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Strategies for Implementing E-Learning Solutions in Ghana's Public Universities: A Delphi Study

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This is to certify that the doctoral dissertation by

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has been found to be complete and satisfactory in all respects,
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Walden University
2020

Abstract

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Abstract

Thousands of qualified university applicants are denied admission into mainstream public universities in Ghana each year mainly due to lack of physical space on campuses, but e-learning has been identified as a way of increasing admissions. However, there have been no strategies for implementing solutions to e-learning, and so this study was conducted to identify these strategies. The conceptual framework comprised of status quo bias, culture, and resistance to change. A qualitative modified Delphi approach was used for the study with three rounds of surveys. The 11 panelists were administrators and/or professors who had been in their positions for 2 years or more in their universities. After three Delphi rounds, participants agreed on 10 strategies: assess overall needs of a university before e-learning is implemented, set goals for implementing e-learning, involve top management in developing and implementing e-learning, assess specific IT needs in order to implement e-learning, assess actual financing options for e-learning, find different options/strategies for implementing e-learning goals, assign responsibilities to specific personnel or committee to oversee the implementation, involve other stakeholders besides top management in developing and implementing e-learning strategies, provide needed resources for e-learning, and provide e-learning training to relevant stakeholders. University administrators in Ghana may use these strategies to implement e-learning and increase admissions each year. More students having access to higher education can lead to better jobs and better standard of living for graduates and their families and also enable them to contribute to Ghana's economy.

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Dedication

Dedicated to my entire family, especially, to my children: Richard, Nick, Bobby and Candy. You were all very patient as I spent so much time on this degree, and used all kinds of resources. You will always be my inspiration!

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Chapter 1: Introduction to the Study

The demand for higher education has increased exponentially in Ghana, but public university administrators turn down thousands of qualified applicants each year mainly because of limited physical capacity (Gyimah-Brempong, 2017). The University of Ghana, a leading public university in the country, turned down over 17,000 qualified applicants in 2015 (GhanaWeb, 2015) and over 18,000 in 2017 (University of Ghana, 2018). E-learning has been identified as a strategy for increasing admissions in the universities (Ndzibah & Ofori, 2017), and though solutions for implementation exist, the administrators have not been able to plan and implement them yet (Ansong, Boateng, Boateng & Anderson, 2017a). This study was designed to solicit the opinions of university administrators and professors in Ghana, regarding strategies for implementing those e-learning solutions. The outcome of this study can help public universities to introduce e-learning to meet the increased demand for higher education in the country. More university admissions may produce more graduates who can work and contribute positively to Ghana's economy (Ganiee, 2014). More admissions could also result in more tuition revenue for the universities.

This first chapter of the dissertation outlines the background of the study followed by the problem statement and the purpose for which the study was undertaken. After the purpose statement, the research questions, conceptual framework, and the nature of the study are discussed. The key definitions and assumptions as well as the scope, limitations, and significance of the study then follow. The chapter ends with a summary and transition to Chapter 2.

Background of the Study

Administrators in Ghana's public universities have improved campus facilities that were built in the 1960s, but the current demand for higher education has exceeded the capacity of the facilities available (Yusif & Ofori-Abebrese, 2017). Many qualified applicants are turned down admission into mainstream public universities each year due to lack of physical space on the university campuses (Gyimah-Brempong, 2017). From a business point of view, the universities are losing revenue due to the inability of the administrators to meet the demand. From the social point of view, the universities are not able to provide the needed space on university campuses to accommodate applicants. The National Council for Tertiary Education (2014) reported that 111,140 high school students qualified for university entry in the 2012-2013 academic year but only 66,589 of them gained admission. In the same year, the Kwame Nkrumah University of Science and Technology (KNUST) received over 40,000 applications but offered only 10,000 admissions. In 2017, KNUST again received 43,006 applications, but offered admissions to 19,838 of the applicants (Ghana Business News, 2013). This situation was not any different from the University of Ghana, where 35,630 applications were received for the 2015-2016 academic year, but only 18,106 applicants gained admission (GhanaWeb, 2015). The University of Ghana again received 41,447 applications in the 2017/2018 academic year, but offered only 23,041 admissions (University of Ghana, 2018). At Cape Coast university, officials received 13, 188 applications in 2017 but offered admissions to 5,785 applicants. With inadequate space to meet demand from all these

high school graduates, administrators in these public universities have struggled to provide admission to mature applicants as well.

To accommodate more students, leaders in Ghana's three major public universities started their traditional distance education programs in the 1990s (Mends-Brew & Asabere, 2016). The distance education system was meant to service mature applicants by providing university access to working adults seeking undergraduate and graduate degrees (Mends-Brew & Asabere, 2016). In this distance education model, the administrators opened centers where professors physically meet students for lectures and tutoring (Mends-Brew & Asabere, 2016). Officials at the University of Ghana admitted 25,295 students into the distance education program in the 2016-2017 academic year. The KNUST had about10,000 distance education students in 2016, and the University of Cape Coast College of Distance Education had about 41,000 students in the same period (Mends-Brew & Asabere, 2016). University administrators have been using this distance education programs to absorb many students, but the programs target mainly working adults. Some high school graduates gain admission into the distance education system as well (Mends-Brew & Asabere, 2016), but the problem of public universities turning down thousands of applicants seeking admission into the mainstream university system each year, persists (Gyimah-Brempong, 2017). However, e-learning can be an avenue for increasing admission levels in the universities because physical space is not required for online course offerings (Ndzibah & Ofori, 2017). With Ghana identified as one of the countries in the world that has high growth potential for e-learning (Biztech Africa, 2013), the administrators could take advantage and introduce the change.

University administrators in Ghana started discussing online learning in the early 2000s (Tagoe, 2014). At the University of Ghana, for example, the administrators initiated their knowledge environment for web-based learning in 2004, using KEWL.NEXTGEN as the e-learning platform (Dadzie, 2009). Three years after this platform was introduced, 27 professors out of 792 in the university were using it (Dadzie, 2009). Students have also expected professors to incorporate e-learning into their course offerings by using YouTube and Khan Academy resources (Dadzie, 2009). This expectation suggests that the university did not have a fully functional learning management system at the time to offer online courses. By 2015, research suggested that full online learning had still not been started in the University of Ghana (Boateng, 2015). The institution had acquired the Sakai learning management system in 2012 but full e-learning was not introduced (Ansong et al., 2017).

The KNUST is another major public university in Ghana where the administrators have made efforts to introduce e-learning through their Distance Education Institute to meet demand. The leaders introduced a virtual classroom system in 2006 to start online learning (Marfo & Kabutey, 2010) by joining the Pan-African e-Network, which allowed member universities that were already advanced in e-learning to offer their online courses to other member institutions. Through this arrangement, the online courses offered at the KNUST were developed and offered by partner universities in India, and professors from Indian universities taught and manage the courses. KNUST students taking these online courses were supposed to graduate with degrees from the Indian university (Institution of Distance Learning: KNUST, n.d.). But internal implementation challenges were

hindering the university administrators from making progress in their own e-learning initiatives (Tagoe, 2014). A conversation with the zonal manager in charge of KNUST's southern Ghana distance education program on November 20, 2019 revealed that KNUST is no longer part of the Pan African Network partnership program. The zonal manager noted that KNUST now develops content for hybrid courses offered to distance education students through their Moodle platform. Fully online learning though, has not started yet at the university.

The situation at the University of Ghana and KNUST is not any different from the University of Cape Coast where administrators have been trying to implement e-learning within the distance education system. The Center for Distance Learning in this university was started in 2001, with 750 initial students. By the 2014-2015 academic year, enrollment had increased to 36,313 students in 27 different programs (University of Cape Cost: Distance education, n.d.). The university has 69 distance learning centers where students and faculty meet for lectures/tutoring (University of Cape Cost: Distance education, n.d.). However, the challenge is that all the programs are offered through the traditional distance education delivery system where students still meet with professors in designated off-campus locations for periodic lectures (Mends-Brew & Asabere, 2016). The university's administrators have not been able to introduce fully online courses (Ankomah-Asare, Larkai & Nsowah-Nuamah, 2016).

These attempts made by administrators in Ghana's three major public universities to implement e-learning confirm that the need exists. E-learning has become an extension of traditional education around the world, but African educational institutions,

including Ghana, do not have specific management strategies to implement and manage the change (Ankomah-Asare et al., 2016). Some researchers have identified the challenges hindering the implementation of e-learning initiatives in the country's universities and have suggested various solutions that university administrators could use to address the challenges. For example, Awidi (2008) identified the lack of experience and expertise, the absence of institution-wide e-learning policy, and the cost of acquiring/managing the IT infrastructure, as challenges hindering e-learning implementation. Ansong et al. (2017b) also identified IT infrastructure, organizational capability, competitive pressure, and the perceived benefits as factors that can impact e-learning adoption among students, faculty, and the university administrators. Budu and Ackah (2016) suggested that the IT infrastructure in the universities should be enhanced, e-learning budgets should be created, and the university personnel must be motivated to engage in the e-learning process. Further, Awidi and Cooper (2015) noted that managerial challenges hindering e-learning implementation in Ghana's public universities could be minimized if the administrators clearly outlined an e-learning implementation process in a policy document and assigned a specific team to oversee the implementation and evaluation. These suggestions are realistic and could address the e-learning challenged faced by these institutions. However, universities in Ghana have some e-learning strategies that have never been developed into an action plan for implementation (Dahms & Zakaria, 2015).

Problem Statement

The demand for tertiary education in Ghana's public universities has exceeded the ability of the universities to meet that demand (Gyimah-Brempong, 2017). Public universities are losing potential revenue because thousands of applicants applying for admission each year are turned down partly due to limited physical space on university campuses, which is not adequate to accommodate applicants into mainstream university education. The general problem for this study is that leaders in Ghana's public universities have not developed appropriate strategies to accommodate the increase in demand for higher education (Ankomah-Asare et al., 2016). A potential solution to the challenge of limited physical space on university campuses is e-learning (Ndzibah & Ofori, 2017). The specific problem for the study is that although solutions for implementing e-learning in Ghana exist, administrators in the country's public universities have been unsuccessful in implementing them (Ansong et al., 2017b).

Purpose of the Study

The purpose of this modified qualitative Delphi study was to gain consensus from a Delphi panel made up of university administrators and professors in Ghana, regarding desirable and feasible strategies for implementing existing e-learning solutions. Three rounds of questioning occurred. The results of each previous round of the survey was the bases of subsequent rounds. Panel members completed the surveys independently and their views on the topic, became the results of the study. The results could help university administrators to implement full e-learning in Ghana's their institutions.

Research Question

To explore strategies for implementing e-learning solutions in Ghana's public universities, the overarching research question was "What is the consensus among a panel of university administrators and professors regarding desirable and feasible strategies that could be used to implement existing e-learning solutions in Ghana's universities?" Based on this overarching research question, two sub-questions emerged:

1. What is the consensus among a panel of university administrators and professors in Ghana regarding desirable strategies that could be used to implement existing e-learning solutions in their institutions?
2. What is the consensus among a panel of university administrators and professors in Ghana regarding feasible strategies that could be used to implement existing e-learning solutions in their institutions?

Conceptual Framework

The concepts of status quo bias, culture, and resistance to change were combined to form the conceptual framework for the study. Status quo bias refers to the tendency to prefer the norm compared to other options in a situation where choice is necessary (Nebel, 2015). Choosing the status quo provides leaders with assurance because they are already familiar with those choices and what the outcome could be (Geng, 2016). Leaders are usually faced with the challenge of selecting the best strategy among others that could also be considered (Goddard & Pierre, 2016). Defaulting to the norm is an instinct because the cost of choosing the unknown is presumed to be riskier (Geng, 2016).

Culture also plays a role in managerial decision-making choices. Organizational culture refers to the norms, values, and beliefs shared within an organization (Janićijević, 2013), and it is usually passed on from the founders of an organization. Culture provides guidance for decision-making within an organization (Janićijević, 2013). Culture conforms to the status quo, and organizational leaders ensure that existing practices are passed on to new employees to maintain conformity (Kurtz, 2003). Ensuring that employees and leaders have the same values and beliefs results in trust from both sides (Kurtz, 2003), which is why managers prefer to make decisions that preserve existing culture within the organization (Schein, 2010). Strategic decisions that deviate from the norm, and from the dominant culture, could result in internal and external resistance to the change being introduced (ljinsa, Skvarciany, & Gaile-Sarkane, 2015). Thus, organizational leaders need to find strategies that can help them align organizational change with the culture and status quo to avoid or minimize resistance from stakeholders such as creating awareness (Kurtz, 2003; Lane, 2013). The flexibility of thinking outside the norm creates change and helps an organization to deal with trends in the industry (Kurtz, 2003; Lane, 2013). The status quo and culture in Ghanaian universities guided the panel members in formulating strategies for implementing existing e-learning solutions.

Nature of the Study

Qualitative Delphi

The modified Delphi method was used to gather data for the study. The Delphi method involves structured communication among a group of people with knowledge

about a particular topic, to help solve a problem (Linstone & Turoff, 1975, p. 3). Although some researchers have suggested that a true Delphi study should follow the same intent and apply the classical approach used by the RAND Corporation in the 1950s (Rowe & Wright, 1999), others have supported modification or varied approaches (Linstone & Turoff, 1975; Nambisan, Agarwal, & Tanniru, 1999; Skulmosky et al., 2007). The modified approach was chosen for the study because it allowed me to present existing e-learning solutions to panelists in the first round, as opposed to allowing them to determine the e-learning challenges and solutions on their own, as done in the classical approach. Also, overall, the Delphi approach was chosen because the anonymity in the process allows participants to provide views from their natural settings without any influence from the researcher or other participants (Brady, 2015). Participants were anonymous to each other, but not to me. An online search and word of mouth were used to find potential participants for the study. Once the initial contacts were made, snowball sampling was used to solicit the names of additional people. Participants were public university administrators and professors from Public Universities in Ghana. The original plan was to include officials from the Ministry of Education on the panel, but none of the officials responded to the e-mails sent to them, or the phone calls.

After contacting 24 potential participants, only 11 responded. Having the right sample size for a Delphi study has been discussed among researchers (Habibi, Sarafrazi, & Izadyar, 2014). Hogarth (1978) mentioned that a panel between six to 12 members is ideal, whereas Cayton (1997) suggested that a five to 10-member panel is ideal if the participants have multiple expertise in the subject matter being studied. Skulmosky,

Hartman and Krahn (2007) also recommended that 10 to 15-member panel for a Delphi study could produce the right results if the panel is a homogeneous group. For this study, the panel was considered homogeneous because they were all university administrators and professors willing and able to share their views on e-learning implementation issues in Ghana's public universities. The participant selection was done to ensure that the panel members had relevant knowledge, were willing to participate in the study, and had the time to do so (Habibi et al., 2014; Maxey & Kezar, 2015). Selecting the right panelists for a Delphi study is important because the validity of the results depends on their inputs (Habibi et al., 2014).

