoroughly. After the data was collected from participant interviews, the data was transcribed. This step took me a about one week since I used a transcribing software.

After the data was transcribed, I examined all 8 of the transcribed transcripts line-by-line, which helped bring about the richness from the participant's data. Codes were ultimately drawn from the conceptual framework and the literature that was read. From there, I then began using open coding and analyzed what the participant's revealed line by line. After the coding process, I then looked for repetitiveness from the data. I then e-mailed my findings to each participant for them to member check the interpreted data. I then called each one on the phone so that they could share their thoughts with me. The participants revalidated some of the concerns and emphasized that they hoped that stakeholders would take the findings seriously. This step ensured credibility, validity, and the accuracy of the study.

I also penned notes about each participant's responses and wrote out each interview question separately on a Word document, documenting all the participant's responses on the same page. This step allowed me to create a visual representation of each participant's response, which identified similarities, differences, discrepant cases and patterns more easily. This process allowed for patterns from the data to emerge, categories to be constructed, and themes to be derived. I also found that the themes identified assisted in answering the research questions and the conceptual framework within the study. Lastly, I also compared the research question, literature review, and conceptual framework with the emerging themes to ensure that they were in line with the theories highlighted within the study. An analysis was conducted to ensure that the themes answered the research questions. I found that these steps allowed me to identify discrepancy within the data analysis process. Although discrepancy may often be seen as problematic when conducting research, it was not problematic at all. The discrepancy can lead to further exploring of a more in-depth level analysis of why an event or experience occurred. The data captured revealed the complexity of the phenomena and provided further insight into the case. Discrepancy within the data was used to promote further study and assisted me in making useful recommendations (Moffatt et al., 2006).

Issues of Trustworthiness

Ethical concerns within a study must be adhere to. Within the study, I ensured that keen attention was paid to how the data were collected, analyzed, and reported (Merriam, 1998). According to Mays and Pope (2000), validity is an important component of any qualitative research endeavor. According to Lincoln and Guba (1985), for trustworthiness

within a study to be established, the following must be demonstrated: (a) credibility, (b) authenticity, (c) transferability, (e) dependability, and (f) confirmability. This was demonstrated in the subsequent discussion.

Credibility

Within the study, credibility was established in a variety of ways. Triangulation is a strategy used by the researcher using a multiple sources method, which will provide corroborating evidence and cross-checking (Patton, 1990). For this basic study, I used interviews to capture the participant's data and used member checking as a means to review that the information was correctly captured. This method helped to strengthen the data's validity. Credibility was also achieved by the data derived from the interviews. The findings were member checked to ensure the findings were accurate and valid. Member checking is one of the most critical ways of establishing credibility (Lincoln & Guba, 1985).

Transferability

Transferability of the study was achieved by providing extensive details about the case. Lincoln and Guba (1985) described the importance of offering a rich, thick description regarding the steps and details about the phenomenon being studied. This included noting the participant’s experiences through rich and descriptive analysis. I analyzed the behaviors and the context in which the participants met through the use of interviews.

Dependability

Within a study, dependability is necessary when researchers plan on providing empirical evidence. The data and the study must be trustworthy (Stevens et al., 2014). According to Given (2008), dependability addresses how the research context can go through various changes. I noted variations or changes to the research designs. These changes can be variations within the sample size, increasing or decreasing interviews, or even noting nonverbal cues. The tracking of these variations is referred to as a technique called inquiry auditing. Inquiry auditing allowed me to have relevancy and transparency, which led to the research study's dependability.

By using the audit trail, I recorded and put into detail the various processes that they did while conducting the research. This included the process needed to collect the data, analyze the data, provided the rationale and justification for conducting the research, the coding process, and identify the themes and emerging trends found within the research. This strategy allowed me to provide a detailed trail of the research process and illustrated why decisions were made. It was essential for the participants to review their results to ensure that the views were interpreted correctly (Maxwell, 2020).

Dependability was achieved by providing a detailed summary concerning methodology steps, including the rationale of the study, my role as the researcher, choosing an appropriate sample, participant sample selection and the description of the context in which the data occurred (Cox & Benson, 2017). Lastly, a copy of the questionnaire and interview questions were placed in an appendix. All interviews were

recorded with permission from the participants. The information was transcribed and sent to the participants to ensure accuracy and credibility (Yin, 2012).

Confirmability

Confirmability is another part of trustworthiness that I adhered to. Narratives within the studies are developed through participants, and my biases must not hinder the process. The research must reflect the stories of the participant and not what I was hoping to hear. The true experiences of the participants were revealed no matter what the outcome was. To ensure these experiences were captured, an audit trail was used to ensure confirmability.

Ethical Procedure

Within any research, ethical procedure must be adhered to with the highest moral regards (Maxwell, 2020). The carrying out of ethical procedures should be a part of every design aspect (Maxwell, 2020). The protection of all participants was a prime concern. and protected the participants in various ways. All participants were given pseudonyms P1, P2, P3, P4, P5, P6, P7, P8. The institution that was studied was referred to as Zendejay College. All participants were aware that they could withdraw from the study at any time without fear of victimization.

The participants were informed about the study's purpose via the college base e-mail and those who express interest completed the questionnaire. Individuals that met the research criteria and whose responses were thought-provoking were chosen. All participants provided consent. The questionnaire was sent out through the software Survey Monkey, and college lecturers were sent the link via e-mail or WhatsApp. Once

the questionnaire was completed, the selected persons were sent a consent form via e-mail expressing that they were selected to participate in the study. The participant excepted consent before they could engage in the research process. The consent form informed the participant about the purpose of the study in more detail. The form also included how participants who were no longer in continuing with the study was allowed to discontinue.

The data received are not the college's property, but instead, my property, which will be saved on my computer for the next 5 years. I used Microsoft office and Excel to assist with the storage, logging of information, and the identification of the themes. All recordings were transcribed. The recorded information from the interviews were uploaded on my computer for safe keeping and backed up on a USB. All information obtained through the data collection process will remain in the strictest confidence.

I ensured that there were no persons chosen in this study that I had a position of power over. I chose to use the Department of Education, Department of Undergraduate Studies, Department of Pharmacy, and the Department of Business. My department was not selected due to ethical reasons. Incentives were not used in this study. The study is one that will bring empirical evidence to the body of literature. I believe that educators understand the value of research and therefore, participation would not need an incentive. When I conducted the interviews, I did not ask any leading questions so that my personal biases would be demonstrated. To ensure that my personal biases did not cloud the process, I opted to use member checking to allow the interviewee access to the findings and ensure that their opinions were fairly and accurately summarized.

Summary

Chapter 3 was focused on the methodological design. The chapter highlighted the participant's selection, instrumentation, data analysis plan, issues of trustworthiness, and ethical procedures. Chapter 4 will then build from Chapter 3 by concretizing the methodology framework in extracting the data. Chapter 4 will allow me the opportunity to present the findings of the study.

Chapter 4: Results

Introduction

The purpose of this basic qualitative study was to understand Zendejay College lecturers' perceptions of their self-efficacy in terms of implementing technology. The research questions were as follows:

RQ1: What are college lecturers' beliefs regarding self-efficacy in terms of adopting technology in their current position at Zendejay College?

RQ2: What are college lecturers' beliefs about barriers to technology adoption at Zendejay College and necessary supports they feel would be needed to overcome these barriers?

In Chapter 4, the results of the study are presented. The chapter includes a description of the setting, participants' demographics, data collection and analysis, issues of trustworthiness, study results, and a summary.

Settings

Zendejay College is one of the leading tertiary institutions on the island of Antigua and Barbuda. It is a tertiary institution that houses over 1000 students. Zendejay College prepares students for obtaining an associate degree. The college curriculum is multifaceted and prepares students for various career paths. Zendejay College is also committed to technology enhancement and encourages technology adoption at the college.

Demographics

Antigua is an island state with a population of about 90,000 persons and is approximately 176 square miles. All participants interviewed were tertiary lecturers with over 3 years of experience lecturing at Zendejay College, all of whom resided in Antigua. All lecturers chosen were required to have more than 3 years of experience lecturing at Zendejay College. There was a cross section of various ages of participants. All participants selected underwent the same interview process. Demographics of participants were as follows:

Table 2

Participant Demographics

Participants (pseudonyms)	Approximate years employed at Zendejay College	Department status	Age category (years)	Gender
P1	8–14	Teacher Education	20–40	F
P2	8–14	Pharmacy	20–40	M
P3	15–20	Department of Undergraduate	41–60	F
P4	3–7	Department of Business	20–40	F
P5	8–14	Department of Business	41–60	F
P6	20 –25	Department of Business	41–60	M
P7	3–7	Teacher Education	41–60	M
P8	10–15	Teacher Education	41–60	M

Participants in the study consisted of four females and four males. Three of the participants worked within the teacher education department. Three lecturers worked within the Department of Business, and one worked within the undergraduate department. All lecturers had more than 3 years of lecturing experience and varying degrees of technology adoption and technology abilities. All participants worked for the Zendejay College and all interviews were conducted over the phone.

Data Collection

After consultation with the principal of Zendejay College, I received approval to conduct my research. After receiving Institutional Review Board (IRB) approval (#06-12-20-0133367) from the university, an invitation was sent to all staff members who fit research criteria via email. Only eight persons responded. Four persons were from the business department, one person was from the pharmacy department, one was from the undergraduate studies department, and two were from the Department of Teacher Education. All interviews were conducted via telephone and recorded with the permission of each participant. Data were then uploaded to my computer and sent to the transcribing software REV.com. The transcriber signed a confidentiality agreement to ensure that data received would remain confidential. It took 2 weeks to conduct all interviews and about 4 days to transcribe the information. A constant review of transcribed data was done to ensure that the data were transcribed with accuracy. Also, I reread the data numerous times to get a true understanding of the data presented. However, there were some variations in data collection that deviated from the plan presented in Chapter 3. Initially in Chapter 3, the proposed sample size was 10-12 persons. However, recruiting this

sample size proved to be difficult due to COVID-19. Despite several attempts through emails, I was only able to get eight persons to consent to be a part of my study. Nevertheless, I was still able to achieve saturation.