The Microsoft Forms platform was used for the data collection and the questions were aligned to the research questions (Brady, 2015). Three Delphi rounds of questioning were used to solicit the views of panel members regarding the strategies for implementing e-learning solutions. Following this modified Delph approach Round 1 of this study was used to present the e-learning solutions already proposed by researchers to panelists, asking them to suggest strategies that could be used to implement those solutions in any Ghanaian public university. NVivo was used to find common patterns in the responses, as it is designed to organize and analyze unstructured data from interviews, open-ended survey responses, articles, social media, and web content (QSR international, n.d.). After coding in NVivo, a list of all the patterns was then prepared and summarized to arrive at five overall categories that captured all the participants' responses. Using this list, the second round questionnaire was developed in the form of 5-point Likert-type survey statements (Likert, 1932). Likert-type data is appropriate for Delphi studies and

that 7-point and 5-point scales are the most commonly used (Habibi et al., 2014). Various researchers have also used Likert scales ranging from 2-point to 12-point to investigated various topics (Diefenbach, Weinstein & O'Reilly, 1993), so the 5-point scale used in this study met the recommended standard by researchers.

In Round 2 of this study, panel members were presented with two Likert-type scales, one for desirability and the other for feasibility of the strategies they suggested in Round 1. Five meant very desirable or very feasible and 1 meant not desirable or not feasible. Strategies that are agreed to as being desirable and/or as being feasible, with a median of 3.5 or higher were moved to Round 3. In the third round, panel members ranked the strategies from Round 2 in order of importance, using a scale of 1 to 10. One represented the most important strategy, and 10 represented the least important. With three Delphi rounds of objective responses from the panel, the strategies identified represented the consensus of most desirable and most feasible strategies that could be used to address the research questions (Maxey & Kezar, 2015). The Delphi process stops when the research question is answered (Skulmosky et al., 2007).

Definitions

Key concepts are defined here in the context of the study.

Change management: Change management is the process of planning and utilizing relevant tools to prepare and support individuals, teams, and other stakeholders in an organization to help them adjust to changes introduced (Oake, Davies, Houle, & Beiko, 2017). In the context of this research, change management referred to the

strategies or guidelines used by the public university administrators in Ghana to manage e-learning.

Consensus: Consensus can be reached through different approaches (Webb, 1994). Ashmore, Flanagan, Mcinnes, and Banks (2016) used mean and range of scores from Rounds 2 and 3 of a Delphi study to establish consensus. For this study, consensus was found by rating the strategies suggested in Round 2 with a scale of 1-5 and by ranking the strategies that emerged from Round 2 in order of importance from one to 10.

Delphi technique: The Delphi technique is a research method in which a panel of experts use multiple rounds of questioning to provide information about a topic (Linstone & Turoff, 1975). In this study, the Delphi panel answered three rounds of structured survey questions aimed at identifying strategies that public university administrators could use to implement existing e-learning solutions.

Desirability: A desirable strategy is one that addresses the purpose for which it was designed, both for the organization and for stakeholders (Mintzberg, 1987a, 1987b). In this study, desirable strategies were those designed to help university administrators in Ghana implement e-learning and provide an avenue for more applicants to gain admission. Median scores of responses from the panel in Round 2 were used to determine which desirable and feasible strategies would move to the third round. In the third round, participants ranked the strategies in order of importance from one to 10.

E-leaning management: Wiley (2014) defined e-learning as courses that are designed and offered over the Internet, using web-based materials and activities, made possible by various course management systems or other software packages. E-learning

management in the context of this research referred to the process by which administrators in Ghana's public universities could plan, organize, and use their institutions' material and human resources to implement and manage courses offered over the Internet.

E-learning policy: A policy is a set of guidelines or principles developed or adopted by an organization to guide operations and achieve set objectives and targets (Börjesson, Karlsson & Lindgren, 2017). In this study, e-leaning policy denoted the guidelines set by public university administrators in Ghana to govern the planning, implementation, and delivery of courses offered over the internet.

Feasibility: A strategy is feasible if it has the potential to promote growth in an organization, and if the organization has the resources to implement it (Noy, 2001). A feasible strategy also fits with the culture of the organization (Noy, 2001). These guidelines were provided to panelists in this study to enable them determine strategies which they found to be feasible.

Organizational culture: Organizational culture means the norms, values, and beliefs shared within an organization, and provides guidelines for decision making (Iljinsa, Skvarciany & Gaile-Sarkane, 2015). In this research, organizational culture referred to the norms, values and beliefs shared among administrators, students, faculty and staff in Ghana's public universities.

Resistance to change: Resistance occurs in an organization when those affected by any form of change do not accept the new methods and processes introduced by their leaders (Murphy, 2016). Resistance occurs because the social context sometimes creates

obstacles that force employees to choose new perspectives at the expense of their own interests (Burnes, 2015). In the context of this research, resistance to change indicated any opposing behavior that university personnel could show, when e-learning is introduced in their institutions.

Status quo bias: Status quo bias is to the tendency of leaders or individuals to prefer the norm, compared to other options in a decision making situation (Nebel, 2015). In this research, the concept of status quo bias explained why the panel members identified and chose some strategies that reinforce the norm in their institutions.

Strategic decisions: Strategic decisions are long-term and usually developed by top executives in an organization. These decisions are meant to guide the organization's operations into the future (Köseoglu, Yazici & Okumus, 2018). In this study, strategic decisions referred to the e-learning implementation strategies developed by administrators and professors on the Delphi panel.

Assumptions

A major assumption in this study was that public university administrators in Ghana are ready to explore e-learning as a strategy for meeting the increasing demand for higher education in the country. This assumption was necessary because the study was being conducted to determine strategies that Ghana's public university administrators can use to implement e-learning in their institutions. Another necessary assumption was that the selected Delphi panel would be willing and able to provide honest information and reach consensus regarding the strategies for implementing e-learning solutions in Ghana's public universities. With 11 participants in this study, attrition could have been

a problem, so it was important to assume that most panel members would be honest and willing to complete the Delphi rounds. This assumption brought objectivity to the study and minimized my biases because it was assumed that the panel, and not me as the researcher, would provide the information needed to address the research questions. The three rounds of questioning were considered time consuming, but the assumption was that most panel members would respond in all three rounds.

The expertise of the panel members was also an assumption. Ghana's public university administrators have not introduced full online learning yet, but it was assumed that the panel assembled together could provide information based on any e-learning initiatives they had worked on. Without this assumption, a panel could not have been formed for this modified Delphi process. The last assumption in the study was that the conceptual framework chosen would be appropriate for the study and would help to explain the reasoning behind the e-learning implementation strategies formulated by the administrators on the Delphi panel.

Scope and Delimitations

The scope of the study started with an investigation into the e-learning solutions proposed by researchers for Ghana's universities. The Delphi panelists were then asked to identify the strategies for implementing those solutions. The conceptual framework for the study was made up of three key concepts: status quo bias, culture, and resistance to change. Culture in every organization is influenced by society, the industry that the organization operates in, and the norms in the organization itself (Osigweh, 1989). For this study, the discussion of culture in the conceptual framework was limited to the

norms in Ghanaian universities and the influence from the national culture in Ghana as proposed by Hofstede (1984). With the assumptions, scope, and limitations well defined in the study, transferability of the results is left to the discretion of the reader. The delimitations of the study are discussed in the following paragraphs.

In terms of the geographic location, the distance to the research location of Ghana was challenging, but because the research population and the participants were based over there, the location could not be anywhere else. Additionally, because this study was part of a PhD program, it was automatically conducted within the period when the program was being completed. During that period, any relevant issues or events occurring in the country or on university campuses could have influenced the responses provided by participant and impacted the outcome of the research.

Other delimitations included participants having knowledge about the topic of the research and being able to provide the needed information (Boettger & Lam, 2013; Skulmosky et al., 2007). For this study, decision makers and professors from different Ghanaian universities were the experts needed to develop the necessary strategies for e-learning implementation. Twenty-four invitations were sent out, but 11 participated in all three Delphi rounds. The research design was also a delimitation. Although a quantitative method allows verifiable results, the qualitative Delphi method was chosen for the study to allow panel members to have multiple opportunities of thinking through the e-learning solutions proposed by researchers for Ghanaian universities and then suggest appropriate strategies to implement them. The research questions were delimitations as well because they were supposed to align with the research problems

(Price, Rajiv, Jhangiani & Chiang, 2015). To meet this important research requirement, the research questions in this study were designed to align with the research problem. The alignment helped to address the purpose for which the study was conducted.

Limitations

This section includes the limitations identified in this research and the strategies used to address them.

Attrition and response rate. Survey response rate can be a challenge especially if incentives are not included (Tourangeau, Conrad, Couper & Ye, 2014). Attrition in Delphi studies can be reduced if the researcher motivates the panelists, informs the panelists about the time commitment, implements a shorter turnaround time, and creates an atmosphere where participants take ownership of the results (Keeney, Hasson & McKenna, 2001). These strategies were implemented in the study and helped to reduce attrition. However, about 50% of potential participants contacted did not participate. The 24 candidates contacted initially responded favorably to the invitation, but only 11 followed through and participated to the end of the third round. Two people responded to the first round but did not respond in the next two rounds. In addition, three participants did not provide the number of years they have been holding their positions in their institution. To proceed smoothly and avoid additional issues with attrition, the remaining participants who continued to answer the survey questions were contacted often to maintain their interest in the study.

The time frame for collecting data. Participants responded to the survey online from Ghana during the Delphi rounds. Though deadlines were provided for each round, the data collection was prolonged because participants were busy with other responsibilities. To address this limitation, participants were frequently reminded of the deadlines to enable them fit the survey into their schedules.

Participants opinions. Reponses from participants were expected to be honest and accurate, but there was the possibility that some participants could have provided inaccurate information. There was no way of controlling such inaccurate information. The strategy of making the responses anonymous was meant to encourage them to provide accurate and honest information. Participants were also made aware that the research outcome could help universities in Ghana advance their e-learning agenda. Informing them that their responses would be anonymous and that the outcome could directly benefit universities in the country, hopefully motivated them to provide honest and practical responses.

In addition to the limitations, there were two main biases going into the study. The first bias was the preconception that university administrators in Ghana's public universities do not prioritize e-learning and would not add the relevant cost to their institutions' budget. The second bias was the idea that university administrators and faculty in Ghana are used to the existing traditional education format and would not regard online learning as a serious method of education. Both biases were minimized through the Delphi approach chosen for this research. The Delphi process compelled me to focus on information provided by the panel in the three rounds of questioning. A

reflective journal was also used to ensure that all my biases were listed ahead of time, explaining how they could impact the analysis.

Significance of the Study

The study is significant because it contributes to theory, professional practice, and may create a positive social change in Ghana through higher education. The following sections explain how the study contributes to each of these levels of significance.

Significance to Theory

The outcome of the study adds to knowledge in the area of online learning implementation in Ghana. The three concepts in the conceptual framework, status quo bias, culture, and resistance to change, have been used many times by different researchers in the academia. But all three of them had not been combined to create a framework specifically for examining e-learning implementation challenges in Ghana's public universities using a Delph approach. Doing so in this research has provided another approach or path for analyzing e-learning challenges and implementation in Ghana's public universities. Other researchers could use the same approach or modify it for other relevant studies.

Significance to Practice

The study is also significant because panel members and other university officials can use the results to resolve real-life e-learning implementation challenges in Ghana's public universities. Many universities in developing countries face e-learning implementation challenges similar to those in Ghana's universities (Asabere, 2013). The

desirable and feasible strategies resulting from this study may also help universities in other developing countries to enhance their e-learning initiatives.

Significance to Social Change

Developing strategies for implementing e-learning in Ghana's public universities can allow administrators in those institutions to finally introduce e-learning and provide admissions to more applicants. E-learning does not require physical space, which the universities currently lack. Education brings about changes in behavior and enables individuals to effectively participate and contribute positively to society (Ganiee, 2014). More people gaining admission into universities can also result in economic gains for graduates and help the government to save on social cost (Asamoah, 2017; Watts, 2001). Investment in formal education is not a waste because the larger society gets the spill-over benefits (Ampofo et al., 2015).

Summary and Transition

This first chapter of the dissertation has been used to outline the problem being investigated and the background information that justified the need for the study. Before this study, administrators in Ghana's public universities had not been able to identify or develop desirable and feasible strategies for implementing e-learning to meet the high demand for university education in the country (Ankomah-Asare et al., 2016). Facilities in the universities have not expanded at the same pace as the demand for higher education. From the business point of view, the university administrators needed to find a strategy to meet the high demand because they are losing revenue when thousands of applicants are turned down each year. From the social point of view, the administrators

needed to address this problem because higher education helps to train people who could contribute positively to society (Ampofo, Bizimana et al., 2015). E-learning solutions have been identified by researches to help the universities absorb more students (Ndzibah & Ofori, 2017) without the need for physical expansion. Yet, most of the public universities in Ghana had not implemented the e-learning solutions to start full e-learning courses (Ansong et al., 2017).

The research question for the study was focused on identifying strategies that public university administrators and faculties in Ghana could use to implement existing e-learning solutions proposed by researchers. The Delphi approach was chosen for data collection and the process was meant to allow panel members to reach consensus and take responsibility for the outcome of the study (Maxey & Kezar, 2015). The conceptual framework, which was comprised of status quo bias, culture, and resistance to change, was used as a guide for explaining the reasoning behind the e-learning strategies suggested by the Delphi panel. Assumptions about the study, the scope, and the limitations were also analyzed in this chapter. A thorough literature review in Chapter 2 illustrates the work other researchers have done on the topic.

Chapter 2: Literature Review

Solutions for e-learning implementation in Ghana's universities exist, but the country's public university leaders have been unsuccessful in implementing them (Ansong et al., 2017). This problem was important to explore in this study because the demand for tertiary education in Ghana's public universities has far exceeded the ability of the universities to meet that demand (Gyimah-Brempong, 2017). At the KNUST for example, admissions for first-year students increased from 708 in the 1960/62, to 45,875 in 2014 (Ysuif & Ofori-Aberese, 2017). With limited space on university campuses, thousands of applicants are denied admission into the mainstream public university system each year (Gyimah-Brempong**,** 2017). E-learning is a potential solution for accommodating more students in Ghana's public universities because additional physical space is not needed for e-learning (Awidi, 2008). However, to date, no progress has been made in implementing full e-learning initiatives (Ansong et al., 2017b; Ndzibah & Ofori, 2017).

Lack of planning, absence of e-learning policies, inadequate funding, lack of appropriate technology, poor IT infrastructure, and inadequate organizational capabilities, are some of the challenges preventing Ghana's university administrators from implementing e-learning (Asabere, 2013; Ansong et al., 2017). Solutions to these challenges have been proposed by various researchers (Awidi & Cooper, 2015; Budu & Ackah, 2016). With no sign of full e-learning in any of the public universities, this study was used to seek the opinion of university administrators and professors in Ghana regarding the most desirable and feasible strategies for implementing existing e-learning

solutions in their institutions. This chapter includes the literature search strategy used for the study, an analysis of the conceptual framework, a literature review of the key constructs, and a conclusion.