The second alteration was my plan to use triangulation through multiple data sources. This was ultimately not conducted. Instead, I only used one data source, which was interviews. I also planned to conduct two interviews which each participant, but it was advised that this process may be onerous for participants. Since it was difficult to get the planned participant sample size of 10-12 persons, I did not want to jeopardize any participants dropping out due to pressure from my study, especially during the pandemic. Instead, I condensed the two sets of interview questions into one interview, and then provided participants with the option of choosing to participate in two sessions if they felt that the interview was too long. However, I did not have participants do transcript reviews, which may be burdensome to participants. Instead, research findings were member-checked by all eight participants.

The interview consisted of 20 questions. This allowed me to (a) allow participants to add information they may have forgotten when I asked questions initially, (b) allow participants to make changes to their original responses or add additional information, and (c) allow me the opportunity to establish credibility, consistency, and clarity in terms of participants' responses. Interview questions served as a guide. Interviews on average lasted approximately 1 hour.

Data Analysis

Within the research study, the research questions, the conceptual framework, and the review of literature served as the bases in which the interview questions were derived. All of the participant's interviews were recorded and were transcribed. The transcriptions were read multiple times to ensure understanding and to capture the participant's personal lived experience. I examined all transcripts of the participants line-by-line, which helped bring about the richness from the participant's data. Codes were ultimately drawn from the conceptual framework and the literature that was read. From there, I began coding through open coding. After the coding process, I then looked for repetitiveness from the data, which were intriguing or displayed similarities and differences. I also penned notes about each participant's responses and wrote out each interview question separately on a Word document, documenting all the participant's responses on the same page. This step allowed me to create a visual representation of each participant's response, which identified similarities, differences, discrepant cases and patterns more easily. This process allowed for patterns from the data to emerge, categories to be constructed, and themes to be derived. I also found that the themes identified assisted in answering the research questions and the conceptual framework within the study. The list below is the categories found from the data of the participants. The categories were originated from the characteristic of the categories found from the data. The categories helped to identify relationships between the categories and the themes.

- Attitude to technology by lecturers
- Confidence level/self-efficacy

- Barriers to technology
- Support
- Factors that lead to reattempt use
- Variation and location of technology usage

The following below demonstrated the themes and short excerpts from the participants regarding their view of the respective themes. The themes were sparked from the categories but addressed the central and reoccurring issues raised by the participants.

Theme 1: Openness Toward Adopting Technology in the Classroom

Having a positive and open attitude toward technology was a central theme that was derived from the data. The theme was a result from the category *attitude to technology by lecturers.* The data demonstrated that seven of the eight lecturers interviewed shared that when it came to adopting technology, they were not resentful and had a positive and open attitude toward using the technology. Participants were asked their opinion as to whether they were open to technology adoption or not. The Participants shared that they were willing to adopt technology within their instructional practices and their attitudes toward technology adoption proved to be positive. The lecturers shared their views on the importance that technology had on student's learning and how lecturers perceived the actual worth of adopting technology. P1 shared "I'm very open to trying new tech. Technology in terms of applications, equipment, processes, even new methods that is meaningful to my students when using the technology. I think I'm relatively open to them, especially if I think they're going to assist me with

teaching." P3 discussed that she was "versatile and enjoys using new ideas to help with students as best as possible."

Subtheme 1: Resistance to Technology

The following subtheme derived from the theme of Openness Toward Adoption. The data demonstrated that not all participants are keen in using technology and may not have a positive attitude toward using technology. P8 shared, "I am sometimes reluctant when trying new technology."

Subtheme 2: Role of Beliefs on Attitude

The data demonstrated how strong a lecturer's belief can directly or indirectly influence a lecturer's belief. P7 expressed,

> If I believe in something and I know that it holds worth I am going to try it again and again. I would even take a leap of faith, especially, if I see the results that I probably didn't even expect to see.

Subtheme 3: Embracing Technology

The data demonstrated that lecturers were receptive to using technology. However, even though lecturers displayed a positive attitude and were open towards using technology, lecturers felt that it was important to embrace technology. P2 stated "Technology is absolutely necessary…I believe institutions as well as this one, need to be mindful of preparing our students for that readiness of technology because the world is going online."

Theme 2: Technology Providing Value and Benefits

The following theme derived from the category *factors that lead to reattempt*. The data from the category demonstrated that lecturers did not have a problem using technology because they found value and benefits within using technology. During the interview, it was revealed that all eight lecturers felt that technology provided value and it was important to use technology within a classroom setting. Throughout the data, lecturers shared sentiments on the value and the benefits that technology holds. Lecturers shared that technology has great value to learning once lecturers used the technology correctly. P8 said, "I am for the use of technology and we need to be able to facilitate learning." P7 said:

> I think really technology is the way to go, in our modern setting. Our students are pretty much at home with technology. Whereas others might find it a little difficult to adapt to technology from time to time, because we weren't born into technology. But our children, they have been born into it. From the time they come into this world they have a cell phone in their hand. They are playing games on the computer. They're interacting with their friends on Facebook and WhatsApp and all this kind of thing. So, it's a good way to teach them the ways that they interact with, the way that they learn, the way that they feel comfortable, and in ways that excites them. So, with that, utilizing technology in the social sciences is an ideal thing that I support and encourage.

Theme 3: Role of Confidence

This theme was derived from the category confidence level/self-efficacy. The theme portrays the influence that a person's confidence level can have on a person's self-confidence level when adopting technology. While interviewing the participants, confidence played a major factor regarding technology adoption. The data demonstrated that person's confidence level indeed influences their behavior. Also, a person's confidence level can prevent a lecturer from participating in technology or become reserved or fearful about using it. Confidence may encourage those with strong confidence level to soar in relationship to their technology adoption or may cause paralysis among individuals that lack self-confidence. By building lecturer's confidence levels then participants will increase their self confidence level and lectures reservations will decrease.

P6 expressed "I lack confidence, if a person has low confidence, it is going to effect the person, how they perform and would limit the students." P7 discussed "I am pretty confident with technology, if I choose to use it. I am not going to use it if I am not fully confident about it."

Theme 4: Barriers to Technology Adoption

This theme was derived from the category *barriers* and was divided into five subthemes. The six subthemes displayed were issues with *time, infrastructure, training, extrinsic barriers, lack of support, and prior experiences.* All eight lecturers expressed that they have faced barriers to technology adoption while working at the Zendejay

College. These barriers have impaired their ability to adopt technology within their instructional practices effectively.

Subtheme 4: Training

Training was an important issue that was expressed by the participants. Lecturers felt that training was a necessary step to overcome their barriers. P8 shared his sentiments: “I need technical training on my part, finances for the cost to use some of these things, and support.”

Subtheme 5

Participants also articulated the need for support. Although P8 highlighted the need for support in the subtheme 4 training. Another participant shared in solidarity their feelings regarding support. P1 shared, “There is not much support. There is not much room for learning with Educational Technology!”

Subtheme 6: Extrinsic Barriers

Extrinsic Barriers have been identified as a hindrance that prevents lecturers from executing technology adoption successfully. P4 shared: “I have a problem with the space we use when using technology. It is not technologically ready. I have difficulties with the internet and even using the projector. When using the projector, the sunlight is not blocked out. This prevents students from seeing the screen properly.”

Subtheme 7: Time

Time is another barrier that the lecturers identified. Within the context of a college environment, lecturers are responsible for finishing the course by the end of the semester. Lecturers were concerned by the amount of time that adopting technology took

within their classes. P4 shared " Time is also a problem because I have to teach my course in a specific time frame and by the time I try to use the projector, set it up, go to the office to get the cord Time would have gone, and students would have to go to another class."

Subtheme 8: Prior Experience

Lecturers discussed their perspectives to whether their prior experience can shape an individual's attitude towards using technology. It was discovered that lecturers' experiences could affect their decisions and actions. P8 elaborated:

> In my subject area I need the internet a lot. The lack of internet really affects my ability to use it in my class. Because it doesn't work half of the time, I don't give students in class assignment because when I attempt to use it to show a video half of the time it doesn't work. So that to me, is a major issue that has hampered my ability to be effective in terms of using technology.

Theme 5: Successful Use of Aids in Adoption

The theme above was derived from the category factors that lead to reattempt use. When a lecturer feels that they have successful moments when interacting with technology adoption, they are more inclined to adopt the technology within their instructional practice. The data revealed that all eight lecturers felt successful attempts with technology aided in technology adoption. P3 shared,

> Once I can try an innovation and I am able to understand, learn it am knowledgeable about it, and confident or persuaded by it , if it is something that will enhance my work, then I have no problem trying it. I would, therefore

interact with it. However, if it proves to be difficult, then I wouldn't want to use it.

Subtheme 9: Learning by Observation

The subtheme Learning by Observation derived from the theme Successful use may Aid in Adoption. As lecturers strive to become successful in their technology adoption learning by Observation is a strategy that can assist lecturers with becoming successful while learning new educational technologies. Lecturers expressed that learning through observation can boost the lecturers' confidence level, leading to successful moments. P7 shared: "I think sharing and observing others' experience would motivate me to try and learn a specific technology. If somebody mentioned or modelled something that they have tried and it worked, then I think that it would motivate me to want to try and do the same thing."

Theme 6: Lecturers' Preferred Access

The theme above, demonstrated the preferred access to technology that lectures are most desirous of when adopting technology. The theme was derived by the category *variation and location of technology use*. The theme explored lecturers preferred access when using technology. The data demonstrated that five out of the eight participants preferred to access technology outside of work. Some of the Lecturers expressed that "I have more freedom to use it outside of school and there are no limitations" (P4) "The technology is more reliable outside of college" (p3) were some of the phrases that were captured.

Discrepant Case

Within this study, I found a discrepant case. It was shared that seven persons out of eight found that one's confidence level impacted and played a role in a person's decision-making to adopt technology. However, one participant had a difference in opinion. Though the others felt that their confidence level was impactful with their decision making, P1 revealed that her confidence level played a minimal role in her decision making to interact with technology. P1 shared, "When I am looking at technology adoption, I don't really think confidence and my ability to use technology plays a factor that much." Though the participant didn't completely rule out the role that confidence may play with her decision making, she was the only person that felt that it played a minimal part. This discrepancy was highlighted and mentioned during the analysis. However, even though her response differed from the other participants her beliefs were still viable and was recorded within the result section.

Another discrepant case that was discovered was that 8 participants stated that observing others would assist them with their success in using technology adoption. However, P1 shared that though observing others would aid and influence her decision making to adopt technology use, if she felt that using the specific technology proved to be difficult or did not like it she would not be persuaded by others to use it. This view shared that a person's self-efficacy can determine the outcome of their decision and her view was highlighted in the results section.

The last discrepant case that was found was regarding the participant's attitudes to their openness toward technology. All seven participants shared that they were very open

to using technology. However, P8 shared that “he is not inclined nor open towards using technology, and at times he is reluctant to use it.” Again, this demonstrated how self-efficacy could affect a person’s view. It could also affect one’s state of mind during the adoption process.

Evidence of Trustworthiness

Credibility

According to Lincoln and Guba (1985), credibility is found in a study when it reflects a phenomenon accurately. In Chapter 3, I stated that credibility would be achieved by recording all the participant responses and inviting all the participants to review their transcript's coding and category process to ensure accuracy. Within the data collection process, all eight participants were involved in examining the findings that I presented. Although I planned in Chapter 3 to have the participants review their transcribed interviews, this was not exhibited in the data collection process. Instead, the participants were able to member check the findings and see the holistic picture that was gathered through the results. During this discourse, all participants agreed with the accuracy of the data’s interpretation.

Credibility was further achieved through the interview process. This process allowed the participants to provide me with rich descriptions and details explaining their experiences with technology adoption and barriers faced. I asked many repetitive questions during the interview, ensuring accuracy and credibility as to what was being reported. This strategy enabled the integrity of the process.

In Chapter 3, I anticipated having a sample size of 10 to 12 persons. However, due to the COVID-19 pandemic, I was only able to recruit eight persons. However, credibility was still achieved through data saturation, which was demonstrated after retrieving enough information and no new information could be attained during the data collection process. This allowed for the replication of this study.

Credibility was also achieved within the study through the assistance of my dissertation committee, who are experts in the field of qualitative research and provided me with expert reviews to ensure credibility. Within the study, some discrepant cases went contrary to the themes. However, all discrepant cases, whether contrary or not, were identified and represented within the study. These contrasting perspectives add to the credibility of the study (Creswell, 2003).

Transferability

Transferability was achieved by using thick, rich descriptions used to provide details about the phenomenon being investigated regarding lecturer's self-efficacy beliefs within their technology adoption and the barriers and support they deemed necessary to assist lecturers, as highlighted in both Chapter 3 and Chapter 4. Transferability also occurred through the sharing and recording of the participant's views. To ensure that all procedures were conducted in the study, I provided a full description of the participants used in the study to be replicated with ease by another person who wishes to conduct a similar study (Lincoln & Guba, 1985).

Dependability

Dependability was achieved by providing a detailed summary concerning methodology steps, which included the study's rationale, my role as the researcher, choosing an appropriate sample, participant sample selection, and the description of the context in which the data occurred (Cox & Benson, 2017). Lincoln and Guba (1985) summarized dependability as the variations or changes to the research designs. These changes can be changes within the sample size, increasing or decreasing of interviews, or even noting nonverbal cues. Within the study, inquiry auditing was used. This step provided me with transparency within the research study. Audit trail allowed me to create records of the raw data, note various steps, make a notation of the data, analyze the data, and the process that was achieved during the research study. This was vital because it allowed me to have a visual footprint as to the basic research study's decisions. The plan discussed in Chapter 3 deviated a little from Chapter 4.

Peer review was used to assist me by reviewing my study and helped with the data analysis process. My peers provided me with valuable suggestions, which were incorporated in Chapter 4. The sample size was also changed from what was discussed in Chapter 3. This occurred because I found it difficult recruiting participants due to the pandemic. Instead, I went from a proposed sample size of 10 to 12 participants to a sample size of eight. I also made personal notes that helped me track the process of doing this basic research study and register the thought process of the participants.

Confirmability

My plan for confirmability did not deviate from Chapter 3. Confirmability was achieved by adequately sharing the thoughts and stories of each participant. I carefully recorded the participant's narratives and made sure I adequately used their words verbatim to express their views. All participants' true experiences were noted, even if it ran contrary to what I wanted to hear. The true experiences from the participants were revealed no matter what the outcome was. To ensure these experiences were captured, an audit trail was used to ensure confirmability.

Results

The research questions guided this process. The framework of Bandura's self-efficacy theory and Rogers's diffusion of innovation was used to inform these results. I also took the relevant interview questions and grouped them according to their ability to answer the research questions posed. Themes were also identified by the coding process that was derived from the data of the interview. These emerging themes are also aligned to both the conceptual framework and the research questions. The following discussion highlighted the themes that answered the research questions. Within the study, there were two research questions.

RQ1: What are college lecturers' beliefs regarding self-efficacy in terms of adopting technology in their current position at Zendejay College?

RQ2: What are college lecturers' beliefs about barriers to technology adoption at Zendejay College and necessary supports they feel would be needed to overcome these barriers?

The results were discussed through themes. The table below highlights the theme that was found to address the following research questions. Table 3 displays the research questions and their respective themes and subthemes that assist in answering the research questions.

Table 3

Research Questions and Respective Themes

Research question	Themes and subthemes
RQ1: What are college lecturers' beliefs of their self-efficacy in adopting technology in their current position at Zendejay College?	Themes 1 with the subthemes (Resistance to technology, The role of beliefs on attitude, Embracing technology).
	Theme 2, Theme 3,Theme 5 with the subtheme of (Learning by Observation),Theme 6
RQ2: What are college lecturer's beliefs as to their barriers to technology adoption at Zendejay College and the necessary support they feel would be needed to overcome these barriers?	Theme 4 with the subthemes (Extrinsic barriers, training, time, support, prior experiences).

RQ1

To answer RQ1, 10 interview questions were asked (5, 6, 7, 10, 11, 13, 14, 15,1 7, 20). These questions demonstrated five themes. These themes included Openness Toward Adopting Technology in the Classroom, which includes 3 subthemes: These include: *Resistance to Technology, the Role of Beliefs on Attitude, Embracing Technology.* Technology Provides Value and Benefits Toward Students, The Role of Confidence,

Successfully use Aids in Adopting Technology with the subtheme of *Learning by Observation.*

Theme 1

The data revealed that seven out of the eight participants were open to adopting technology within the classroom. The study also revealed that when lecturers were asked about their openness or willingness toward adopting technology in the classroom, they used terms such as "welcoming," "very open," and "receptive." The theme provides an understanding as to the lecturer's self-efficacy beliefs about technology, which may directly or indirectly influence lecturers' views. When one looks at the word *openness,* it refers to the attitude, the feeling that the participants have toward adopting technology within the classroom. Within this study, college lecturers felt that technology adoption has many affordances and value.

P1 shared, "I'm very open to trying technology." P7 echoed the sentiments and shared "Well, the openness does help because as a person who is going to use the technology, you kind of have to have an open mind as to availability and what it can do for you.

Subtheme 1. One of the eight participants shared his reluctance with technology adoption. He expressed, "I am sometimes reluctant when trying new technology." This difference of opinion compared to the other participants can be seen as a discrepant case. It was further mentioned that P8 classified himself as a laggard. P8 noted

> I don't readily use the technology as to when I should use it. So of course, I am one of the last people to use it, making me a laggard. This may not necessarily be

> good because it means that I just won't use the technology at all, and I am fine with that!

Subtheme 2. The data demonstrated that all eight lecturers felt that their beliefs about technology influenced their attitude and influence lecturers' openness to technology adoption. Lecturers' beliefs toward technology affects their attitude toward their technology adoption. This revelation was reinforced by P6. P6 was receptive and saw the value to technology adoption. However, he identified himself as a laggard and used little technology in his instructional practices. Though he believed in the affordances that his students would gain, he felt that learning the new tools "took a lot of work."

Subtheme 3. All eight participants were in support of technology adoption. Of those eight lecturers, all eight lecturers believed that it was important for Caribbean lecturers to move toward technology adoption. The following attitude toward technology adoption was captured from the data.

P1 stated,

> We are trying to stay relevant in the global environment and relevance is not just about commerce…When we are teaching, we are producing the next wave of innovators, the next wave of citizens, next wave to movers and shakers. And if one of the complaints about the level of education is that we are using 18th-century methods, 19th-century methods to teach, why are we teaching students about a world that no longer exists. The world is constantly evolving. So, I think our teaching has to evolve as well and part of the evolution of teaching is the integration of technology in the class.