Literature Search Strategy

Various sources were used to identify appropriate literature for the study. Peer-reviewed journal articles were chosen from ProQuest, Business Source Complete, Emerald, Sage Journals, Academic Search Complete, Education Source, ERIC and EBSCO. Words and phrases used for the search included the following key constructs of the research: *Management, Decision-Making, Project Implementation, E-Learning,* and *E-Learning Policy*. Concepts in the conceptual framework were also searched: *Status Quo Bias, Organizational Culture*, and *Resistance to Change.* The search into these constructs and concepts also yielded other words and phrases that were also relevant to the study: *Needs Assessment, E-learning Framework, E-learning Strategy, University Administrators in Ghana, Leadership, E-learning Management in Africa, E-learning in Ghana*, and *Technology in Education.* Table 1 illustrates the resources used.

Table 1

Resources Used

Resource	Number used	% within 5 years
Journal article	133	71
Book	26	7
Website	31	68

Note. Most of the books used were original writings from scholars who proposed original concepts and theories used in the study

Conceptual Framework

The conceptual framework for this study was made up of three key concepts: status quo bias, culture, and resistance to change. This section includes the definitions of these concepts and how they were combined to provide a framework for the study. Writings by key theorists and seminal researchers that relate to these concepts are also discussed.

Status Quo Bias

Status quo bias refers to the tendency to prefer the norm compared to other options in a situation where choice is necessary (Nebel, 2015; Samuelson & Zeckhauser, 1988). This phenomenon explains why leaders have the tendency to choose the default option when making strategic decisions (Geng, 2016). Choice is important in the decision-making process because managers may not always have all the financial, human, and time resources to pursue and achieve organizational goals (Zbaracki & Eisenhard,1992), and defaulting to the norm is an instinct because the "cost" of choosing the unknown is presumed to be riskier (Geng, 2016; Nebel, 2015). The endowment effect also leads people to ascribe value to things regarded as possessions (Clarke, 2016; Thaler, 1980). People tend to hold on to existing possessions and/or ideas (the status quo) without considering other alternatives (Clarke, 2016). People also tend to choose actions that would be in their favor to avoid losses and maintain what they find to be safe (Clarke, 2016; Kahenman, 2011). Status quo bias also means choosing to keep the current state of affairs and not taking any action to change that, which has been referred to this as an omission or a choice for inaction (Riov & Baron, 1992). Most people prefer

inaction because they feel comfortable in their traditional state and perceive that it is risky to try other options after weighing the costs and benefits (Anderson, 2003; Hayashi, 2015; Ritov & Baron, 1992).

Status quo bias also falls in three main categories as proposed by Samuelson and Zeckhauser in 1988: rational decision making in the presence of uncertainty, cognitive misperceptions, and psychological commitment stemming from three factors: misperceived sunk cost, regret avoidance, or drive for consistency (p. 33). Rational decision making is used when alternative solutions are evaluated to identify the best option in an uncertain situation. When people are facing independent and identical decision settings, rationality usually requires them to make the same decision they previously made (Samuelson & Zeckhauser, 1988). In situations where the sequential decisions are not independent, transition costs determine if the original decision will still be preferred. If the cost of switching decisions exceeds the efficiency gain associated with a superior alternative, then the decision maker would prefer the status quo instead of choosing an alternative decision (Samuelson & Zeckhauser, 1988). Leaders sometimes adopt the status quo when they are uncertain, unwilling, or unable to find other alternatives (Huh, Vosgeru, & Morewedge, 2014). Uncertainty also becomes a problem when the process of searching for an alternative is slow, unclear, and costly, which leads to maintaining the status quo (Samuelson & Zeckhauser, 1988). For example, even though alternative activities or treatments have been introduced to help reduce patients' anxiety before the main treatment, the patients made the decision not to engage in the alternatives introduced because they were not certain about the outcome (Suril, Sheppes,

Schwartz & Gross, 2015). Data collected and analyzed in the current study helped to explain the role status quo bias played in the choices of strategies chosen by panel members.

The second category for status quo bias proposed by Samuelson & Zeckhauser (1988), is called cognitive misperception. The endowment effect (ascribing value) and aversion effect (choosing what is less risky) fall under cognitive misperception. In a situation involving a pair of alternatives where each is better in one attribute than the other, people who assign the first alternative as the status quo would still keep it as the status quo, and those who select the second alternative as the status quo would also retain that second alternative as the best option instead of switching (Thaler, 1980). The framing of gains and losses in each case influences the final decision (Thaler, 1980). In an example of buyers' perspectives of pricing, people would usually place a higher price on an item that they own than they would if they did not own that item. The owner values the item and therefore finds it more beneficial to keep it than to lose it through a sale. This endowment effect explains status quo bias because the owner of the item prefers to keep it due to the value placed on it than selling the item (Pachuri & Scheibehenne, 2017).

Anchoring is another fundamental term in cognitive misperception. Anchoring is exemplified when a decision maker chooses an optimal value of one or more continuous variables. The decision maker in this case would start with an initial decision value and adjust the value in response to the economic facts of the problem to yield a final decision (Tversky & Kahneman, 1974). This anchoring effect relates to status quo bias because

the decision maker uses the initial value (the status quo) as the base and the reference point that guides subsequent decisions. In negotiations, the initial offer serves as an anchor for both parties in the negotiation, and becomes a status quo which influences the outcome of a deal (Caputo, 2013). Anchoring also occurs when the decision task has discrete alternatives. Due to bounded rationality, the decision maker may only do a partial analysis of the options and simply compare them to the status quo. With limited understanding of the alternatives, the decision maker compares the options and leans more toward the status quo (Caputo, 2013; Tversky & Kahneman, 1974). For example, Chu (2016) used the bounded rationality concept to explain how managers choose new IT systems to replace existing ones. When the only information available for analysis are the pros and cons of a previous IT system used, managers tend to base their decisions on that readily available information, without looking for additional information, and the status quo becomes the benchmark.

Psychological commitment is the third and final category for status quo bias poposed by Samuelson & Richard (1998). Under a sequential decision-making circumstance, an individual may opt to maintain the status quo to justify a previous commitment (Brockner & Rubin, 1982). This illustrates the presence of sunk cost. When people invest time and other resources into the status quo, they tend to retain that status quo because the cost is already incurred and switching decisions to incur other costs do not usually appeal to them (Schoenberger, 1979). Decision makers do not usually want to take back the resources invested into a failing cause of action; however, asking decision makers to justify their actions sometimes allows them to rethink the

decision to avoid the negative impact of sunk cost (Dijkstra & Hong, 2019). Further, Chu (2016) used managers' decision in replacing IT systems to explain the concept of sunk cost. With large sums of money spent on IT systems, managers usually leverage the systems they already have and build on it instead of starting from scratch. The amount originally spent on the system represents the sunk cost, which they do not want to lose (Chu, 2016). Status quo bias is displayed in this example because the sunk cost is the status quo which the organization does not want to forego.

Regret avoidance is another factor that contributes to psychological commitment. When people regret a decision made previously, they tend to avoid uncertainties in current decisions to not make the same mistake. Under such circumstance, the decision maker would still retain the status quo even if there is evidence that new information presented could lead to a better decision. The decision maker would not want to make a decision that could be regretted (Kahneman & Tversky, 1982). In relation to the regret avoidance, sidestepping is a concept that indicates that an individual would choose the status quo in decision making and avoid the process of making a new decision, which may be due to the comfort of using an existing choice or due to the need for closure (Otto et al., 2016). For example, the need for closure has led to less pro-environmental behavior among people with conservative political ideology (Panno et al., 2018). This means that the need for closure influenced people with conservative ideology to maintain the status quo right-wing view on environmental issues.

Finally, a drive for consistency may also lead to psychological commitment. People may choose the status quo in a decision-making situation because they would like

to remain consistent and commit to an existing behavior or action (Kahneman & Tversky, 1982). For instance, the public may be against a government policy before it is introduced; however, when the change is introduced and the public becomes accustomed to the positive aspects, they would vote to maintain the policy because they prefer to be consistent with the change than going back to the previous state (Börjesson, Eliasson & Hamilton, 2016). This is in line with the theory of cognitive dissonance, which explains that people eventually seek cognitive consistency when they have difficulty making a choice between two conflicting alternatives (Andronaco, Shute & McLachlan, 2014; Festinger, 1957). To the decision maker, maintaining a previous decision that is known to be comfortable and/or reduce conflict in interests is the best cause of action (Andronaco et al., 2014). As part of the conceptual framework, status quo bias helped to explain the reasoning behind the e-leaning implementation strategies suggested by panel members in this study. The second concept in the conceptual framework, culture, is analyzed in the next section.

Culture

Decision making in Ghana's universities can also be influenced by the culture in those institutions. Organizational culture refers to the norms and beliefs shared in an organization. The culture of an organization binds the workforce together, supports the decisions managers make, and helps to provide stability and predictability (Atienza, 2017; Schein, 2004). Organizational culture is usually developed by the founders and/or top management of an organization, and managers generally prefer to make decisions that preserve the culture (the status quo) to maintain continuity (Atienza, 2017; Schein, 2004).

External factors such as the national culture could also influence an organization's culture (Humphries & Whelan, 2017; Marchisotti, Domingos & De Almeida, 2018). Hofstede (1984) grouped national cultures into the following dimensions: power distance, masculinity-femininity, uncertainty avoidance and collectivism-individualism. Other cultural dimensions were proposed by Hofstede in the 1990s, but only the original four are being applied to this study.

Power distance refers to power inequality between leaders and subordinates (Hofstede, 1984). In high-power distance societies, hierarchy is followed strictly in terms of roles and responsibilities and leaders are expected to exert their power (Hofstede, 1984). An organization operating in such high-power distance society is likely to have a culture that mimics the societal culture, with specific hierarchical lines of authority that are strictly respected and followed by employees (Hofstede, 1984). Low-power distance organizations have flexibility and collaborative decisions are practiced (Hofstede, 1984).

Uncertainty avoidance is the second of Hofstede's cultural dimensions (1984). This refers to the extent to which society tolerates ambiguity. High uncertainty avoidance cultures have more written rules to reduce uncertainty and ambiguity. The opposite is true for low uncertainty avoidance cultures where people can tolerate ambiguity and can operate with less rules and regulations (Hofstede, 1984).

The third of Hofstede's cultural dimensions is individualism-collectivism. This dimension refers to how people in society value themselves compared to others (Hofstede, 1984). In individualistic cultures, people are more inclined to think about their own welfare and that of their immediate families first (Hofstede, 1984).

Organizations in individualistic cultures tend to provide different opportunities for individuals to satisfy their professional and personal advancement needs. Collective cultures, on the other hand, tend to place emphasis on the welfare of society. The welfare of extended family is also important. Organizations operating in collective cultures may have employees who are willing to sacrifice their personal interest for the betterment of their organization and society. Organizations provide an environment that encourages this behavior and attitude (Hofstede, 1984).

The final of Hofstede's cultural dimension is labelled as masculinity-femininity. Hofstede used this dimension to explain the extent to which people in society like to strive for achievement, compete for success, and care for each other. Organizations in masculine cultures may have policies that encourage competition and winning among employees, whereas organizations in feminine cultures may have policies that encourage collaboration, value for equality, consensus, negotiation and compromise. Standing out is not the most admirable in feminine cultures (Hofstede, 1984).

Researchers have applied these cultural dimensions to decision-making in other countries. For example, Bamgboje-Ayodele and Ellis (2015) used Hofstede's cultural dimensions in a study conducted in Nigeria and concluded the following: Nigeria had a score of 80 in Hofstede's power distance category, which explained why decision making in Nigerian organizations were top-down. Due to this accepted national culture that is practiced in organizations, employees naturally expect decisions to be top down based on the views of the top management (Bamgboje-Ayodele & Ellis, 2015). This implies that decisions in a high-power distance culture are usually made without the input of the

subordinates. Based on information from Hofstede Insight (n. d.), Ghana also scored 80 in the power distance category (Hofstede insight, n. d). The implication is that major decisions in Ghanaian organization are also top down. This high-power distance culture in Ghana helped to explain how the preference for top-down decision making style influenced the e-learning strategies proposed by the Delphi panel in this study.

In the category of Hofstede's masculine/feminine cultural dimension, Bamgboje-Ayodele and Ellis (2015) mentioned that Nigeria has a masculine culture that was exemplified in employees' drive to achievement and success. This norm works against organizations in Nigeria because many skilled employees usually leave their organizations seeking greener pastures elsewhere, especially abroad. Nigerian organizations that do not provide the necessary incentives for knowledge workers, end up with huge knowledge gaps due to attrition (Bamgboje-Ayodele & Ellis, 2015). Information from Hofstede's insights suggests that Ghana scored 40 in the category of masculinity. This makes the Ghanaian society more feminine than masculine (Hofstede insight, n. d). Though Ghanaians are also achievement oriented and strive for success, majority of the people prefer quality of live exemplified through different ways such as flexibility, free time and relaxation, both at home and work. The outcome of this study did not conclusively confirm or deny this feminine characteristics of Ghana's culture. A follow-up study could be done to determine that.

Bamgboje-Ayodele and Ellis (2015) also applied Hofstede's long-term orientation category in their study. Nigeria scored 16 in this category, which meant that the society has a short-term orientation and focused on short-term benefits instead of long-term

benefits (Bamgboje-Ayodele & Ellis, 2015). Organizations favor quick results today than thinking about future benefits. Therefore, leaders do not introduce measures and motivational strategies to attract and retain valued employees for the long term. The leaders generally think about what they can achieve with those employees for the short-term (Bamgboje-Ayodele & Ellis, 2015). Similar to Nigeria, Ghana scores four in long-term orientation (Hofstede insights, n. d). This means that organizations in Ghana, may not focus on long term benefits of actions taken today.

Bamgboje-Ayodele and Ellis (2015) did not apply the category of uncertainty avoidance in their research. However, Hofstede insights (n. d.) indicates that Ghana scores 65 points in that category. According to Hofstede, this meant that Ghanaians prefer to avoid uncertainty, and would like to have rigid rules and regulations, even if those rules do not work. Hard work is admired and the status quo is usually preferred. Innovation could be rejected due to the uncertainty that comes along with it (Hofstede Insights, n. d.). It was difficult to determine if this tendency to avoid uncertainty is a reason why Ghana's university leaders have not introduced e-learning. This study did not directly investigate that link, but a follow-up study could do so.

Resistance to Change

Resistance to change is the final link in the conceptual framework. Organizational Development scholars have explained resistance as an attitude exemplified by individuals and groups of people when there is fear of the unknown and uncertainty. People resist change when they see it as a threat to their future (Beşliu, 2018). While resistance to change could affect relationships in the workplace, Jones and

Van de Ven (2016) suggested that the impact largely depends on the antecedents of the change, such as supportive leadership and organizational fairness. While individuals are usually willing to support their organizational leaders to carry out needed changes, resistance could occur because the social context sometimes create obstacles which force employees to choose new perspectives at the expense of their own interests (Burnes, 2015). Beşliu (2018) also explained that change could occur when employees doubt managerial capacity to carry out the change, because: previous mistaken decision had yielded negative consequence; employees feel that ad-hoc decision being made could result in job losses; and because there is the fear of losing autonomy or freedom. Fullan (2007) proposed that change happens in three phases, namely: initiation, implementation and institutionalization. Resistance could occur at each stage as explained below.