P2 largely echoed the sentiments as P1 and discussed that “It is absolutely necessary…I believe institutions as well as this one, need to be mindful of preparing our students for that readiness of technology because the world is going online.” P7 continued the trend by saying,

> I think technology is the way to go, in our modern setting. Our students are pretty much at home with technology. We as others, might find it a little difficult to adapt to technology from time to time because we weren’t born into technology. But our children, they have been born into it. From the time they come into this world, they have a cell phone in their hand. They are playing games on the computer. They are interacting with their friends through Facebook and WhatsApp and all this kind of thing. So, it is a good way to teach them in the ways that they like to interact and learn. I support and encourage that.

The data again highlighted that one’s attitude is a determinant factor as to their actions. The participants who shared a positive attitude and felt value regarding technology often were the ones that willed their technology success. Those who held a negative attitude toward technology adoption often were the ones that had failed success and did not see much value in it afterwards.

Theme 2

It was revealed that all 8 lecturers felt that technology provided value and therefore, it would be important to use it within a classroom setting. Within the data, it was demonstrated that when lecturers believed that technology has value and benefit, then their ideology will influence their self-efficacy level and mediate their behavior.

Moreover, whether good or bad, this belief can influence lecturer's performance, causing their beliefs to be predictive of the behavior that the lecturers may believe.

Four of the eight lecturers exhibited a high self-efficacy belief and confidence level. It was revealed that they held a higher level of resilience to technology adoption. The data also showed that lecturers that were more committed to obtaining a successful outcome with technology adoption were very receptive and motivated to using technology, for they found value from these technological tools within their instructional practice. The data also showed that participants who believed in the cause of technology adoption and appeared to have a strong level of self-efficacy were influenced more and was motivated and committed to their task to achieve their goals. These lecturers saw challenges as things to be conquered rather than feared. However, those lecturers who exhibited a low self-efficacy belief were less committed to tasks, doubted their skills and were afraid to try new things when they stumbled across technology adoption challenges. The data below illustrated the above findings.

P6 shared, "I am for the use of technology," and, "We need to be able to facilitate learning." P3 told me "I do believe it is a necessary step for us to improve our present learning environment. So many doors can be opened once used correctly." P8 said, "Technology is becoming a lot more popular than it used to be, and so it's becoming more necessary to relate to students on their level because they are using a lot of the technologies as well." P7 added, "Well, it adds variety as it relates to my teaching and my interacting with it. It is the world of today… it could enhance what we do within the

classroom." The data below further showed how participant beliefs and confidence level can influence or stifle lecturer sanctions before they even conceptualize the action. P1 shared,

> Technology has really, really made a difference in my instructional practice. Especially because we are in a resource poor environment. We have limited access to traditional learning materials and so, technology has allowed me to help my students bridge the gap between traditional resources and having the information they need, especially in the interdisciplinary course, like what I teach. if I see other people enjoying it, I feel like it's making a difference in the student's outcomes. I will do everything in my power to make sure I ensure that I am able to achieve a standard so that my students are not hampered.

The data demonstrated that all eight participants found value in using technology within the classroom environment because it allowed students to compete in the global world. It also answered the research questions by demonstrating that the lecturer's self-efficacy beliefs can influence one's behavior and performance toward technology adoption.

Theme 3

Seven out of eight lecturers expressed that confidence is pivotal and it influenced lecturer's attitude or ability to use technology effectively. The data revealed that college lecturers believed that their confidence level influences their self-efficacy when attempting to adopt technology which was displayed through lecturers' stories of their

successes and failures with technology adoption. The data also demonstrated how their confidence level played a factor in their technological adoption process.

P6 shared, “I lack confidence in technology adoption, if a person has low confidence, it is going to affect how the person performs, therefore, limiting the students.” P4 discussed that

> My confidence would play a major factor in adopting technology. If I feel that I am not going to be successful in something or I am afraid of it, I will try and avoid it at all cost.” She further stated “If I am confident and I know that through practice I am going to be successful, I then am going to have a positive lesson. I am going to feel strong. I am going to do my best and take the risks and the challenges.

However, P3 provided another perspective and deliberated that,

> My self-efficacy would obviously play a major part in adopting technology and the reasons why it would say this because if I feel that I am not going to be successful in something or I am afraid of the innovation or I think I am not going to do well with it then I am going to avoid it at all costs. However, if I am confident and I know that through practice I am going to be successful in my integration and I have a positive lesson and my students are going to be engaged then of course I am going to feel confident. I am going to want to do my best and because of my self-efficacy being strong, then I am going to push and I am going to force myself to take risks and challenges. However, if I am not comfortable and

> I was afraid of making a mistake then obviously I will do everything in my power to avoid it.

These perspectives within the data demonstrated that a person's confidence level influences technology adoption and plays an important role in technology adoption and should be considered when attempting to adopt technology in a lecturer's instructional practice since it can be very influential.

The data also revealed that all eight participants shared that their self-efficacy influenced decision making. The data demonstrated that a lecturers' self-efficacy is impactful. It can either enable a lecturer's action or cripple their actions, hampering them from moving forward.

P5 said:

> My self-efficacy is influential because the students would be testing you. And if you are trembling, shaky, you are not that positive image, they would know very well that you are not competent. I don't want to fail. But when you come with these new ideas and you have them embrace it, they would learn, and they would see that you can manage. And with that, it brings out the best in you and the students.

P8 stated, "Once you become comfortable you will be more efficient in using it, and clearly you will have more success in terms of getting across the information that you are trying to get over." P8 continued,

> I remember being introduced to a new technology and because it was new, I wasn't sure that I knew enough about it to use it, even though I had some intuition

> about it. And so, I think it is just maybe a phobia I have, being an older person engaging with technology. It is always that kind of a fear of using it that I go through. It's difficult for me to just try it on my own. If I am forced to, maybe I will have to try and figure it out. But ordinarily, if it causes difficulty in navigation, I just shy away from it.

P3 shared, "If I am incapable of understanding it, I will shut it down. However, I will give myself some time to become familiar with it again. I will try and work on my weakness or my insecurities, and then continue to use it if I can."

The data revealed that self-efficacy is so powerful that it can affect one's beliefs, actions, and attitudes. The above discussion articulated how one's self-efficacy influences the decisions as to whether to adopt technology or not within the classroom. The data also demonstrated that self-efficacy is the leading factor that can impede technology adoption through the lecturer's beliefs or actions. The data also revealed that if the lecturer's felt a sense of defeat, lack of knowledge, or stressful workload, they will not be inclined to use technology in their instructional practices and may put up resistance toward using the specific technology. However, it is important to emphasize that if lecturers felt that technology adoption would provide a sense of value within their learning environment, they would be more inclined to use it and work toward successful outcomes.

Theme 5

The data revealed that all eight lecturers felt that a successful outcome when adopting the technology would influence their decision making when using technology. The data also showed that when a person holds a high self-confidence level, they are

willing to take risks and step up to challenges to achieve success. They do not give up after failed attempts; their confidence level will help them overcome roadblocks and work toward successful outcomes. However, the data revealed that when a person's self-efficacy is low, the person will demonstrate qualities such as fright, anxiety, or may shy away from using the technology, leading to unsuccessful or disinterested moments with engaging technology.

The data further revealed that the more confidence a participant has within their technology adoption ability, the more they would interact with it. Participants who had a high self-efficacy level and presented competency skills on using the technology showed results that they held a positive attitude even though there were setbacks with the adoption. The following summation was revealed during the interview:

P3 shared:

> So once I am able to try a new innovation and I am able to understand learn it, am knowledgeable about it, confident with it or persuaded by it and it is something that will enhance my work, then I have no problem trying it and using it. I would, therefore, interact with it. However, if it proves to be difficult, then I wouldn't want to use it.

P2 highlighted that

> Well, if I tried to learn it, then I am more likely to interact with it more. If I do not understand what the innovation is or what the technology is, chances are, I would avoid it and just go about my daily affairs using the things that I am accustomed to or familiar with. I believe that, if I were to try something and learn

> it, then it would result in greater use of that particular innovation or technology. I believe that, if I were to try something and learn it, then it would result in greater use of that particular innovation or technology.

P7 shared, "Well most likely, if I used it and it was successful, then that would encourage me to want to try it again." P3 in great details shared,

> So once I am able to try a new innovation and I am able to understand and learn it and I am knowledgeable about it. I am confident or persuaded it is something that will enhance my work, then I have no problem trying it. I would therefore interact with it. However, if it proves to be difficult, then I wouldn't want to use it.

Self-efficacy is strengthened with every successful moment, while unsuccessful attempts resulted in the lecturer's resistance to technology adoption. Lecturers, who felt that new innovation would be beneficial to them, made an effort to work through their difficulties. Familiarity and competency strengthen one's self-efficacy, while unfamiliarity, lack of knowledge, or uncertainty can lead to avoidance of technology adoption, which could be crippling.

Subtheme 4. Seven of the eight lecturers definitively shared that observation learning was a very powerful tool and was an effective way for persons who have not yet possessed prior knowledge to engage in technology adoption due to the encouragement of modelling.

P1 shared: "If I see other people enjoying it, I feel like it will make a difference in students' outcome," P4 shared: "My friends and colleagues have gotten me to try Google Classroom and Zoom." P2 discussed: "If people are giving a technology bad reviews, it

would influence my opinion not to use it." The results showed that modelling and observation was a powerful strategy that would influence lecturers to adopt technology within the classroom.

RQ2

To answer RQ2, five interview questions were asked (Questions 2, 3, 8, 9, 12). There were two themes that were developed that assisted in answering the research question. These included: Lecturers preferred Access, Barriers to Technology Adoption, which included 5 subthemes. These subthemes include extrinsic barriers, training, time, support, and prior experiences.

Theme 4

All eight lectures shared several barriers that lecturers at Zendejay College were facing, which have impaired their ability to adopt technology effectively. The barriers were classified into two categories. These categories were Extrinsic barriers and Intrinsic barriers. Extrinsic barriers refer to anything that is not suitable to the formation of an ICT infrastructure. Examples of extrinsic barriers include training, time, insufficient support, lack of technological pedagogical content knowledge and institutional policy, attitude, beliefs, or resistance. Intrinsic barriers refer to lecturers' personal beliefs. This takes into account their attitude as well as their past experiences.

Subtheme 5. Six out of eight lecturers identified they engaged in infrastructure issues that hamper their technology adoption at the college. P8 said:

> Sometimes the Internet is turned off by the college. When the Internet is not readily available it impacts the students. I may have internet access, but then

students may not. So, I can't really adopt it because I would need the students to do equally the same.

P3 shared:

Well, to be honest, there are many barriers that prevent me from integrating technology within my classroom. Originally when I started teaching, I started to use blogs. And within my subject area, it was good because by using blogs it allowed students to have an avenue that they were able to share and discuss. But the sad part is, or the problem that I have, is not everybody has access. Just because students have their smart phone, not everybody has access to Internet. I find that even at the college, the Internet, it's not that great at times and because it's not so great and you have the technology in place, then it fails and because you only have an hour class, and when it fails, it throws off your whole lesson. Because there is so much curriculum that we need to go through I really don't have time for interruptions. Planning takes a lot of time; technology adoption makes planning very difficult because nobody has that kind of time to constantly plan. I think another barrier is, there's no real policy here and definitely no one to enforce us to use technology within the classroom. The Moodle servers are not dependable, it makes planning very difficult. The college classrooms are not technologically ready. The plugs, the electricity, the wiring is very faulty, infrastructure is not ready. I think if the Heads were pushing technology adoption and investing more in the equipment then I feel that people will be more on board.

Subtheme 6. Four out of the eight lecturers shared that training was needed to be progressive in adopting technology within the classroom. Even though professional development is done at the college, this form of training or professional development for a want of a better word may not be applicable to lecturer's technology adoption. The proposed training does not focus on educational technology and if they do it is not for long periods. The present form of professional development is not sustainable for the administrators' objective is to cram information in a shorter time frame. However, lecturers felt that this ideology is a myth. Training must be ongoing, so that confidence level can be built. If lecturers are able to practice using the technology, it would improve lecturer's competency skills and raise their self-efficacy.

P5 expressed, "Training, I need technical training on my part, the cost to use some of these things are expensive and I need support." P1 explained:

> There is an IT department, but it is limited. The resources are limited, the scope of function is limited. Especially, the training. Their role is so multifaceted. It's not necessarily to support teaching and learning. Their role is also to administer the grade system, keep all the systems running. So, I think what we really would need is a IT segment of IT, dedicated to supporting teachers and learning and the professional development endeavors as opposed to an IT department that is so pressed with computers and software crashes.

P2 shared,

> Sometimes, I don't know the proper tools needed to provide integration of the technology. We need proper professional development, a team that assist in

> keeping us current. This is not available at the college. My support comes from my friends.

The results demonstrated that lecturers are desirous of training for it will allow them the opportunity to understand newly learned concepts. Additionally, training and professional developments can be influential, but it must be current and relevant to the lecturers through their engagement with the students.

Subtheme 7. Three out of eight lecturers spoke of how time is a barrier that they face while adopting technology. The lecturers shared that the college curriculum is very demanding and that experimenting with technology is very time-consuming. The Lecturers have a responsibility to cover all of the materials prescribed in the curriculum within a very short time, and in some departments, programs are evaluated by an external body such as CAPE and UWI. As a result, lecturers need to cover all the syllabus contents so that students can be adequately prepared for their subject. P1 stated,

> One of the things that really weakened my ability to use an innovation for example is even something as simple as a lack of a defined meeting space for colleagues. So there have been days when I have one of the quote unquote premium classrooms on campus that I teach in. However, it's a multipurpose room that serves for meetings and a technology classroom. When the internet does not work or the technology fails, I lose contact time and I can't afford to do so, especially when I have so much to cover.

Subtheme 8. All of the eight lecturers were in support that lecturers are in need of support at the college. The participants' views on the matter were recorded. P2 shared,

> Sometimes, I don't know the proper tools needed to provide integration of the technology. We need proper professional development, a team that assists in keeping us current. This is not available at the college. My support comes from my friends.

P5 said,

> The support at the college is minimal, other than projector and Sonis Web. I felt it more during Covid- 19. I couldn't do much. Using the proposed equipment was difficult and I received not much help. Support needs to be looked into by management.

Administrative Support. Six of the eight participants showed that administration support is vital to combatting technology barriers. Adequate support from Heads of Department was deemed as necessary by participants when attempting to adopt technology. Often, the department heads are the ones who may or may not feel that technology-based learning is not important. This lack of support from administration and or heads of department may cause lecturers to log heads with one another, causing the lecturer to feel frustrated, unappreciated, and burnt out, resorting in teacher-centered learning, avoidance and a negative attitude that will influence the lecturer behavior.

Participants shared that they have the option to use technology or not. All lecturers had a right to decide how deep and far they were willing to use their technology. However, it was only through the pandemic of COVID-19 that the participants were forced to go online and use technology exclusively.

This was increasingly difficult because lecturers were forced to use tools that they have never experienced before. Participants pointed out that they "felt alone." For others, their experience could be described as a form of defibrillator that was used to shock their heart to this new way of forced teaching. It was also expressed that they were forced to toe the line with the use of technology even if they had no prior experience with it. Lecturers had no choice but to use the technology for the students had to receive content knowledge in preparation for the end of school exam and. external examination. Lecturers further explained that the Administration should implement an institutional policy. By this implementation, the administration would ensure that the resources and infrastructure align with the policy and that the much-needed equipment to support technology adoption will be bought.

Technical Support. The data also illustrated that participants had issues with the present technical support. This was displayed by six of the eight lecturers. College lectures believed that there is some technical support from the Sonis Web unit specializing in fixing software and focuses on the learning management system. However, there is no support that assists participant with real time support or lecturer's technical needs. It was expressed that support is crucial to the adoption process. Upon a reflection from P2 he shared that

> We need to have an IT Unit like the University of the West Indies (UWI). Their IT unit would come to your classroom and set up your equipment, and the lecturer's only function is to come and present their material. This saves times, lessens frustration and the lecturer can do what they are hired for, to teach.

Consequently, lecturers cannot afford these barriers to occur when they are teaching, for these barriers will lead to unsuccessful moments. This in turn, may lead to the avoidance of the technology and channel the perception of failure in lecturers' minds.

Subtheme 10. The data revealed that a person's past experiences could also lead to their decision-making to use technology. The data revealed that lecturers' experiences influenced their decisions about whether or not lecturers would use the technology. These participants revealed the following.

P3 said:

> To be honest, when I first began teaching using technology, I was so eager. I wanted to integrate technology, so therefore I was using wikis, I was using blogs the works. I think I kind of got burnt out when students use to complain. Some people, majority of them were able to participate and liked it. The other ones who didn't do the assignment would be complaining that they don't have Internet. And would even report me to the Head of Department if I deducted their grades. After a while it just sucked me. I tried to transition and assigned class work during the day, so then students could use the internet at the college. Then the Internet was not working at the college and they didn't have adequate computers. So even when you are doing something so good or wonderful, then you have all these obstacles. It just really kills your drive.

P5 said:

> All right, I can recall I was checking out some videos… listening to them at home. And I said this is what I am going to integrate into my lesson. I had

> 1everything stored on the flash drive, I had the projector because I would have to look at the time it would take to enter the classroom. I brought my own personal projector, I had the cords, I had everything. But there was a faulty outlet in the classroom. I didn't check out that particular thing the day before. So, when I plugged it into the wall, it didn't work. There was a power shortage within the classroom, so my lesson then became unsuccessful. I was on the shame bench in front of the students for I prepared them mentally that we were going to watch the video. So, I could not have that lesson and I had to wait until I think it was a week after because of course there was no power restored back in the room.

When I asked her how she felt from this incident, P5 said:

> Well, I felt shame because to know that I am in the driving seat and the students would have been having that confidence in me that I got things all planned out. It's just that you might be hard on them to say "well, you didn't check your work, you didn't do this. So now it is on my part.

Theme 6

Five out of eight lecturers stated that they preferred to use the technology outside of the college than within the college environment. Within the study, the data revealed that most lecturers used technology more outside of the classroom than at work due to barriers that they faced trying to adopt technology at work. The five participants explained that they felt more comfortable using technology outside of the college. However, the other two participants said that they could use technology both outside of work and at work, leaving only one participant shared that they used technology

exclusively at work. The reason given by the five participants for using the technology outside of work were that lecturers had "more freedom using the technology outside of work that at work itself." As was explained by P6. They further elaborated that they had better quality of the internet and better resources outside of the college. This was shared by P3 who stated,

I probably use technology more outside because I have my internet, my television. I have more time outside of school, so I get to practice. I am more confident. I have my YouTube; I have my Netflix. But when I am at school, it is a different situation because the internet is not that good at the college and because the internet is not good. It limits me on what I can and cannot do.

The participants also spoke about issues with "plugs not working" and even having to bring their own cords, internet box and even their own projector in order for them to ensure they have what is needed to teach the class properly. P1 delved further into the issue and complained that "even when she comes equipped for her classes the heavy bag that she has to carry with all the needed equipment is not worth the hassle nor the back problem she is currently facing."

Summary

The purpose of Chapter 4 was to examine the lecturer's beliefs of their self-efficacy in adopting technology in their current position at the Zendejay College. The chapter further examined college lecturers' belief as to their barriers to technology adoption at Zendejay College and the necessary support they feel would be needed to overcome these barriers.