The first phase of initiation is when the decision to adopt the change occurs (Fullan, 2007). People who could be affected by the decision start to resist when they are worried about the technical aspects of the change and how it could impact their work and routines. It is important for management to provide as much information and training as possible, to explain the importance of the move towards change (Beşliu, 2018; Fullan, 2007). Kislik (2018) and Ower, (2017) also emphasized the need to provide information and training during the initial stage of a change process, and throughout the implementation, in order to minimize or avoid resistance. Resistance could continue into the second phase of implementation.

As the implementation proceeds, leaders introducing the change observe how roles and relationship are shifting, and how the atmosphere in the workplace change. The

leaders determine if they like the new atmosphere in the workplace and start addressing concerns if any (Powell & Kusuma-Powel, 2015). Resistance could be reduced during the implementation stage if the leaders pay strong attention to the atmosphere in the workplace and seriously address any concerns. After addressing resistance in the initiation and implementation stages of change, Murphy (2016) mentioned that the third stage is the institutionalization phase. By this time, resistance is usually over, unless the leaders failed to monitor progress and make the necessary modification (Murphy, 2016). If resistance still prevails during and/or after the institutionalization phase, researchers have suggested some strategies for addressing it.

The first strategy is to have a strong organizational culture (Ower, 2017). Bremer (2015) argued that well established organizational culture has the potential to reduce resistance by showing the organization's members how to perceive, feel, and act, when change occurs. Iljinsa, Skvarciany and Gaile-Sarkane (2015) mentioned that organizational culture has an impact on the climate in the workplace during a change process. To be successful with this strategy, culture in every organization should be fully espoused and exemplified in everyday operations. Murphy (2016) suggested that during a period of change, practitioners introducing the change should give people what they need. They should ask employees how the change is affecting them, and keep the change formula in mind. These would help to control any fallouts and manage the resistance effectively (Murphy, 2016). Leaders introducing change need to anticipate all the possible challenges and find strategies which could be used to combat the resistance (Beşliu, 2018). The leaders should also use tact and diplomacy to convince employees of

the need for change. The timing and duration should be right for the change, and the trend of the change should be maintained (Beşliu, 2018). Motivating employees is another strategy for reducing resistance because motivated employees work towards set goals and persist till they accomplish those goals (Kettleborough, 2015; Sadri & Bowen, 2011). Various researchers have proposed theories which could serve as guidelines for motivating employees.

Maslow (1943) proposed that human beings have five hierarchical needs which should be satisfied in order to stay motivated. Those needs fall under the following categories: physiological, safety, belongingness, esteem and self-actualization. Physiological needs are the most important but very basic in life. They include food, shelter and clothing, while safety needs refer to the security and benefits which employees expect in the workplace to ensure that they are taken care of. Love/belonging needs mean that employees want to be acceptance in the workplace and have the opportunity to interact with co-workers and bosses who genuinely make them feel important. Esteem needs include recognition, respect, reputation, prestige and the need for responsibility (Maslow, 1943). Employers who create an environment for employees to satisfy these needs facilitate motivation in the workplace. Self-actualization is the final need in Maslow's theory. This is the highest need in the hierarchy and it means that employees want to be supported to reach their highest goals and achieve self-fulfillment. Employees would have satisfied all four lower level needs before they get to this self-actualization stage and this is when they want the chance to make a difference in the world around them (Maslow, 1043). Individuals usually like to satisfy each lower level

need substantially before moving to the next level. Once a need is satisfied, it ceases to be a motivator, and employers must find ways of satisfying the other outstanding needs in order to keep employees motivated (Maslow, 1943).

Vroom (1964), Locke (1968), and Hackman (1976) also proposed the expectancy theory, goal setting theory and job design theory respectively. All these theories provided strategies for motivating employees in the workplace to increase performance. Well motivated employees embrace productive change because they want to reach their highest potential and produce high quality work. Motivated employees also tend to stay with employers, thus, reducing the prospects of high turnover (Antoni, Perkins, Shaw & Vartiainen, 2017). Employers who successfully motivate employees have the potential to reduce or eliminate resistance to change in the workplace.

Besides motivating employees to reduce resistance as discussed above, Lewin (1947) proposed a three-step high-level model which mangers could use to introduce change effectively to avoid resistance. The three steps are: Unfreeze, Change and Refreeze (Lewin, 1947). Unfreeze is the step in which the leader gets people in the organization to gradually stop their old habits, and open up to new ways of reaching their goals. Current practices and process in the workplace are reassessed in order to introduce the change. The next step which Lewin called 'Change' is the implementation stage. During this stage, people may take on new tasks and responsibilities and learn the new processes and procedures introduced. Managers should provide the needed support for employees throughout this new process. Chaos may arise before things begin to function as planned. The key is to have a well thought-out plan in place to manage any resistance

and difficulties. Lewin's (1947) final step of refreezing is what helps the leaders to consolidate the change and get everyone in the organization to see the new practices as the norm (Lewin, 1947). At this stage, employees accept the change as the new normal and operations are run smoothly. Management consolidates the change and the workforce now recognize the change as the standard/acceptable way of operations. Employees are now able to take advantage of the change with all the opportunities that come with it. Resistance is then minimized or eliminated due to the effective way of introducing the change and getting employees to accept the new normal. Wheeler and Holmes (2017) used Kotter's change management framework, which is similar to Lewin's, to introduce change in library project and noted that the steps in the model guided the change process seamlessly.

Summary of Conceptual Framework

The three concepts in the conceptual framework, status quo bias, culture and resistance to change, means that leaders sometimes maintain the status quo because they are used to a process and do not want to take risks with the unknown. The status quo is also maintained if leaders want to work within the existing culture and become reluctant to introduce any change which could cause disruption of what the workers are comfortable with. Deviating from the status quo and from the culture could result in resistance to change because employees may be worried about the impact of the changes being introduced. As the analysis above indicates, motivating employees, as proposed by Maslow, and/or introducing the change in a systematic way as proposed by Lewin (1947), could help to have employees on board and reduce the resistance.

Leaders introducing change should keep two things in mind: resistance to change is often predictable and understandable; leaders can move beyond resistance by observing how people are affected and alter the process to address the resistance (Murphy, 2016). In the results of this study there was evidence that status quo bias and the high power distance of Ghana's culture influenced the strategies developed by the panelists. Resistance to change was not directly measured in this study but the literature was presented to indicate why the introduction of e-learning in Ghana's universities could be resisted by those who would be impacted. If the stakeholders do not see any threat in how e-learning is introduced, it is likely that resistance could be minimized or avoided. Should any of the leaders in the universities face resistance to e-learning, they could use motivation and/or strong organizational cultural influence to minimize or eliminate the risk.

Literature Review

This literature review section of the chapter has been divided into three main sections. In the first section, key constructs in the study are analyzed in relation to other research in the academia which have similar constructs. The reason for choosing the Delphi approach is also explained. In the second section, other researchers' approaches to addressing the research problem are analyzed, together with the pros and cons of those approaches. The third section focuses on the research questions, how other researchers have approached the research questions in the past, and how the overall research approach for the study is meaningful.

Key Constructs in the Study

In exploring why administrators in Ghana's public universities have not been able to implement existing e-learning solutions in their institutions, the following constructs are being examined, in addition to those in the concepts in the conceptual framework: Management, Decision-Making Project Implementation, E-learning and E-Learning Policy. This section provides a detailed analysis of these constructs, by reviewing current relevant literature and explaining how they align with the study. The Delphi method chosen for the study is also be justified. Below are the analyses of the key constructs.

Management. Any project, including e-learning projects, needs proper managerial processes in order to succeed. A detailed analysis of management and managerial processes could help to determine what the leaders in Ghana's public universities could do, when implementing e-learning. Management involves the utilization of organizational resources to achieve set goals. Kotter (1996) defined management as a set of processes that can keep a complicated system of people and technology running smoothly. He also added that the most important aspects of management are planning, budgeting, organizing, staffing, controlling, and problem solving (Kotter, 1996). Kotter's definition indicates that management involves the process used to get work done in an organization. Besides Kotter, Mintzberg is also a well-known scholar in the field of management. In his 1973 book titled *The Nature of Managing Work,* Mintzberg explained management in terms of responsibilities and roles in the workplace. He proposed three routine roles of managers: interpersonal, informational and decision making. Mintzberg's (1973) explanation implies that

management is better defined by looking at a manager's daily routine work, and not in terms of managerial functions. Though this definition is slightly different from definitions proposed by other management scholars, the foundation of all the definitions is the same. All the scholars recognize that management is a process involving the careful use of financial, human and other resources to accomplish intended goals of an organization. Bang and Midelfart (2017) explained that effective management adds value to an organization and also promotes growth and well-being within the workforce. To be successful in today's complex and technological environment, leaders, including those in Ghana's public universities, need to strategically manage operations and make the right decisions in order to achieve set goals. Particularly, Ghana's public university administrators need to find the best strategies to introduce e-learning and absorb thousands of applicants who are denied admission each year due to limited space on university campuses (Gyimah-Brempong**,** 2017).

Strategic management allows an organization to examine its vision and mission to pinpoint the exact focus or direction of operations, and assess the internal and external factors which impact those operations. This assessment is usually done by organizational leaders in the form of strengths, weaknesses, opportunities, and threat (SWOT) analysis, to decide on actions necessary to succeed (Porter 1985). Porter (1980) emphasized the importance of trade-offs in strategic management. Prioritizing activities and allocating resources wisely help a firm to create value for stakeholders. Choosing specific actions means that the leaders forego other alternatives and then identify the resources and capabilities needed for carrying out and sustaining the action plan (Dyer, Godfrey, Jensen

& Bryce, 2016). As suggested by Porter (1985) and Saha (2012), it is important for leaders to break down the activities in an action plan and determine the processes needed to achieve set goals. McCready and Clark (2018) also emphasized the importance of carefully breaking down project activities to ensure successful implementation. Ghana's public university administrators would need to develop actions plans which could help them to implement the e-leaning strategies proposed in this study.

Prahalad and Harmel (1990) proposed the Resource Based approach to strategic management. The focus of this approach was that organizational leaders should use their institutions' core competencies to carry out their strategic action plans in order to gain competitive advantage. By identifying and using their core competences which other competitors do not have, Prahalad and Harmel (1990) suggested that organizations would operate smoothly and improve performance. In addition, Porter (1980) emphasized the importance of organizations having a strategy that combines a mix of products and services to meet customers' needs. Cost reduction, need-based positioning and access-based positioning are important for an organization's strategy (Porter, 2008). Cost reduction could translate into lower prices for clients/customers. Need-based positioning means that an organization determines the needs of the target market and consciously designs/develops products and services to meet those needs. Access-based positioning means that an organization is able to make its products and services more accessible to target customers (Porter, 2008). Applying this to Ghana's public universities implies that the leaders need to address the increased need for higher education by providing

admissions to more students. E-learning could serve the needs of potential students and provide accessibility.

Decision-making. Leaders use various styles to arrive at strategic decisions. A decision-making style is the 'learned, habitual response pattern exhibited by an individual when confronted with a decision situation' (Scott & Bruce, 1995, p. 819). According to Uzonwanne, (2015), leaders' leaderships styles correlates with their decision-making approaches. Uzonwanne's (2015) research examined the relationship among four leadership styles named: selling, telling, delegating, and participating, and four preferred decision-making models named: rational, intuitive, dependent, and avoidant. The results of Uzonwanne's (2015) study showed that leaders who use the selling leadership style focus on both high-task and high relationships with subordinates. This leader gives specific instructions and clear directions on how their decisions are made. A telling style is marked by high-task and low relationships with subordinates. This type of leader gives specific instructions and monitors subordinates closely. The delegating style on the other hand, allows the leader to turn over some responsibilities and decision making to followers, while the leader using the participating leadership style simply allows subordinates to participate in decision making (Hersey, Blanchard & Johnson, 2001). Alonderiene and Majauskaite (2016) mentioned that leadership styles have direct impact on organizational performance. A leader who considers the views of employees and treats them with respect is able to influence higher performance, than leaders who are autocratic.

With this analysis on leadership styles, Uzonwanne (2015) developed five decision-making styles relating to the above leaderships styles: Rational, Intuitive, Dependent, Spontaneous, and Avoidant. The Rational Decision-making model uses a thorough step by step process of identifying problems, analyzing alternative solutions, selecting the best solution and then implementing the selected solution. Rational decision-making allows the decision-maker to take a broader view of the issues at stake before a decision is made. However, Marchisotti, Domingos, and De Almeida (2018) mentioned there could still be limitations regarding the options a decision-maker could come up with in the rational decision-making model since humans have cognitive limitations. The second decision-making style proposed by Uzonwanne (2015), is based on intuition. This Intuition decision-making style is characterized by hunches and heuristics. Leaders who use this model base their decisions on intuition and how they feel. With the Dependent decision-making style, the third style proposed by Uzonwanne (2015), the leader seeks advice and direction from others before making any major decisions. The Avoidant style on the other hand, is where the decision-maker attempts to avoid making decisions by postponing them to a later date (Scott & Bruce, 1995). Uzonwanne's (2015) study revealed that the high task oriented leadership styles, correlate positively with the Rational decision-making and Dependent decision-making styles. The Participating leadership style also positively correlates with the Dependent decision-making style (Uzonwanne's, 2015). These findings may be useful in understanding why individuals with particular leadership styles may or may not be very productive in decision-making under different circumstances. Strategic management and decision-

making formed important parts of this study because they helped to analyze the e-learning implementation strategies formulated by panelists in the study.

E-learning. E-learning is defined as the integration and application of Information Communication Technology in teaching, to deliver course content electronically to students, rather than using the traditional classroom (Boisselle, 2014). Wiley (2014) mentioned that in e-learning, courses are designed and offered over the Internet, using web-based materials and activities made possible by various course management systems or other software packages. While some e-learning courses are offered fully online, others combine online and the traditional face-to-face system to develop hybrid courses (Wiley, 2014). For the purpose of this research, e-learning referred to fully online and hybrid courses, offered within traditional face-to-face programs in educational institutions (Rüth, 2017).

Veeramani (2010) suggested that the content of e-earning must be developed with the following in mind: anytime anywhere, interaction and participation, moderating and facilitating, faculty collaboration and student evaluation. 'Users of e-learning must be able to access content 24/7 online, from anywhere they are. This means that contents must be developed in a format which will be compactible to various electronic devises to allow flexibility (Afify, 2018; Veeramani, 2010). Content for e-learning should be of the same high quality just as content taught in the traditional classroom setting, by following the standard/quality assurance system which the institutions use (Afify, 2018; Veeramani, 2010). Online course content should be more interactive, be presented in a multimedia delivery format that address individual difference, and allow students to interact and

participate easily. The effectiveness of e-learning is mostly measured by the outcomes and how they are achieved (Noesgaard & Ørngreen, 2015). With students studying on their own, course materials should be developed in a learner-centered format and delivered through a well-developed and reliable Learning Management System (LMS). Institutions considering e-learning should choose a suitable LMS, such as Moodle, Blackboard and D2Learn, which will meet their needs. The server for the LMS could be hosted by the institutions or outsourced to a third party (Boettcher & Conrad, 2016). In any of these cases, the online content need to be protected through appropriate intellectual property laws.