Participants believe in technology adoption at Zendejay College and their self-efficacy is threatened when attempts are made to adopt technology. The lecturers exhibit a very positive attitude regarding technology adoption. Lecturers felt that technology is necessary for themselves and students as well, for it adds value to the earning environment. All lecturers had varying degrees of confidence levels. Through their various comfort level, one was able to see the various technology tools they could employ. Lecturers often became defensive or fearful when they were afraid of failure, for they did not want to look incompetent or have self-doubt in front of their students. These feelings caused some of the lecturers to avoid or choose not to complete difficult tasks. Individuals with these qualities also gave up easier if required skills or subskills seem challenging

Modelling and observation learning played a significant role when lecturers plan to use a new innovation and influence a lecturer's participation. When lecturers can attest to how technology promotes students' success and engages lecturers in their instructional practices through technologies, then college lecturers' confidence and self-efficacy will increase. The finding also revealed that a person's self-efficacy played an integral role in a lecturer's decision-making and will impact their likelihood of using it. Self -efficacy is very powerful, and the data revealed that it is so influential that it can predict individuals' behavior and how they will accomplish specific tasks.

There were indeed barriers that lecturers are facing at the Zendejay College. These barriers can be seen as either intrinsic and extrinsic barriers or both. These challenges have hampered the lecturers with their adoption. Some examples of these

barriers included equipment, proper infrastructure, time constraint, financial restraints, personal issues, attitude toward technology use, lack of technology knowledge, and the challenges technology will impose. It was also revealed that the college's support system was very limited and that lecturers needed more support if they were to be more effective in technology adoption.

It was also identified that every lecturer needs some form of support. Even though the research focus was on lecturers' issues it was brought to light that students need support for adoption to be successful. It is often assumed that students of today are more advanced, have all the technology gadgets and equipment and are more technologically incline; however, these generalizations may not necessarily be true. Zendejay College lecturers felt that having support from the college administration was important. They also shared that having an educational support team was necessary to be created. The participants expressed that more effort needed to be had at Zendejay college with training and keeping lecturers updated with the new technology trends. But more importantly, ensuring that the resources and infrastructure be up to standards to support lecturers and students.

Technology use cannot just be for specific individuals, it must be inclusive for all. Lecturers want to partake in the adoption of technology; however, administrators' lack of support and inadequate infrastructure leads to burn out and frustrations. Although all of the participants articulated numerous challenges, the removal of these barriers will allow lecturers to experiment with their technology adoption more without worry of failure. When barriers are removed and lecturers feel confident with experimenting with

technology it helps to strengthen lecturers' beliefs, change their behavior and assist them with confidence building to effectively participate with technology adoption. However, when these barriers are left, unresolved, participants exhibit fear, avoidance, resistance and lack of confidence.

The next chapter expands on the conclusions extracted by the literature review, conceptual framework, and data analysis. I will further examine the importance of conducting such a study to lecturers within higher education and how these findings can contribute to social change. Chapter 5 includes an analysis of the limitations found in the study and the recommendations derived by the research findings.

Chapter 5: Summary and Recommendations

The purpose of this basic qualitative study is to understand Zendejay College lecturers' perceptions of their self-efficacy in terms of implementing technology in the classroom. The conceptual frameworks were Bandura's self-efficacy theory and Rogers' diffusion of innovation theory. Presently, there is not much literature regarding college lecturers' beliefs of their self-efficacy in terms of adopting technology within the Caribbean as well as barriers to technology adoption. It is also unknown how much support lecturers feel they need to overcome barriers when adopting technology within a Caribbean context. It has proven to be challenging finding current information within Latin America and other Caribbean countries regarding technology adoption. This study will assist in providing literature that represents the Caribbean context, which fills a gap in the literature.

College lecturers felt that technology adoption was necessary for both themselves and their students. Lecturers also felt that technology had significant value in terms of the learning environment. It was further revealed that lecturers' self-efficacy regarding technology could directly or indirectly influence their perspectives. Those lecturers who met adverse outcomes often felt a lack of motivation and negative attitudes when using technology. The results showed that having a high confidence level was instrumental to lecturers' interactions in terms of the technology adoption.

Competency skills, computer knowledge, and teaching experiences influence lecturers' technology use. Lecturers who were not familiar with using technology found it difficult to adopt it. Lecturers felt it was exhausting learning new technologies and

simultaneously imparting new knowledge. It was very time consuming, especially when technology frequently change. Participants found it difficult to keep up with the latest technology trends, which caused fatigue, burnout, and resistance among lecturers.

College lecturers identified several barriers that hampered them from adopting technology. Barriers that were identified have been classified into two categories: extrinsic and intrinsic barriers. Lecturers shared that time, administrative support, technical support, prior experiences, technology exclusion, infrastructure challenges, financial restraints, and personal issues were critical issues.

Lecturers preferred to use technology outside instead of inside the classroom because of access to better resources, a sense of freedom, and better infrastructure. The few lecturers who shared that they could use technology both at work and home had brought their technology from home into the classroom. Equipment they brought included plugs, Internet, USB cords, and a projector.

Lecturers felt that the college's support system was inadequate and needed increased support to be more effective in terms of technology adoption. Lecturers spoke about having technology support and an ICT department that not only focused on hardware issues. Software, training, and programming problems and a clear ICT plan were deemed to be very important by lecturers for it would assist them in their technology adoption. Lecturers felt that by having a clear IT plan, a more comprehensive plan for the college would be realized.

Interpretation of Findings

The study addressed the research questions and provided clarity regarding lecturers' beliefs of their self-efficacy in terms of adopting technology. There was also information regarding barriers lecturers face during technology adoption and support needed to overcome these barriers.

Lecturers' open attitudes allowed them to be more receptive when trying to adopt technology. . It is through students' success that lecturers will engage in technology with a positive attitude.

The majority of lecturers possessed positive attitudes regarding technology adoption, which contributed to increasing their self-efficacy. Even though lecturers were open to technology adoption, that did not mean that they would adopt technology within the classroom. The findings found that lecturers were not adopting technology because of their belief or attitude towards technology, which stemmed from the challenges that lecturers faced when attempting to adopt technology.

Lecturers agreed that ICT is necessary to enhance students, learning and teaching; and has provided many benefits throughout the years. Technology has proven to be the most instrumental factor in terms of students' learning experience and provides value and benefits for students. Research demonstrated that lecturers' self-efficacy beliefs were positive.

Lecturers needed a lot of support with technology adoption. All lecturers felt that successful events with using technology would not only raise their self-efficacy but

develop their confidence. However, when unsuccessful outcomes occurred, their attitudes would become negatively affected.

Lecturers technology skills and competency level in adopting technology are influential to the lecturer's adoption process. The findings demonstrated that all lecturers are experts in their specific subject areas. However, just because they are experts in their field of study, it does not mean that they will hold a strong competency level using educational technology tools or even adopting the technology. An instance of this was exhibited by P6 and P8. These individuals showed a serious limitation with technology adoption and possessed a lack of knowledge regarding technology adoption and new educational technology tools. The results further revealed that this deficiency caused participants to feel "fear," "anxiety," and developed a low confidence level. These feelings and ineptness regarding technology have kept both individuals in a sense of bondage when relating to technology adoption.

The findings demonstrated that there are issues and barriers to technology that prevent adoption (Druff & Carter, 2019; Saxena, 2017). The findings in the study validated what was shared in the literature. The lecturers asserted that there were indeed barriers that they were facing at the college. Some of these barriers included a lack of proper equipment and infrastructure, lack of knowledge, support, financial constraints, time constraints, lack of training, and no technology policy. Within the literature, the results of lecturers' beliefs were consistent with other studies that showed similar barriers, which included issues with infrastructure, awful internet, inability to use

technology, lack of training, age, self-efficacy issues and gaps in knowledge (Becuwe et al., 2016; Hur et al., 2016; Tondeur et al., 2016).

The majority of the participants felt that they prefer to use technology outside of the classroom. Lecturers felt that it afforded them the freedom to experiment without glaring eyes and criticism. Lecturers exhibited a level of freedom because lecturers were in their comfort zone, and their surroundings were better equipped, causing lecturers to feel a sense of comfort. However, two of the participants said they were comfortable in both the work environment and outside of work. The data revealed that those particular lecturers unveiled that they had to bring things from home, such as "their internet box," "projector," "extension cords," "USB cords," and "portable plugs" to make their environment comfortable. According to the studies of Bauwens et al. (2020), Alemu (2015), and Saxena (2017), when lecturers felt that they have the requisite infrastructure, correct resources, and much-needed support, then they likelihood of them engaging technology at work would increase.

Lecturers' expressed there was limited support with technology adoption at the college. The lecturers expressed that it was critical for adequate professional development, training, and adequate support. The data further revealed a need for pedagogical support, proper infrastructure, technical support, access, financial support, training and professional development, support for administration, and technology policies. The results of my study confirmed the result of the studies of Franklin et al. (2014) and Kimmons and Hall (2016), which revealed that many schools are in a similar

situation and do not find that their school had a clear vision for how ICT would work; or how it would fit within the curriculum

The study provided an extension of knowledge in various ways. Firstly, the findings provided an avenue in which a Caribbean perspective was derived. An American or Developed country perspective dominated most of the literature found in the literature. This study has now provided a new and current Caribbean perspective and has now added to the body of literature.

Another finding that I found was that the literature was predominately written by men and provided a male perspective. This discourse has provided an extension of knowledge because I am a female scholar-practitioner and I have now brought to light new insight within the culture of a Caribbean context. While conducting my research, I have noticed that no other Antigan and Barbuda scholar has written and been published on this topic, which again filled the gap.