Simonson (2015) mentioned three things to remember when designing online courses: the course structure, the course content and the artifacts of learning. The course structure of an online course should follow the same logic as a traditional classroom course (Simonson, 2015). With traditional courses needing about 100 to 140 in total hours of studying and class attendance (Simonson, 2015), an online course should be structured to utilize just about the same number of hours. Online students will use this time to read course materials, study, post to discussions questions, and complete assignments (Simonson, 2015). Online courses should be organized in weekly modules to make it easier for students to follow (Simonson, 2015), and should be learner–centered as discussed above. Facilitators' presence is extremely important in the course. Facilitators should do this by providing feedback and interacting with learners online. Simonson (2015) lastly talked about the artifacts of learning in the online environment. This refers to the observable objects and anything that sets expectations for the students in the

course. For example, an online course design should include at least three major graded assignments (including exams, projects, presentations), and about ten minor graded assignments such as discussion postings, emails, blog postings, etc. (Simonson, 2015). E-learning content designed with all the preceding characteristics in mind, will most likely achieve the expected outcomes (Simonson, 2014; Veeramani, 2010). The next important e-learning characteristic besides content, is the mode of presentation. The two modes being discussed in this study are: fully online and hybrid courses.

A fully online course provides 24-hour access to course material from any internet source, with no physical class attendance (Afify, 2018). Fully online courses are to be offered over the Internet using web-based materials and activities made possible by various course management systems or other software packages (Wiley, 2014). These can be delivered in various forms: a depository of notes placed in an online folder for students to access and do their work in a synchronous or asynchronous mode (Boisselle, 2014). Technology and tools needed for such interaction are expensive and time consuming to establish (Boisselle, 2014). Many online courses now utilize blogs and other social media tools to engage students (Yang, Quadir, Chen & Miao, 2016). Regardless of the tools and methods used, online courses should be of high quality and learner-centered. Without such high standards and commitment from educational institutions, the quality of online courses could be below acceptable standards (Boisselle, 2014).

The second mode of online delivery as mentioned above, is the blended or hybrid format (Ekwunife-Orakwue & Teng, 2014; Kurt & Yıldırım, 2018). This delivery mode

is similar to fully online courses, except that students attend some face-to-face classes when the course is blended (Ekwunife-Orakwue & Teng, 2014; Kurt & Yıldırım, 2018). The proportion of in-class meetings compared to online sessions is determine at the beginning of the course and mainly structured to meet the needs of students. Wichadee (2017) also defines blended learning as the combination of pedagogical approaches to produce optimum learning outcomes as a combination of face-to-face and teaching mediated by technology. Blended learning requires the physical presence of the teacher and learners in a specified classroom location at specified time slots (Ekwunife-Orakwue & Teng, 2014; Kurt & Yıldırım, 2018). This mixed method approach has been seen as the best mode of education because it combines the strengths of online and face-to-face learning methods (Ekwunife-Orakwue & Teng, 2014). The blended format also allows the teacher to teach critical contents face-to-face in class, while practice and supplementary resources for the course content are offered through a learning management system (Wichadee, 2017). Blended learning has also been known to create learning opportunities for diverse students because course content is presented in various ways (Wichadee, 2017).

Both blended and fully online courses are said to improve student engagement and open up space for more classes to be held (Wiley, 2014). Engagement is about student involvement in the course content and delivery. By allowing students to participate in various activities both in class and online, and receiving continuous objective feedback from the instructor on a regular basis, they engage with the content and gain a better understanding of the material presented to them (Karabulut-Ilgu &

Jahren, 2016). The social presence of the teacher makes a different to the students. In terms of opening up more admission opportunities for potential students, e-learning provides the most opportunities since minimal or no physical space is needed (Armellini & De Stefani, 2016; Yang, Quadir, Chen & Miao, 2016). This is very relevant to this study because the major reason why e-learning is needed in Ghanaian universities is because of limited physical space available in the universities (Gyimah-Brempong**,** 2017) For e-learning to be successful, there is the need for a policy document which includes different strategies to guide implementation and monitoring.

E-learning policy. A policy is a set of guidelines or principles developed or adopted by an organization to guide operations in order to achieve set objectives and targets (Börjesson, Karlsson & Lindgren, 2017). Policies are usually developed in context and they co-exist with other policies in the organization or industry (Börjesson et al., 2017). Heclo (1975) referred to the environment where policies co-exist as 'policy space'. Both Heclo (1975) and Wildavsky (1979) suggested that 'policy space' is synonymous to 'policy sector'. This means that different categories of policies, such as housing, education, health and others co-exist in the same environment, but individual policies within the categories do not interfere with each other. Majone (1989) referred to policy space as the environment in which various policies co-exist and are closely interrelated. Majone's (1989) definition implied that policies in the policy space are closely related and so it is impossible to analyze them in isolation.

With individual policies interfering with each other, unintended consequences are inevitable (Wildavsky, 1979). Unintended consequences occur when the outcome of a

policy in a crowed policy space, impact the other policies in that same space. Derry (1998) argued that when a policy is introduced in a crowded policy space, the results could produce new policies which become the by-products of the original policy. This policy debate applies to all sectors where policies are developed and used on a regular basis. Börjesson et al. (2017) focused on policy in the crowded policy space in education and concluded that new policies in the space interfere with each other. This assertion could be true in Ghana's public universities because e-learning co-exist with other policies in the same space, and each policy has the potential to influence the other.

The changing phase of education has led to a need for ongoing changes in education policy. For most educational institutions, this has led to a policy overload (Ball, 2015). This overload sometimes makes it difficult and confusing for those charged with implementation (Perry, Amadeo, Fletcher & Walker, 2010). The opposite is also true when policy remains unchanged, and administrators struggle to align practices in their institutions with current trends (Ball, 2015). Börjesson et al. (2017) mentioned that effective policies go through phases. First, a problem needs to be identified, the policy needs to be formulated, a plan needs to be developed for implementation and then an evaluation needs to be conducted to determine if the policy was useful (Börjesson et al., 2017). This process is true in the education sector as well, where new policies interfere and impact existing ones (Börjesson et al., 2017). Applying this policy discussion to the focus of this study implied that e-learning policies refer to the set of guidelines which are developed by administrators in Ghana's public universities to guide the implementation of e-learning initiatives. These guidelines are likely to impact, or be impacted by other

existing policies in the institutions' policy space. To ensure that such policies do not negatively impact each other in the policy space, Börjesson et al. (2017) suggested that policy implementation, evaluation, and other practices related to policy development and implementation should take a more holistic approach. E-learning policy is relevant to this study because the strategies developed by participants could be used as part of the e-learning policies in the universities.

Project implementation. Weiss (1992) outlined the following phases for project implementation: Organizing the project team; Assigning work packages to team members; Managing people and project relationships; Maintaining the project schedule and finally, Closing the project. Organizing the project team involves identifying the type of skills needed for the work, developing the criteria for selection and then selecting the project manager and the team members needed to move the project forward (Hosseini, & Akhavan, 2017; Pimenta, da Silva, & Tate, 2014; Weiss, 1992). This process of selecting the project team is essential in ensuring the quality of the work done. Hosseini and Akhavan (2017) and Pimenta, da Silva, and Tate (2014) also mentioned that cross-functional teams allow team members from different departments to acquire new skills which they take back to their departments.

It is very important to ensure that those selected to work on the project have the needed background. The project manager, for example, should have the leadership/managerial and technical expertise for the work, be able to work with people and show overall competence to get the work done (Hosseini & Akhavan, 2017). Team members' abilities and skills are equally important. Selection should be based on the

goals of the project, the nature of the technical work and the technical expertise needed as well as the availability of the individuals within the organization (Weiss, 1992). It is always a great idea to develop the selection criteria before selection of the team begins (Hosseini & Akhavan, 2017; Weiss, 1992). In circumstances where specific needed skills are not available, training or mentoring should be provided to enhance a team's ability to do the work (Hosseini & Akhavan, 2017).

In a university setting, the team will comprise of administrative and support staff, as well as faculty who have the expertise to get the work done. Once the project manager and team are in place, the organization should provide the resources needed and the location from where the team will operate (Weiss, 1992). Project Management Institute, (2013) mentioned that every project has a start and end date. Resource allocation should be properly planned and tied to the start and end date, in order to be successful and on schedule. This step is very important because it provides stability for the project team. Resources needed for a project include skills and knowledge of the project team, financial resources, materials and the location from where the project will be carried out (Celkevicius & Russo, 2018). Unavailability of project staff or limitation of any of the other resources could cause delays in the project schedule. One strategy for overcoming resource allocation difficulties is resource levelling (Project Management Institute, 2013). Levelling allows the project manager to evaluate all the possible constraints and make adjustments to the resources in order to address the challenges ahead of time (Project Management Institute, 2013).

With the team selected and the resources provided, the next phase of the implementation process is to assign work packages.

Assigning work packages means that the tasks are clarified and responsibilities are assigned to team members (Weiss, 1992). A work package contains the entire project details, including start and end dates. The package is usually given to the person overseeing the project, and then he/she assigns the different parts to specific individuals accountable for the work. The work packages are then scheduled, meaning that timelines are set and responsibilities are assigned, depending on the resources available (Weiss, 1992). Team members are motivated and ready to take on the challenge if their skills match the task and they know that they can make a difference (Weiss, 1992). This is why it is very important to select the right group of people to be on the team, and also ensure that training is provided if needed. In the university setting where this research is being conducted, the training part is very necessary because as discussed earlier, most faculty and staff are not very familiar with full online learning. Mahmood et al. (2017) proposed that tasks allocation is a very important part of project implementation. Project tasks should be planned ahead of time and assigned to the right people on the project team. Focusing on some project tasks and ignoring others could halt or affect the project timelines. Once the work packages are assigned, the next important issue is to manage the people and the relationships as the project moves forward.

Managing people and project relationships means that the project manager and the team should work well together in order to create an enabling environment for productive work. The project manager needs to motivate and empower the team without over-

directing the work. Communication within the project team is also necessary. It is important for the leader to allow flexibility for team members to express their views without intimidation during the implementation stage (Weiss, 1992). The most effective leaders overseeing any organization or project, hire the right talent, allow autonomy among subordinates to improve motivation, communicate effectively, embrace transparency, and use delegation to train employees. From a knowledge management perspective, Trees (2017) suggested that a project should be managed at three levels: The project level, the program level and the portfolio level. At the project level, team members should be encouraged to document and share knowledge to help them capture, transfer and use that knowledge, to enhance the project outcomes (Trees, 2017). Managing at the program level should focuses on reducing cost and completion time, as well as improving quality. Emphasis should also be placed on identifying knowledge which can be transferred to other projects within the organization. At the portfolio level managers take a broader look at the project methodology, decision-making and risk assessment. Emphasis should be placed on the broader impact of the project outcome (Trees, 2017). These success strategies are relevant to all projects, including e-learning project which this research is focused on.

Maintaining the project schedule is another important aspect of project management. A project manager would need to break down tasks into small unites, set timelines, and then execute the tasks (Gurry, 2016). Various unplanned issues could arise as a project gets implemented, but it is up to the project manager and the team to ensure that the work is of high quality, it’s completed within budget and on schedule (Trees,

2017). To achieve this, Gurry, (2016) suggested that controls need to be put in place to track progress, detect variance from plan and take corrective actions. Tracking progress requires periodic reporting of progress for current period and status of the entire project. Detecting variance means detecting any deviation from the project plan. Variance reports are normally very concise in nature, and aimed at providing a quick glance at any deviations that require the leader's attention. If any pitfalls are detected, correction actions are taken to bring the project back on track. This is done by looking at all the problematic issues related to the project, finding the best possible solutions and reallocating resources to address them (Gurry, 2016; Weiss, 1992). If the variance is positive, meaning that the project is ahead of schedule, re-planning is still required in order to ensure that the work is completed successfully, under budget and ahead of time, or both. Program evaluation review technique and Gantt charts are tools that help to schedule projects and keep the work organized. Once the work is completed the project can then be closed.

Closing the project means that the implementation is complete and the project will no longer be active (Gurry, 2016; Weiss, 1992). A post implementation audit could be conducted to ensure that all the deliverables were completed, and the project goals were met. After this audit, the final project report is written and delivered to appropriate stakeholders. This closing date is usually set at the beginning of the project and unless the project was behind or ahead of time, the date remains the same (Gurry, 2016; Weiss, 1992). The project manager initiates the closing when everything is complete, and administrators from the organization for which the project was completed cooperate to

make the closing successful (Gurry, 2016; Weiss, 1992). Project closing can take three forms: by extinctions, by inclusion or by integration (Weiss, 1992). By extinction means that the project is either successful or unsuccessful but the decision was made to terminate it. This type of closing could be potentially stressful since the objectives of the project may not have been met. An inclusion type of project closing occurs when the project goals are met and the organization transitions the results into its operations. The integration closing is the most common and most complex of the three project closing types. In that case, the project is completed successfully, the organization adopts the outcome, and then distribute all the project equipment, materials and personnel back into the organization that initiated the project (Wiess, 1992).

Gurry (2016) also suggested two important aspects of project closure: contract closure and project closure. A contract closure involves closing all the sub-contract within the bigger project, and project closure involves finalizing all activities across the entire project, including a post implementation review. In an online learning project implementation, such as the one being explored in this study, all the different aspects of project management analyzed above are relevant. University administrators could treat the implementation of e-learning as a project and use these steps to make the implementation process seamless.

Delphi Method Chosen for The Study

The Delphi method was first introduced in 1948 at the RAND Corporation. This was a research organization tied to the US Air Force, which used the technique to solicit the views of experts on various topics. The aim of the Delphi method was that the

experts would discuss solutions to various issues and reach consensus. Solutions reached through this consensus was not only meant to address current issues, but could also be used to predict future outcomes regarding the issues discussed among the experts (Dayé, 2018). Later in the 1960s, the technique was introduced to the world outside the RAND through different publications (Dayé, 2018). This Delphi technique has evolved over the years. Today, it is seen as a tool used by researchers in both public and private sectors to address various issues. Similar to its original form, the Delphi uses several rounds of questioning to solicit the views of experts, with each round building on the previous one. The process is meant to converge the opinion of the experts leading to consensus on the topic being researched (Dayé, 2018). The key challenge identified with the Delphi approach is that the experts could discuss issues for many rounds without reaching consensus. The efforts may not yield the anticipate results if that happens (Dayé, 2018).

The qualitative modified Delphi approach was chosen for this study. This approach was seen as appropriate because the study was meant to seek the consensus opinion of experts regarding the most desirable and desirable strategies for implementing e-learning in Ghana. Three Delphi rounds of questioning were used to solicit views from the panel. With three rounds of objective responses from participants, the e-learning strategies identified in the study addressed the research question (Brady, 2015; Maxey & Kezar, 2015). The preceding analyses have discussed the constructs in this study and the reason why they were chosen. The next section examines how researchers have approached the research problem, the strengths/weaknesses in their approaches and the gaps which this study was meant to fill.

Strengths and Weaknesses in Other Researchers' Approaches to the Research Problem and the Gaps Identified

The research problem investigated in this study was that e-learning has been identified as a solution to the increased demand for higher education in Ghana, but university administrators have not implement existing e-learning solutions (Ansong et al., 2017). The analyses below explain the strengths and weaknesses in how other researchers have approached the research problem and the gaps identified in those approaches.