Limitations

This Basic Research Study approach was guided by specific methodological decisions that were outlined in Chapter 3. However, I found that there were inevitable limitations out of my control during the study. Firstly, I wanted all interviews to be conducted face to face. However, during COVID-19, many Caribbean islands went into a state of emergency. This caused all schools, including the college, to be closed. Due to the severity of COVID-19 and social distancing protocols enforced, all planned face to face interviews were suspended indefinitely. I also believed that the pandemic affected my anticipated sample size of 10 to 12 persons. However, I was still able to recruit eight

persons to participate in the study. I was striving for a more proportionate representation of the various departments. This was not the case. Due to the smaller participant pool, the research may be limited.

It was also mentioned in Chapter 1 that I would be using the process of triangulation. This was no longer the case within the study since I did not use multiple sources during the data collection. This occurred because I changed the research design. I moved from a case study to a basic research study. The transferability of the findings can also be seen as a limitation due to the small sample size compared to the college population. These experiences expressed by the participant may not be representative of all the other colleges on the island. Further research studies need to be conducted to see if other colleges around the Caribbean region subscribe to the participant's same views outside the island's jurisdiction.

Recommendations

The study's recommendations were influenced by the literature review presented in Chapter 2 and the data found within the study. Further research needs to be implemented regarding the lecturer's self-efficacy beliefs, barriers faced during technology adoption and support required in other colleges within other Caribbean territories. There is limited literature that is regionally specific to the Caribbean and Latin America. With limited literature, researchers may have to compare their findings to countries with similar or dissimilar issues.

Further research is also needed with respect to the steps that Caribbean lecturers should go through to help them build their self-efficacy level using their limited

resources. This step will provide a deeper understanding of how to build lecturers' self-efficacy during technology adoption and provide quality data that can be used to bridge the gap in the literature. Since technology is continually changing, adapting then practicing technology will also continue to change (Sheftel & Zembrycki, 2017)..

The study was limited to one setting and focused on one college. It is recommended that further studies of all the colleges on the island be explored. This will allow a comparison of similar and dissimilar contexts. This strategy can provide a better insight into the barriers, support needed, and explore lecturer's self-efficacy beliefs related to technology adoption. This will also lend to the body of knowledge, for it will afford additional themes that may not have been revealed during this research study. It will provide greater value and a deeper understanding of the issues that the Caribbean lecturer face. Further studies could include a larger sample size. This could provide more in-depth knowledge and various experiences, offering a more in-depth understanding of the lecturer's adoption challenges and self-efficacy.

The final recommendation is related to the study findings. It was shared within the study that participants were desirous of professional development and training to improve their knowledge base. Institutions may be training; however, training needs to be continual. Reid (2017) shared that workshops are useful; however, these trainings are fast-paced and may add to lecturers' discomfort. Therefore, training must be appropriately arranged. Another matter that emerged from the data was the need for adequate support. Reid asserted that the time has come for higher learning institutions to have a center for instructional support, which differs from the IT department, which deals

with solely technical issues. Many institutions have the misconception that the IT department is supposed to deal with these pedagogical issues, but that is a complete fallacy.

Implications

This study has contributed to positive social change in various ways. Firstly, it has filled the gap in knowledge and highlighted the challenges that college lecturers faced with technology adoption within their specific subject area from a Caribbean perspective. The research findings will also demonstrate the need for tertiary institutions to provide adequate support to the staff when adopting new technologies and addressing the many barriers faced within the institution's walls. The results can help achieve successful adoption practices among other tertiary institutions and other key stakeholders.

Social change can also be derived through the dissemination of the study's findings. This can be achieved by articulating findings with colleagues, summary reports, publishing findings in journals and presentations via conferences, professional development or webinars. As a researcher, knowledge is power. For me to model social change within the region, the sharing of knowledge gained must be shared among educators and significant stakeholders using the highlighted modes. Lecturers can now use the study's findings to inform their decision making when adopting the technology.

The COVID-19 pandemic has forced many colleges to move away from traditional learning and operate solely online. This process is relatively new to lecturers and administration, leaving many lecturers uncomfortable when executing their duties. However, my study can provide insight into the approaches that lecturers have faced

during the adoption process and the barriers experienced. Lecturers documented experiences will influence policymakers and administrators as to the measures that should be in place when attempting to support lecturers. Stakeholders can also use the study to understand the many challenges that the lecturer's face and the necessary support required. The knowledge gained by this process will prevent other lecturers from suffering the same faith.

The Zendejay College, the Ministry of Education, other tertiary institutions around the region and educational unions are a few organizations that could benefit from this study. This could be achieved by using my findings as a steppingstone to impart change within their present structure. Examples of this include using the results to establish a successful framework that will advance adoption in lecturers' instructional practices. Also, the lecturers' recommendations will provide a more in-depth understanding of the problem and a viable solution. Key stakeholders will then know what is needed to support lecturers and provide the required resource for successful adoption. The study will further assist stakeholders in designing an effective technology adoption model that will include a proper ICT support system that focuses on educational technology instruction and adequate professional development training.

As my findings empower others, the findings will not be limited to only lecturers and stakeholders but also families. When lecturers are comfortable in adopting technology, learning can take place anywhere and is not subjected to only the classroom. Studies have shown that technology has many benefits once used correctly (Alemu, 2015; Oskay, 2017). By lecturers using technology it will help broaden learning opportunities

and support students' learning (Khodabandelou et al., 2016; Laine & Nygren, 2015; Onuoha et al., 2016; Oskay, 2017). Families can now be engaged with the development of the learning process. When lecturers can increase their usage in adopting technology within their instructional practices, it will provide students with the necessary technological skills and digital literacy needed to function adequately in the world of works and be competitive among the region.

This study has now contributed to the body of literature from a Caribbean perspective. When individuals seek information specifically targeting the Caribbean region's perspective, my study will help fill that gap. My study is region-specific and will bring to light the barriers and the necessary support for successful adoption within the English-speaking Caribbean. By using a qualitative methodological approach allows the voice of the Caribbean region to finally be heard. Voices have been silenced for too long, especially regarding the literature. A qualitative methodology approach allowed me to use interviews to provide an in-depth and detailed approach to the problem. This approach allowed the participants to share their stories and experiences. Their voices also debunked the myths that, as Caribbean people face the same problems as those in developed countries.

Theoretically, Rogers' (2003) diffusion of innovation and Bandura's self-efficacy theory have various implications. Rogers has explained to stakeholders that though they may be desirous for technology adoption to occur immediately, there are various technology adoption rates. Individuals' speed to adopt technology is based on multiple factors. Rogers' diffusion of innovation theory is vital for this study because it provides

insight into why lecturers at Zendejay College may be hesitant to use new technology innovations. In contrast, others may accept the new technology or reject it. Rogers (2005) demonstrated that five main steps has influenced the lecturer's adoption. They included knowledge, persuasion, decision, integration and confirmation. Rogers shared that without these steps, adoption cannot take place. Bandura's self-efficacy theory implicated that people's insecurities and beliefs in oneself are the fundamental cause of their successes or failures in situations they may face (Arcelay-Rojas, 2018). This theory also explains that based on personal perception, past experiences and comfort level, individuals will perform at the level at which they feel comfortable. This theory was vital for this study because it helped to interpret the issues college lecturers faced.

The results demonstrated that lecturers lack support and are not equipped with the requisite training to bridge the gap between adopting technology and effectively implementing these technologies within the curriculum (Dintoe, 2019). Stakeholders need to consider this and design professional development training to address these issues, not just focusing on basic computer skills. This will assist with building confidence among the lecturers.

Barriers are somehow seen as a problem that is unique to specific lecturers. However, the research demonstrated that this is not the case (Arsić & Milovanović, 2016; Oskay, 2017). The administration needs to have a clear IT plan. It should highlight present issues and a futuristic vision that will create a substantive plan that will be progressive for the lecturers, students and the institution. The IT plan cannot be created within a bubble and it must be done with the lecturers' consultation. The lecturers can

share their concerns and all parties can work together to create policies that will work for everyone.

Support is crucial to all when creating positive outcomes. As persons struggle to adopt technology, the administration can lend their support by building an IT team. The IT team's primary function is to fix equipment and provide software support and continuous training and technical support to lecturers within the classroom setting. This will assist lecturers with the fear of failure, omit the many challenges that the lecturers have with infrastructure malfunction and technical issues while adopting the technology. Lecturers can concentrate on imparting knowledge without taking time out of the instructional time worrying about these barriers.

Conclusion

The study has demonstrated that Caribbean lecturers are indeed willing to embrace technology adoption. They understand the benefits it brings to assist learning. They are willing and committed to advancing their instructional practices by adopting the necessary technology within their setting. Though lecturers believe that there are hindrances in the way, they still try and attempt technology adoption. Through each triumphant moment during technology adoption, lecturers will begin to empower their students.

As lecturers work toward these objectives, the adoption process must be done correctly to achieve this goal. Listening to the lecturers' demands, working together with the administration to provide the necessary support, and adequately creating technological policy in consultation with lecturers will help lessen and rectify the barriers

faced (Dintoe, 2019). By alleviating lecturers' barriers, it will help shape the lecturer's confidence level, increase knowledge building regarding technology, and minimize the resistance among lecturers trying to adopt the technology.

Lastly, I found that the literature surrounding Caribbean lecturers' technology adoption and the difficulties they face are minimal compared to those of the developed countries. Caribbean voices need to be amplified through academic discourse to share the challenges met with technology adoption. Culturally, we share various norms, and lecturers realized that technology use will not produce the change. Instead, the lecturers will now become the agent of change that will make a difference. For this change to occur among lecturers, the necessary support and removal of barriers must occur for the lecturer to begin making serious commitment and adjustment to technology adoption.