Awidi (2008) conducted a study and identified three general challenges universities in Ghana face: overuse of teaching and learning facilities, low teacher/student ratio and industry demand for market-led curriculum. Though these are issues of concern, Awidi (2008) mentioned that the universities administrators could develop and implement appropriate e-learning policies to address them. He organized workshops/focus group meetings and talked to students, faculty and administrators, the management team and IT staff, to solicit opinion on challenges hindering e-learning initiatives. Based on his study, Awidi (2008) concluded that the challenges hindering Ghana's public universities from e-learning implementation were: the lack of experience and expertise, the absence of institution-wide e-learning policy, and the cost of acquiring/managing the IT infrastructure. In responding to these challenges, Awidi (2008) suggested these solutions: Ghana's public university administrators should engage students and faculty in the e-learning discussions and address any concerns that emerge; the administrators in the universities should develop comprehensive strategic plans which

should include strategies for e-learning; university administrators should prioritize the development of e-learning in their institutions. Awidi's 2018 suggested solutions have not been implemented yet, and there has not been any research which has asked public university administrators to identify desirable and feasible strategies for implementation them. This research was meant to do that.

In the same year as Awidi (2008) conducted his research into online learning in Ghana's universities, Asunka (2008) also conducted a qualitative study to examine the attitudes, experiences and perception of undergraduate students enrolled in an online course in a private university in Ghana. His study revealed that students enrolled in that online course were unhappy and were not motivated to engage fully in the course. Asunka (2008) mentioned that introducing e-learning in this environment was a difficult task because the universities in the country had challenges with failing infrastructure, brain drain, limited financial resources and large student populations to deal with. Later in 2013, Awidi confirmed Asunka's assertion, by suggesting that educational institutions need resources, infrastructure, and support from administrators, in order for successful e-learning implementation to occur. Administrators in Ghana and the Sub-Saharan Africa region as a whole, need empirical e-learning research which would explain the strategies needed for introducing successful e-learning programs (Asunka, 2008). Asunka's study provided valuable information on e-learning in Sub-Saharan Africa including Ghana, but he focused on private universities, that had slightly different conditions than the government- funded public universities which this study focused on.

Kwofie and Henten (2011) reported on the prospects of e-learning in Ghana, and the challenges administrators face with implementation. Like other researchers discussed above, Kwofie and Henten (2011) confirmed that Ghana and other developing countries are faced with increased demand for higher education. With limited on-campus facilities, they suggested that e-learning could be used to absorb more students. UNESCO (2006) also confirmed this in a literacy report. Kwofie and Henten's (2011) report outlined the following challenges which administrators could face when implementing e-learning in Ghana and most developing countries: lack of motivation for both students and faculty, limited technology and financing, lack of incentives from management, inadequate training, lack of e-learning expertise and unreliable internet access. Some of these challenges were identified earlier by Awidi (2008) and also by Asunka (2008), and they provided some solutions to help the university administrators implement e-learning. Many years after those solutions were recommended, Ansong et al. (2017) reported that no progress had been made in the implementations. This study asked administrators tasked with the implementation, to identify strategies for doing so.

Opoku and Kuranchie (2015) studied stakeholders' awareness and preparedness for online learning in Ghana as a whole. Their study was important because the implementation of online learning in Ghana would be successful only if the stakeholders, such as faculty, students and administrators, are satisfied and prepared for the change (Opoku & Kuranchie, 2015). The results of the study showed that over 90% of students, staff, and administrators in the country's universities were aware of education delivered

online and were interested in experiencing it. However, only a moderate percentage were aware of online learning in their own institutions.

Opoku and Kuranchie's (2015) study revealed that the stakeholders had concerns which administrators needed to address before introducing any online courses. Concerns raised by students included: potential difficulty getting on-time feedback from professors, difficulty of self-learning, reliability of online courses and potential discredit from employers. Faculty concerns included: difficulty of supervising students' work and the possibility of cheating, lack of integration between learners and lecturers, security of information, poor internet connectivity and the high cost of IT infrastructure. Administrators were also concerned about possible impersonation, lack of supervision of student exercises, cost, internet connectivity and possible technical problems (Opoku & Kuranchie, 2015). Based on these results from their study, Opoku and Kuranchie (2015) recommended that university administrators who wanted to start e-learning in their institutions should have workshops and other platforms to educate stakeholders about e-learning and address their concerns, before introducing any online courses. These recommendations have not been fully implemented by university administrators yet.

Awidi and Cooper, (2015) also researched the strategic process for implementing e-learning in the context of one public university in Ghana. Among other things, they concluded that the managerial challenges hindering e-learning implementation could be minimized if the university clearly outlined an e-learning implementation process in a policy document and assigned a specific team to oversee the implementation/evaluation progress. These recommendations were not different from those recommended by other

researchers discussed above but most public universities in Ghana do not have fully developed functional policy documents on e-learning. The strategies derived from this study could become the bases for appropriate, functional e-learning policies in public universities.

Dahms and Zakaria, (2015) studied e-learning and problem-based learning in selected African universities, including two in Ghana. They categorized their findings into the following: e-learning policies and strategies, e-learning resources and the status of e-learning. In the e-learning policy and strategy category, they found that the University of Ghana and the KNUST, two of the largest universities in Ghana, had some form of information and communication technology strategy which had not been translated into full e-learning course offerings (Dahms & Zakaria, 2015). The e-learning resources category of their study revealed that some universities in Africa, including two in Ghana, had expanded their information and communication technology services, but much more needed to be done before e-learning could start. While computers and internet access are available as the main resources, bandwidth issues and the systematic integration of technology into teaching and learning remained a major concern (Dahms & Zakaria, 2015). The need for e-learning training for teachers and students was identified in Dahms and Zakaria's report. The final category on e-learning status in the report revealed that e-learning awareness was high in most of the institutions studied, but the actual perception and practice varied among professors and students. They mentioned that majority of professors in the universities, including those in Ghana, did not use e-learning. The main barriers hindering implementation were: lack of clear e-learning

policy and action plan, insufficiency of infrastructural and human resources, lack of incentives for lecturers who introduce e-learning and other teaching approaches.

While Dahms and Zakari's study provided valuable information about e-learning in African universities, including two in Ghana, the researchers did not provide strategies for implementation. More importantly, their study was quite general. It focused on e-learning implementation challenges in African universities, including only two institutions in Ghana. This proposed study was different because it focused directly on finding strategies for implementing existing e-learning solutions proposed by other researchers for Ghanaian universities.

In another study, Islam, Beer, and Slack (2015) divided the challenges hindering e-learning in Ghana into five categories: pedagogical e-learning, technology, learning styles and culture, technical training, and time management challenges. Islam et al. (2015) mentioned that all the categories were important and also related. University administrators in Ghana need to monitor and provide resources to address the issues in each category, in order to be successful in implementing e-learning. The research of Islam et al. (2015) research provided additional information for the university administrators who want to start e-learning. However, just like the other researchers discussed above, Islam et al. (2015) did not investigate why all the previous recommendation had not been implemented. They confirmed some of the challenges already identified by other researchers, and added a few more, with no suggested strategies for implementation.

Budu and Ackah (2016) also conducted a study to explore the e-learning implementation challenges in Ghana's tertiary institutions. They mentioned that the institutions were making some efforts to introduce e-learning but many challenges hinder the implementation and utilization of successful e-learning systems (Budu & Ackah, 2016). With data collected from administrators, faculty and IT staff, Budu and Ackah identified the following challenges: Non-availability of information and communication technology/e-learning infrastructure, attitude and perception towards e-learning systems, lack of institutional support systems for e-learning and lack of educational technology. In response to these challenges, they suggested the following solutions: IT infrastructure in the universities should be enhanced, e-learning budgets should be created and the university personnel must be motivated to engage in the e-learning process. These suggestions seem realistic and similar to those recommended by Awidi (2008) and Awidi & Cooper (2015), but as Dahms and Zakaria (2015) noted, universities in Ghana seem to have some e-learning strategy that has never been developed into an action plan for implementation.

Mends-Brew and Asabere (2016) studied the issue of increased demand for higher education in Ghana, but their study focused on how the larger public universities in the country were using the traditional distance education to absorb more students. In this distance education model, the administrators have opened centers where professors physically meet students for lectures and tutoring (Mends-Brew & Asabere, 2016). Though the university administrators use this distance education programs to absorb more students, the programs target mostly working adults (Mends-Brew & Asabere,

2016). E-learning is the best way to increase admission levels, without increasing available physical space (Ndzibah & Ofori, 2017). Mends-Brew and Asabere's (2016) study indicated the need for absorbing more students in Ghana's universities, but they focused on the traditional distance education system and not on e-learning. With e-learning being a key element in modern education, the traditional education system in Ghana does not seem to be the best option for absorbing more students. E-learning has already been identified as the best solution (Asunka, 2008; Awidi, 2008). The strategies needed for implementation are no doubt needed, and this study was designed to find those strategies.

Boateng, Mbrokoh, Boateng, Senyo and Ansong (2016) investigated the determinants of e-learning adoption among students in developing countries, with the University of Ghana as a case study. The study was quantitative in nature, using the technology adoption model. The technology adoption model was developed by Davis (1989) to test the acceptance and use of information systems. The original version of the model used two key variables known as perceived usefulness and perceived ease of use to assess the level of technology adoption (Davis, 1998). Boateng et al. (2016) used an extended version of the technology adoption model by adding two other variables called computer self-efficacy and attitude toward use in their research model. They explained that the level of e-learning usefulness perceived by students, the confidence students have in themselves for using e-learning systems and the actual ease of using the system, affect students' attitude towards adopting any online learning initiative. The findings of the research revealed that perceived usefulness and attitude toward use had a direct impact on

e-learning adoption. Perceived usefulness and perceived ease of use also had a direct link to attitude toward use. The outcome of this research provided very good background information which administrators could use to motivate and prepare students for e-learning adoption. However, just as the other researchers, Boateng et al. (2016) did not provide strategies which administrators could use to implement their findings.

Ansong et al. (2017) conducted a quantitative study to explore the determinants of e-learning adoption at the University of Ghana, using the technology-organization-environment model. The technology-organization-environment model was chosen for the study because Ansong et al. (2017) wanted to examine how each of the three factors in the model impacted the adoption of e-learning. The technological context referred to the internal and external IT infrastructure available to the institution. The organizational context referred to the factors in the organizations which could impact adoption of e-learning. Such factors included compatibility of organizational policies and practices with e-learning and the perceived benefits of e-learning to the institution. The environmental context in the technology-organization-environment model referred to the competitive pressure on the institution to start online learning. Ansong et al. (2017) added course content to the three factors in the original technology-organization-environment model described above because Bhuasiri, Xaymoungkhoun, Zo, Rho, and Ciganek (2012) emphasized the importance of curriculum design in e-learning. The results obtained by Ansong et al. (2017) suggested that the overall determinants of e-learning adoption in the University of Ghana were: IT infrastructure, perceived ease of use, expected benefits, organizational compatibility, competitive pressure, educational partners, content of the

course, and e-learning curriculum. Though this was another important study confirming reasons for lack of e-learning progress in Ghana, strategies for implementation were not provided.

All the studies discussed above addressed similar issues raised in the research questions for this study. The authors identified the challenges hindering e-learning in Ghana's universities and suggested solutions which the university administrators could use to make implementation progress. With the suggested solutions not implemented yet, this study was used to find strategies which could be used for implementation. Implementing e-learning in Ghana could increase admissions into universities and help to create social change (Ganiee, 2014). The Delphi panel for this study was made up of university administrators who suggested strategies for implementing e-learning solutions, and then rated them for desirability and feasibility.

Summary and Conclusions

Ghana's public universities do not have the physical capacity to meet the increased demand for higher education in the country (Gyimah-Brempong, 2017). E-learning has been identified as a solution for absorbing thousands of applicants turned down by Ghana's public university administrators each year, because limited or no physical classrooms are required for online courses to be offered (Ansong et al., 2017b; Asunka, 2008; Awidi 2008). University administrators have not been able to introduce e-learning due to challenges such as: lack of expertise, limited resources, attitude towards e-learning, lack of IT infrastructure, poor internet connectivity, etc. (Asunka, 2008; Awidi, 2008; Dahms & Zakari, 2015; Kwofie & Henten, 2011; Opoku & Kuranchie,

2015). Researchers have identified several solutions which could help to address the challenges. The solutions include: developing e-learning policies to guide e-learning initiatives, creating e-learning budget in each university to finance e-learning initiatives, addressing stakeholders' concerns regarding e-learning, training/motivating faculty and staff to engage in the e-learning discussion, creating e-learning action plans in each university, designating someone to be in charge of implementation, etc. (Asunka, 2008; Badu & Ackah, 2016; Awidi, 2008; Dahms & Zakari, 2015; Kwofie & Henten, 2011; Opoku & Kuranchie, 2015). Though these solutions have been proposed by many researchers, public universities in Ghana have not fully implemented them yet (Ansong et al.,2017b; Boateng, Boateng & Anderson, 2017; Ndzibah & Ofori, 2017).

No studies have been conducted to determine strategies which university administrators could use to implement the solutions proposed by researchers. This study was meant to fill this gap. The modified Delphi method was used for data collection, with 11 public university administrators and professors on the panel. There were three rounds of questioning, and panel members identified the most desirable and feasible strategies for implementing existing e-learning solutions proposed by other researchers, as discussed above. The modified Delphi method was chosen for the study because it enabled the panel members to reach consensus regarding 10 most desirable and feasible strategies for e-learning implementation in their institutions. In Chapter 3 the research methodology is explained, together with the reasons why the qualitative method was chosen for this study.

Chapter 3: Research Methodology

The purpose of this qualitative modified Delphi study was to solicit the opinions of university administrators and professors in Ghana regarding desirable and feasible strategies for implementing e-learning solutions in the country's public universities. The study is important because public universities in Ghana turn down thousands of applicants each year due to lack of physical space on campuses, and e-learning has been identified as a strategy for increasing admissions *(*Ndzibah & Ofori, 2017*)*. The first section of this chapter includes the rationale for the research design, followed by an analysis of the researcher's role. Details of the methodology will follow, with subheadings covering participant selection, instrumentation, procedures for recruitment, data collection, and the data analysis plan. Issues of Trustworthiness are also discussed after the Methodology section, which includes the topics of credibility, transferability, dependability, confirmability, and ethical procedures. A summary of the chapter is provided at the end.

Research Design and Rationale

The qualitative research tradition was selected for this study and the modified Delphi method was used to collect data. The aim of using a Delphi method was to gain consensus from professors and university administrators regarding the most desirable and feasible strategies for implementing e-learning solutions in Ghana's public universities (see Dayé, 2018). The outcome of this study may not only help public university administrators to identify these strategies for e-learning in Ghana's universities but may also be used as a source of information for future e-learning implementation issues (see

Dayé, 2018). The Delphi approach was also chosen because the anonymity in the process allowed participants to present views from their natural settings without any influence or interference from me or other participants (Brady, 2015; Avella, 2016). Participants were anonymous to each other but not to me. With the alignment of the survey questions to the research questions, the consensus reached by the panel addressed the problem for which the research was conducted (Brady, 2015; Maxey & Kezar, 2015). Another reason for choosing the Delphi method was cost effectiveness. I did not have to travel to Ghana to conduct interviews because participants filled out questionnaires online during the Delphi rounds.