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Appendix A: Interview Protocol

Interview Protocol

Time of Interview:

Date:

Place:

Interviewer:

Interviewee:

Current Department:

The purpose of the study is to gain an in-depth understand of the barriers to technology adoption faced within the Caribbean and self-efficacy beliefs influence the way individuals adopt technology.

The interview will last for approximately 30 minutes. The information collected is completely confidential and will not be shared with anyone. Your name will be disclosed in order to protect confidentiality. Before I begin, I would like to record the interview for transcribing purposes only. It would be appreciative if you could sign the consent form.

Questions:

1. Are you willing to trying new ideas when adopting technology?
2. What would influence your ability from trying a new innovation within your instructional practices?
3. When using technology are you more likely to use it outside of school or at work?

4. When introduced to a new technology in your classroom, what is your initial reaction toward it? Does your reaction differ when at home or in a different location than the classroom? Why or why not?
5. How much does your self-efficacy level play a factor when attempting to try a new technology?
6. What are some reasons that may influence your existing attitude toward using new technology at the college?
7. How would your success with trying and learning a new innovation affect how you use it in the future?
8. For technology adoption to take place within your instructional practice what types of support would you need?
9. What support system do you presently have when engaging technology adoption?
10. How would trying and learning a new innovation influence how you interact with it?
11. Would observing others using a new innovation influence how you would react to it?
12. What are some of the barriers if any, prevent you from engaging in technology adoption?
13. How much does your confidence in your ability to use technology play a factor when using a technology for the first time?

14. How does your confidence in your ability to use technology influence your instructional practice?
15. Describe your confidence levels regarding to technology adoption during your instructional practice?
16. What are the ways in which you use technology within your subject area?
17. Within your specific subject area, how does your self-efficacy beliefs influence technology adoption?
18. What are your beliefs about the necessity of adoption technology within your subject area?
19. What are you views about Caribbean college lecturers moving toward technology adoption?
20. How can teacher's belief impact teaching practices either negatively or positively?

Appendix B: Interview Protocol

The research is being undertaken as part of a research study to assist in my dissertation. The aim of the study is to find out what are your views on Technology adoption, the barriers that college lecturers may face, and how lecturer's self-efficacy levels may affect technology adoption. Please note that the information received from the interview will be held in the strictest of confidence. The session will be recorded, and a report will be transcribed based on the main themes that were found from the participants. Please note that no individual or their identity will be revealed, and participants will be given a fictitious name. Please remember that the study is strictly voluntary, and you may withdraw at any time from this study.

Interview Questions

1. Do you believe that it is important to adopt technology into the classroom?
2. What are some technologies that you have adopted within the classroom?
3. Describe the ways you presently adopt technology within your instructional practice?
4. Describe some of the support systems that are available for adopting technology with your subject area?
5. What would influence your decision making to use a specific innovation? (Positive verbal persuasion, mastery, and sharing of other experiences).
6. Roger (2005) shares that there are various categories in which people go through in adopting a technology. They include the following categories: early adopters (a person that begins using a specific innovation as seen as it

becomes available) , early majority (This is group of people that will wait to see person if a specific innovation will be successful), late majority (This is the group that is skeptical about adopting technology), and laggards (Laggards are one that focuses on tradition, and they are the last group to adopt a specific technology.

7. Which category would you fit under?
8. How has your experiences with technology adoption influenced your decision to use it in within your instructional practice?
9. How has your openness toward using technology in your instructional practice affected how you adopt technology in your subject area?
10. Describe any experiences that have strengthened or weakened your ability to use a specific technology innovation?

Appendix C: Demographic and Qualifying Survey Tool

The following survey is a tool that will be used to only collect Demographic information as well as assist me as to the which participant is better suited to be used within the study. It will not be used as a data source within the study.

Dear Colleagues,

I am presently a student at Walden University completing my dissertation on the Caribbean Perspective on Barriers to Technology Adoption and How it has impacted lecturer's self-efficacy. As part of my research, I would like to invite you to take a few minutes to answer a 20-question survey. All information gathered from this survey will be confidential and your participation will be completely voluntary. If at any time you wish to withdraw from participating in the study for any reason. You are under no obligation to stay.

Thank you so much for your participation and assistance.

1. What age category do you fall into?

   ___24-40

   ___41-Retirement

2. What is your gender?

   ___Female

   ___Male

3. Please enter the Department you presently work in

   ___The Department of Undergraduate

   ___The Department of Business

___The Department of Teacher Training

___School of Pharmacy

4. How many years have you been working at the following department

___1-2 years ___12 -15 years

___3-7 years ___ Over 15 years

___8-11 years

5. Please read the following description of the six stages that are related to technology adoption of Technology. Please check the correct stage that best describes your level of technology adoption.

___Stage 1: Awareness:

I am aware that technologies exist but have not used it-perhaps I am even avoiding it at times.

___Stage 2: Learning the Process:

I am currently trying to learn the basics. I am often frustrated by using computers. I lack confidence when using computers and I would often seek assistance.

___Stage 3: Understanding the application of the process:

I am beginning to understand the process of using technology and can think of specific tasks in which it might be useful.

___Stage 4: Familiarity and confidence

I am gaining a sense of confidence in using the computer for specific tasks. I am starting to feel comfortable using the computer.

___Stage 5: Adapting to other contexts

I think about the computer as a tool to help me and am no longer concerned about it as technology. I can use it in many applications and as an instructional aid.

___Stage 6: Creative application to new contexts

I can apply what I know about technology in the classroom. I am able to use It as an instructional tool and integrate it into the curriculum

6. Do you feel that technology adoption is a needed step in order for you to teach your classes?

___Yes

___No

7. Would you consider yourself technology savvy

___Yes

___No

___Somewhat

8. Do you adopt technology within your teaching?

___Yes

___No

9. Check the box that applies to the application that you can do or use

- I can use Microsoft suit
- I can create animation
- I can set up and use a projector
- I can use Google Classroom
- I can create a blog

- I can use Moodle
- I can use YouTube to upload and download videos
- I can use PowerPoint
- I can use Excel
- I can use Voice Threads
- I can create podcasts
- I can make videos
- I can create Wiki's
- I can use WhatsApp efficiently
- I can send and write e-mails
- I can create test, or assignments of Moodle or Sonis Web
- I can use social media efficiently and often use it with my class.

10. Do you use these tools in isolation of the classroom?

__Yes

__No

11. What would you classify yourself as?

___You may not be the first person and definitely not the last that adopts new innovation. You are deliberate when choosing to adopt an innovation. However, your decision to use the innovation takes a little more time. (Early Majority)

___You are leader when it comes to new innovation. Members comes to you for support and advice about how to use the new innovation. (Early Adopters)

___You need to ensure that the technology works before you decide to commit to using it. You prefer the traditional way of doing things and are skeptical about

innovation. You need to get adequate support (from friends, peers, mentors) and need to be pressured (either through policy) when deciding to use it. You are the last to use the innovation. (Laggards)

___You prefer to wait until most of your peers adopt the innovation. You may be skeptical about using the innovation. You also need some form of pressure to conform. (Late Majority)

12. Does your willingness to adopt technology stem from how competent you are in using technology?

___Yes

___No

13. Do you feel that technology adoption is too much work?

___Yes

___No

14. Have you ever used a technology (Sonis Web, CXC Portal, a new innovation) that has caused you to become frustrated that you would prefer not to use it again?

___Yes

___No

15. Do you feel that your confidence level determines whether or not you would adopt technology?

___yes

___no

16. Do you feel that a teacher's level confidence can be influenced by past experiences, and by the culture of the education system that they are a part of?

___Yes

___No

17. What are some of the support mechanism that could influence your technology adoption at a proficient rate?

- mentorship by other college lecturers
- pep talks
- training
- feedback
- adequate resources (proper internet)
- other

18. Your decision to use an innovation depends on the following:

___Knowledge Stage- What you know about the innovation.

___Competency

___Persuasion Stage- you believe in the innovation and feel that it can improve your instructional practice.

___Decision Stage- this is the stage in which you decided whether you are going to use the innovation or not.

___Implementation Stage- this is the stage which you practice using the innovation.

19. Empirical evidence has demonstrated that not all college lecturers have the same expertise as others. This may be the reason why some teachers may not adopt technology in the same way.

    ___Strongly agree

    ___Agree

    ___Disagree

    ___Strongly disagree

20. Contact Information

    Name_____

    E-mail Address _____

    Phone Number _____

Appendix D: Stage of Adoption of Technology Survey Instrument Usage Approval

From: Rhonda Christensen <rhonda.christensen@gmail.com>

Sent: Wednesday, May 1, 2019 3:56 PM

To: Na-Ajele Williams-Buffonge

Subject: Re: Permission to use your Stages of Adoption of Technology Survey Instrument

Hello Na-Ajele,

Yes, you have my permission to use Stages of Adoption of Technology for your dissertation research. Please use proper citation and proper credits.

Good luck.

Rhonda Christensen

On Wed, May 1, 2019 at 2:44 PM Na-Ajele Williams-Buffonge <naajele.williamsbuffonge@waldenu.edu> wrote:

Dear Dr Christensen,

My name is Na-Ajele Williams-Buffonge. I am presently a doctoral candidate with the University of Walden. I am presently doing my dissertation on the Caribbean perspective to technology adoption and barriers that they face during the adoption process. Upon my research I came across the survey you conducted on the stages of Adoption of Technology Survey. I am, therefore,

asking permission if I can use your survey instrument in my study to assess lecturer's adoption of technology through your survey.

Kind Regards,

Na-Ajele Williams-Buffonge

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