Having the right sample size for a Delphi study has been discussed among researchers (Habibi, Sarafrazi & Izadyar, 2014). Hogarth (1978) mentioned that a panel between six and 12 members is ideal, whereas Cayton (1997) suggested that a five to 10-member panel is ideal if the participants have multiple expertise in the subject matter being studied. Skulmosky et al. (2007) also recommended 10 to 15 members if the panel is a homogeneous group. Further, some researchers have suggested that a true Delphi study should follow the same intent in the classical approach used by the RAND Corporation in 1950s for a United States sponsored military project (Rowe & Wright, 1999). Others have proposed that the Delphi technique can be effectively modified to meet the needs of a given study (Linstone & Turoff, 1975), and many researchers have used varied approaches (Skulmosky et al., 2007). For example, Nambisan, Agarwal and Tanniru (1999) used a modified Delphi study to identify 19 knowledge creation mechanisms in literature and ask selected panel members to verify how well those

existing knowledge creation mechanism could facilitate IT innovation to benefit organizations. Although some Delphi studies have started with an existing list for panel members for ranking and/or rating, others have started by brainstorming the initial list and continued to build on that in subsequent rounds (Skulmosky et al., 2007).

Other research methods such as case study, phenomenology, grounded theory, or ethnography would not have been appropriate for this research. A case study could provide a detailed account of any e-learning activities in Ghanaian public universities but would not provide the opportunity for the leaders to reach consensus about possible strategies that they could use to implement e-leaning (Grand Canyon University: Centre for Innovation and Research, n.d.). Additionally, a phenomenological study is used to investigate how one or more people experience a certain phenomenon (Cronin & Armour, 2017), but e-learning in Ghana's public universities has not fully started yet, so it would not have been possible to study how any group of stakeholders have experienced it. Ethnography was also not appropriate because it is used for studying the culture of a group of people by observing or interacting with the participants in their own environment (Okyere, 2018), but I did not intend to live in Ghana over a period during the study, and it was impossible to observe university administrators managing e-learning courses and programs, which did not fully exist. Finally, the grounded theory method would not have worked for this study because it involves observing and reviewing data and other resources to draw conclusions and develop theories (Tong et al., 2018). Developing theories was not the purpose of the study.

Role of the Researcher

With the Delphi approach being used for this study, my role was in the form of planning and facilitating the process (Avella, 2016). The planning started from the process of identifying the research problem and stretched to identifying panel members, preparing the survey questions, contacting participants to arrange timelines, and distributing the online survey (Avella, 2016). The facilitation part of my role involved controlling the debate by asking the right question in each Delphi round, remaining unbiased, and being nonjudgmental (Avella, 2016; Schrier, 2018).

Allowing personal and professional relationships to interfere with any research can impact the integrity of the study's outcome. For this study, I did not have personal or professional relationship with any of the universities where the participants worked. Online sources and snowball sampling were also used to select participants and the process helped to ensure that neutral people who met the selection criteria were selected to be on the Delphi panel. Though I have never worked in any university in Ghana and did not have any relationship with the participants, to minimize researcher bias in the participant selection process, I developed the criteria for participants and delegated the actual selection to another party (Avella, 2016). I also asked someone else to review the questions which the panel would respond to, as suggested by Avella (2016). The chair overseeing this dissertation and the institutional review board at Walden University reviewed and approved all the questionnaires before they were sent out to participants.

In terms of researcher biases, two areas were also identified. First, there was a preconceived idea about university administrators in Ghana's public universities not

prioritizing e-learning and not including the cost in their institutions' budgets. Second was the idea that university administrators and faculty in Ghana were accustomed to the existing traditional education format and did not regard online learning as a serious method of education. Both biases were minimized through the Delphi approach, which compelled me to focus on information provided by the panel in the three rounds of questioning and minimized any bias sentiments that could influence the analysis.

There were no other ethical issues or concerns. I am a Ghanaian but migrated to Canada about 25 years ago and have never worked in any of the universities in Ghana. In addition, there was no intention of providing any incentives to the participants. Bracketing and a reflective journal were also used to help minimize bias. Bracketing helped me to put any previous beliefs about e-learning on hold and focus on information from panel members being surveyed (Chan, Fung & Chien, 2013). A reflective journal allowed me to identify and share beliefs, knowledge, and values about e-learning, allowing transparency in the process and in the conclusions drawn (Ortlipp, 2008).

Methodology

Participant Selection Logic

Purposeful sampling was used for this study, which allowed me to identify and select individuals who have knowledge in the topic being studied (Palinkas et al., 2015). Researchers using purposeful sampling have a range of strategies to choose from including criterion sampling, typical case sampling, homogeneity sampling, snowball sampling, extreme or deviant case sampling, theory-based sampling, stratified sampling, and others (Palinkas et al., 2015). The criterion and snowball strategies were used to

select the Delphi panel for this study because there were predetermined criteria that participant had to meet to be on the panel. First, participants had to be administrators or professors in any public university in Ghana. Second, the selected participants needed to be involved in current e-learning initiatives or were in a position to be involved in future e-leaning initiatives in their institutions. Third, participants had to be working in a public university for at least 2 years. Officials from the ministry of education with knowledge of e-learning implementation were invited to participate but there was no response.

The participants who participated in the study met the criteria. Initial participants were identified through an online search and word of mouth. Using the snowball strategy, those who responded initially were then asked to suggest the names of other potential participants. Once the participants were identified, they were contacted through e-mail, inviting them to the Delphi panel. Each of them had at most 1 week to respond, and those who did not respond received reminders after a week. Two to three additional reminders were sent to potential participants within a 3-week period.

The issue of sample size in research has been extensively studied. In a quantitative study sample size is important because of the need for statistical generalization (Schrier, 2018). In a qualitative study, some researchers consider the sample composition and the relevance of information collected as more important than the sample size (Schrier, 2018), while others consider the sample size in qualitative study just as important (Onwuegbuzzie & Leech, 2005). In instances such as writing a Ph.D. proposal or presenting a grant application where a sample size is required, methodologists differ in the recommendation for sample (Schrier, 2018). Authors such as

Guetteman (2015) recommended that sample size need to be specified before the research is conducted, but others suggest that sample size should rather be adjusted as the research progresses (Palinkas et al, 2015; Robinson, 2014). The middle ground suggested by Patton (2015) was to have a minimal sample size at the beginning of the research, and make adjustments as needed, during the research. In a Delphi study, there are no strict guidelines regarding the number of panelists. The expertise of panel members is more important than the representation of the population being studied (Avella, 2016).

Researchers have suggested a panel between 10 to 50 (Turoff. 2002), with a panel of less than 10 members being rare (Atkins, Tolson, & Cole, 2005), and either a panel between six and 12 or five to 10 members being ideal (Cayton, 1997; Hogarth, 1978). Additionally, a 10 to 15 member-panel for a Delphi study can produce the right results if the panel is a homogeneous group (Skulmosky et al., 2007). For this study, the panel were considered homogeneous because all the participants are university administrators and professor who make various policy decisions or teach for various universities. The 11member-panel for this study fell within the recommendations for Delphi panel size. This sample size seemed a bit small but 24 people were contacted and only 11 responded. Multiple reminders were sent, but there were no responses received.

Instrumentation

Three researcher-developed instruments were used to collect data for this study. The first instrument asked panel members to suggest strategies for implementing e-learning solutions already proposed by other researchers. The existing e-learning implementation solutions presented to participants in the first round included developing

e-learning policies to guide e-learning initiatives (Awidi & Cooper, 2015), creating e-learning budget in each university to finance e-learning initiatives and training/motivating faculty and staff to engage in the e-learning discussions (Badu & Ackah, 2016), addressing stakeholders' concerns regarding e-learning and creating e-learning action plans in each university (Opoku & Kuranchie, 2015), and providing e-learning infrastructure (Awidi, 2008). The modified Delphi approach allows a researcher to use existing literature and build on it in subsequent rounds (Nambisan, Agarwal & Tanniru, 1999). Thus, strategies suggested by participants for implementing these e-learning solutions were analyzed in the Round 1 survey. Coding in NVivo helped to identify patterns in the responses, which were grouped in five categories and ordered from one to five. The first on the list had the most number of responses and the last had the least number of responses.

Using the five strategy categories from Round 1, the second instrument was developed in the form of 5-point Likert-type survey statements. The 10 statements represented the strategies formulated from the strategy categories in Round 1. Panelists were asked to rate how desirable and how feasible the strategies were. Five was the highest rating, representing the most desirable and most feasible strategies, and one was the least rating representing not desirable or not feasible (Likert, 1932). Strategies that the Delphi panelists agreed to as being the most desirable and those agreed to as being the most feasible with a median of 3.5 or higher for each category were moved to Round 3.

In the third round, panelists were asked to rank the strategies from Round 2 in order of importance from one to 10, with 10 being the least important and one being the

most important. The ordered list of these 10 desirable and feasible strategies became the outcome of the study, which is discussed in the Results section in Chapter 4. University administrators in Ghana's public universities can use these strategies to implement e-learning.

The reason for using three researcher-developed instruments for the study was that the questions for the Delphi rounds were unique to this study and had to be customized based on the panelists' responses from each round (Avella, 2016; Iqbal & Pipon-Young, 2009). Using exiting instruments is better than developing new ones, unless there are no exiting instruments which meet the needs of the study being conducted (Bastos et al., 2014). The scaffolding approach in the Delphi study made it difficult to use preexisting instruments that researchers have used for different topics and under different conditions.

For the ordinal data collected in Round 2 of this study, it was important to calculate internal consistency to demonstrates the extent to which the items within the instrument measures different aspects of the same construct (Cronbach, 1951). When internal consistency is reliable, it means that the researcher can gauge how well the survey measures what it was intended to measure (Price, Rajiv, Jhangiani & Chiang, 2015). There were 10 Likert statements in that round developed from five patterns that emerged from Round 1. Using a scale of 1-5, participants were asked to rate how desirable and how feasible each statement was, in terms of implementing e-learning. Five represented most desirable and most feasible, and one represented not desirable and not feasible. Cronbach's alpha was used to calculate the internal consistency. The

following information was used for the calculation: the number of scale items in Round 2, the variances associated with each item, and the variance associated with the observed total scores. When these values were calculated, they were applied to the Cronbach's alpha formula. The value for alpha obtained for the desirability and the feasibility ratings were .8 and .9, respectively (see Appendices E & F). Because the closer the value is to one, the stronger the consistency reliability (Cronbach, 1951), the alpha values of .8 and .9 meant that internal consistency was strong in both of the scales. The results implied that participants would likely respond the same way if they were asked the same questions under similar conditions.

Despite the internal consistency of the instruments, the education sector is dynamic, and participants in education research could go through various changes and experiences that could impact their thinking and perspectives over time (Taber, 2017). Due to such changes and experiences, participants could modify their responses when asked the same questions they answered in a previous study. In this study, participants were administrators and professors from different universities in Ghana. As changes occur in the higher education sector in Ghana, participants may likely modify their responses if they were asked the same questions in other future studies.

Field study. The first instrument was sent out for a field test to determine whether the questions in the questionnaire were clear, relevant to the population, and could produce responses that would address the research questions. The field test experts were provided with the round one questionnaire, the research questions and the purpose of the study. They reviewed the documents and confirmed that the survey questions were

aligned with the research question and the purpose of the study. They also confirmed that the questions were clear, relevant, appropriate for the population, and suitable for the overall research design. One of the experts in the field test commented that there was no need for respondents to declare their gender when completing the questionnaire. However, based on recommendation by the chair overseeing the study, gender was left in the questionnaire. Field testing the instrument and reaching consensus at the end of the Delphi rounds, helped to establish content validity and ensured that the research questions were answered. Validity indicates that there is integrity in the research because the findings accurately reflect the data collected (Matza et al., 2015). As Linstone and Turoff (1975) mentioned, the multiple rounds of questioning and the structured feedback process in Delphi studies, lead to the most reliable consensus from panelists.

Procedures for Recruitment, Participation, and Data Collection

Participants for this qualitative modified Delphi panel in this study were recruited through online search and snowball sampling as discussed in the participant selection logic section. A recruitment letter, which included the participant criteria, was sent to potential participants identified through the snowball sampling. All candidates who responded to the invitation were provided with the link to the first round questionnaire. Twenty-four potential participants were invited but only 11 of them participated. A sample size of 14 was originally planned but no one from the ministry of education responded and most of the others invited outside the ministry did not respond.

The data was collected from Ghana, using the Microsoft Forms platform. Dodge and Chapman (2018) suggested that technology assisted survey tools are replacing the

traditional pen and paper surveys. Though online and traditional surveys have their pros and cons, advancement in technology has made online surveys more popular and easier to conduct because they are flexible, fast, independent, cost effective and less time consuming (Dodge & Chapman, 2018). Allowing participant to fill out questionnaires online independently in this study helped to maintain anonymity among participants, though anonymity was not necessarily a key concern in this modified Delphi study. Additionally, using the online survey approach eliminated the cost of traveling to Ghana for data collection.

I was responsible for collecting the data, by developing and sending out the online surveys through Microsoft Forms. When each of the three Delphi questionnaires was generated, the researcher sent the link to participants by email. Participants were given one week to respond to each round of survey, and follow up emails were sent out to remind those who did not respond on time. After each round of survey, I analyzed the data and used the results to create the next questionnaire. The questionnaires for rounds two and three were sent to Walden's IRB for approval before they were administered. This process of collecting data for each round and analyzing the result to be used for the subsequent round continued until all the three Delphi rounds were completed. The entire data collection process for all three Delphi rounds took about seven weeks, including the waiting period for the IRB approvals.

Round 1 results took the longest to receive mainly because of Christmas holidays. The analysis for this first round also took over a week, though NVivo 12 made the process a bit simpler. The results from the first round was used to prepare the

questionnaire for round two. After IRB approval, the link to this second questionnaire was sent to participants and it took just about four days for all 11 participants to respond. The data analysis for this second round was completed in about three days. The analysis was used to create the round three questionnaire and then it took three days for the IRB to approve it. Participants took one week to respond after reminders were sent out. As mentioned earlier, 24 invitations were sent out to potential participants, but only 11 completed all three Delphi rounds. Dodge and Chapman (2018) suggested that participants will remain in the survey if: the questions are appropriate, simple and relevant to the interest of the participants; the progress of the survey is displayed for participants to see; if the presentation style of the survey is appealing.

These factors were applied in the data collection process for the study, and the core participants who started were attracted to respond to all the surveys to the end because the topic of e-learning implementation is very relevant to the needs of the universities in Ghana (Ndzibah & Ofori, 2017*).* In addition, Dodge and Chapman (2018) mentioned that attrition in data collection is usually lower among participants who use computer to complete the survey, compared to those who use smartphones. Based on this, participants in this study were encouraged to use computers to complete the surveys. This approach worked when it was applied to this study. By the end of the third round, participants had developed 10 strategies for e-learning implementation and listed them in order of importance, from one to 10. One being the most importance and 10 being the least important. These results are discussed d in Chapter 4 of the dissertation. Timmins (2015) mentioned that when questionnaires are formulated properly, they have the

potential to provide rich information about topics being investigated. The Delphi panelists in this study were purposely selected and so their responses to the questionnaires directly addressed the research questions.

Data Analysis Plan

The overarching research question for this study was: What is the consensus among a panel of university administrators and professors in Ghana regarding desirable and feasible strategies which could be used to implement existing e-learning solutions in their institutions? Based on this overarching research question, two sub-questions emerged:

1. What is the consensus among a panel of university administrators and professors in Ghana, regarding desirable strategies which could be used to implement existing e-learning solutions in their institutions?
2. What is the consensus among a panel of university administrators and professors in Ghana regarding feasible strategies which could be used to implement existing e-learning solutions in their institutions?

Data collected from the Delphi rounds directly answered the research question. In the initial round, panelists identified strategies for implementing e-learning solutions already proposed by researchers. The subsequent Delphi rounds allowed panelists to rate the strategies identified in Round 1, and eventually arrived at the most desirable and most feasible list of strategies which the administrators could use to implement e-learning in their institutions. Deductive coding was used to organize the data collected. Yi (2018) and Belotto (2018) explained that deductive coding is the approach in which the

researcher has a sense of the research direction and prepares the initial codes to match the patterns of the study. The deductive coding strategy was appropriate for the data collected in this research because the existing e-learning solutions which become the foundation of the first questionnaire for the Delphi panel, provide a sense of direction to the data collection. Patterns identified before the data analysis started were modified to reflect the real results when the analysis started. NVivo 12 for Windows was appropriate for the data analysis in Round 1 because the software is ideal for qualitative studies and has been designed to organize and analyze unstructured data from interviews, open-ended survey responses, articles, social media and web content (QSR international, n.d.).

Using the first researcher-developed questionnaire (see Appendix A for a copy of the Round 1 questionnaire), participants were presented with 10 solutions identified by researchers, for implementing e-learning solutions in Ghana. Participants were sked to suggest strategies which administrators could use to implement those solutions. To analyze the data for this first round, 10 parent-nodes were created in NVivo 12, using the 10 e-learning solutions presented to participants. Sub-nodes were then created under each parent-node, using patterns from the strategies suggested by participants. Individual responses for each question in the first round questionnaire were moved under the appropriate sub-nodes and the code book was downloaded after all the data entry. All the patterns identified in the responses were compared and similar ones were combined to create five broad categories.

In the second round, 10 Likert-type statements representing strategies which were developed from the Round 1 broad categories were presented to participants for rating

(Likert, 1932). Two separate scales of one to five were used for rating desirable strategies and feasible strategies. Five represented the most desirable and the most feasible strategies, and one represented not desirable and not feasible strategies (see Appendix B for a copy of the Round 2 questionnaire). Based on the original data analysis plan, solutions which the Delphi panelists agreed to as being the most desirable and those agreed to as being the most feasible in Round 2, with a median of 3.5 or higher for each category, were to be moved to the third round. An Excel spreadsheet was used to analyze and calculate the median for the data in each of the categories in Round 2. Each category had a median of four or higher and so they were all moved to Round 3. The participants had come to a consensus that all the 10 strategies presented to them in Round 2 were both desirable and feasible. The 10 strategies were moved to Round 3 since they all met the criteria of a 3.5 median or higher.

In Round 3, panelists were asked to rank the strategies from Round 2 in order of importance, with one being the most important and 10 being the least important (see Appendix C for a copy of the round 3 questionnaire). The 10 e-learning implementation strategies listed in order of importance from Round 3, became the final outcome of the study and they are discussed in Chapter 4. With the Delphi method designed for the panelists to reach consensus regarding the most important and least important e-learning strategies, there were no issues with discrepant cases in the final round. Delbecq, Van de Ven and Gustafson (1975) suggested that two or three Delphi rounds are enough to reach consensus in most studies. The three Delphi rounds used in this study met the criteria suggested by Delbecq et al., (1975).

Issues of Trustworthiness

Credibility

Credibility in qualitative research means that the account provided in the report is believable and that the researcher has interpreted the data accurately (Stewart, Gapp & Harwood, 2017). Yin (2011) suggested that credibility in qualitative research can be built through transparency, methodical-ness and adherence to evidence. Transparency is enhanced when the researcher documents details of all the processes involved in the research for interested stakeholders to gain access (Yin, 2011). For this research, questionnaires for each of the Delphi rounds were available to interested stakeholders. With each subsequent round of survey based on the previous result and approved by Walden's IRB, there was transparency throughout all the three round of questioning.

Methodical-ness, which is Yin's (2011) second criteria for credibility, means that there is a structure for the research process, and the discovery is done through an orderly process. The Delphi method used for this study was very well structured. It started from purposive sampling and recruitment of appropriate panelists, used three rounds of structured surveys, and gradually led panelists to reach consensus regarding strategies which addressed the research questions. This structured approach to the Delphi method for this study, fulfilled Yin's (2011) methodical-ness criteria for credibility. The final measure of credibility according to Yin (2011), is adherence to evidence. In qualitative research, Janesick (2015) mentioned that there is the temptation of the researcher to rely on intuition, omit important information, or go too much further into the analysis. Yin's (2011) criteria of adhering to evidence from the research is likely to address Janesick's

(2015) concerns. For this study, I adhered to evidence by strictly using information provided by panelists in the three Delphi rounds. Credibility was also enhanced when the first round instrument was sent out for field testing before it was actually used.

Transferability

Transferability refers to the extent to which research results could be generalized (White, Oelke & Friesen, 2012). In qualitative research, transferability means that the findings from one study conducted under a specific context could be applied to other contexts. The research findings from one study could be transferred to a different context when there are similarities between the contexts under consideration (Schrier, 2018). This means that a researcher would have to provide a thorough description of a research context, in order for other researchers to determine if they can transfer or use the existing research model in other studies.

For this study, a thorough description of the research context and background were provided. The criteria for selecting participants were clearly stipulated and the process of collecting and analyzing the data were also explained. Additionally, the limitations of the study, the biases of the researcher, and strategies for addressing those biases were all explained. This process is in line with Lincoln and Guba's (1979) concept of fittingness between the two contexts, and Geertz's (1973) recommendation for thick description of the research context. Based on the well documented description of the processes in this study, researchers engaged in similar studies could determine if the context is applicable to theirs, before applying the research module and the results to their specific circumstances. Readers who also wish to apply the findings of this study to

similar circumstances, could use the documented process to compare their context to the context under which this study was conducted, to verify if the results could be applied to their contexts.

Dependability

Dependability means that the raw research data is consistent with the outcome of the analysis (White et al., 2012). Dependability implies that when other researchers analyze the same data, they would arrive at the same conclusion as the original researcher did (White et al., 2012). Qualitative research needs to be dependable in order to indicate that the researcher was thorough and accurate in analyzing the data and drawing conclusions. A dependable research is reliable and can be replicated by other researchers under similar conditions (Schrier, 2018).

Inquiry audit is one strategy used to ensure dependability (White et al., 2012). In inquiry audits, external qualified individuals are recruited to review the data and the analysis completed by the original researcher to determine if anything was missed or overlooked. For this modified Delphi study, dependability was established because data from each round was analyzed, summarized and sent back to the panelists for the next round, except the results of the final round. Sending the results of each round back to panelists before the next round compelled me to analyze the data accurately. In addition, the Chair of the study was given access to the raw data and she was involved in every step of all the three Delphi rounds. Her involvement allowed her to review the link between the data and results.

Confirmability

Confirmability in qualitative research is established when the research results is a reflection of the participants' views and not those of the researcher. It is the degree to which other researchers can confirm the research findings (White et al., 2012). Two common strategies used by qualitative researchers to establish confirmability is audit trail and reflexivity (White et al., 2012). Audit trail occurs when the researcher thoroughly accounts for the processes used in collecting and analyzing the research data (White et al., 2012). By leaving a proper trail of the processes used, other researchers and stakeholders could trace the details and authenticate what the original researcher did. Reflexivity is a technique used to monitor and control the researcher's findings (White et al., 2012). In this technique a reflective journal is used to record the researchers background and personal opinion about the topic being studied. This was to help determine how those researcher opinions would influence the topic being studied. The reflection of personal attitude and opinion could allow the researcher to control any biases and remain objective in the research being conducted (White et al., 2012).

For this study, the audit trail strategy was used to establish confirmability. All the process and procedures for collecting and analyzing data were documented in this chapter and followed during the data collection and analysis stages. Stakeholders could use the trail of records to confirm the research outcome.

Ethical Procedures

The ethical concerns in the participant selection and data collection is that my bias could interfere in selecting participants. I could also have started collecting data without

informing participants of what the surveys entailed. To address these potential biases, there was transparency in the entire participant selection and data collection processes. Invitation emails were sent to each potential participant identified through online search and the snowball sampling. The criteria for participants was included in the invitation, and so was the procedure, time commitments and other expectations. Participants were also informed that the consent form would be on the first page of the first questionnaire and they had the option to agree or disagree. Those who disagreed had the option of exiting the survey and those who agreed continued to complete survey. The consent form sent to participants before the data collection started clearly outlined the rights of the participants in the data collection process, the potential discomfort participants would face in terms of time required to complete the surveys, as well as the benefits of participating. This information allowed the potential participants to make informed decisions before deciding if they wanted to participate or not.

Confidentiality of participants was addressed by keeping collected data on my private, password-protected computer which is only accessible to me. Emails sent out to invite participants was also kept securely in the researcher's password-protected email. The data collected in Microsoft Forms was also password-protected and securely kept online. Participants were anonymous to each other but not to me. Anonymity among participants was protected but in case this anonymity is broken in the future, I will not consider it as a problem because Hasson, Keeney and McKenna (2000) mentioned that anonymity is not a requirement in modified Delphi studies.

After all the three Delphi rounds were over, the online data was downloaded to a secured computer and deleted from Microsoft forms. The research report did not reveal the identity of participants. Each participant was asked to create a PIN which was used to identify them in order to avoid using their names. Based on Walden's regulations, the data collected from participants and all other documents related to the study will be kept for five years after completion of the dissertation, and then destroyed by deleting them from my computer. Following these guidelines will help to protect the confidentiality of participants. There was no conflict of interest issues because the study was conducted in Ghana and I live and work in Canada. Though the I am a Ghanaian citizen, I did not know the participants personally.

Summary

This chapter has been used to analyze the research design, my role as the researcher, the research methodology, dada analysis techniques and issues of trustworthiness, as well as the ethical procedures in the data collection. The research design section was used to discuss the research questions and why the modified Delphi method chosen for the study was appropriate. The section on my role as the researcher was used to explain how I planned and facilitated the entire research process. Planning started from identifying the research problem and stretched to identifying panel members, preparing the survey questions, contacting participants to arrange timelines, and the distribution the survey. Facilitation involved how the data collection process was controlled through appropriate, unbiased questionnaires.

In the methodology and data analysis section, a thorough analysis of the participant selection logic was presented, together with a description of the researcher-developed instruments which were used for the Delphi rounds. The procedures for recruiting participants, the data collection process, and the data analysis plan were also discussed in the methodology section. The section on trustworthiness was used to discuss strategies, which were used to ensure credible, transferable, dependable and confirmable. The chapter ended with a discussion of the ethical procedures in the recruitment and data collection process, as well as the strategy for protecting the confidentiality and rights of participants. The thorough research methodology outlined in this chapter, helped in gathering the appropriate data which was analyzed to address the research questions. The results of the data analyses are presented in Chapter 4.

Chapter 4: Results

The purpose of this modified qualitative Delphi study was to gain consensus from a panel of university leaders and professors in Ghana regarding desirable and feasible strategies for implementing e-learning solutions, which the overarching research question addressed. Two sub-questions that emerged from this overarching question were:

1. What is the consensus among a panel of university administrators and professors in Ghana regarding desirable strategies that could be used to implement existing e-learning solutions in their institutions?
2. What is the consensus among a panel of university administrators and professors in Ghana regarding feasible strategies that could be used to implement existing e-learning solutions in their institutions?

The Delphi approach was used to collect data to address the research questions. This chapter presents the data analysis and results. The first part includes the field study and its impact on the main research process, followed by the research setting and the demographics of participants. The data collection and analysis processes are discussed next with the evidence of trustworthiness in the study. The chapter ends with a presentation of the results and a summary.

Field Study

The first researcher-developed instrument, which was later used for the data collection, was sent out for a field test to determine whether the questions in the questionnaire were clear, relevant to the population, and could produce responses which would address the research questions. The field test experts were provided with the

Round 1 questionnaire, the research questions, and the purpose of the study. They reviewed the documents and confirmed that the survey questions were aligned with the research question and the purpose of the study. They also confirmed that the questions were clear, relevant, appropriate for the population, and suitable for the overall research design. One of the experts commented that there was no need for respondents to declare their gender on the questionnaire. However, based on recommendation from the chair overseeing the study, gender was left in the questionnaire.

This field testing of the instrument and the consensus reached at the end of the Delphi rounds helped to establish content validity and ensured that the research questions were answered. Validity indicates that there is integrity in the research because the findings accurately reflect the data collected (Matza et al., 2015). The multiple rounds of questioning and the structured feedback process in Delphi studies lead to the most reliable consensus from the panelists (Linstone & Turoff, 1975). The field testing did not lead to any changes in the research design or instrumentation. The first instrument confirmed by external reviewers in the field test was used to gather data for the first Delphi round and helped to generate relevant responses, which were used to develop the second round instrument.

Research Setting

Participants in this study were identified through online search and snowball sampling. They were from different universities in Ghana, so there was no knowledge of any general organizational changes that influenced their participation in the Delphi rounds. The general observation was that it took most of the participants more time to

respond to the first round than expected. This was generally attributed to the Christmas holidays and the festivities at the time. Though the first round took almost 4 weeks to receive responses, the second and third rounds took about a week each to receive responses.

Participants were in five different cities in Ghana and each of them responded to the survey from home or from their offices, with no interference from me or other participants. The most complaints received during the process had to do with workload. With all participants being administrators and/or professors, it was difficult for them to find the time to complete the three surveys. E-mails were mainly used to contact them but sometimes when it took a while to hear back from them, phone calls were also made. With a 5-hour time difference between Ghana and Toronto, calling them early morning meant staying up late in Toronto to make those calls.

Demographics

For this modified Delphi study, participants had to be administrators or professors in any public university in Ghana. They had to be working in their roles for 2 years or more and had been involved in e-learning in their institutions or were in a position to be involved in e-learning initiatives in the near future. The original plan was to add at least two officials from the Ministry of Education who oversee higher education to the panel of participants, but none of those contacted responded to the e-mails. There were 24 potential participants identified through online search and snowball sampling, but only 11 fully participated in all three Delphi rounds.

Among the 11 members on the panel, two were administrators who were also professors in their departments, three were professors with no administrative roles, and six were administrators who did not teach. The two females on the panel were both administrators with no teaching assignments. The purpose of the study was to identify desirable and feasible strategies for implementing e-learning solutions in Ghana's universities. The criteria for participants was purposefully designed to select panel members who had the necessary experience and characteristics to produce the appropriate strategies to fulfil the purpose of the study. The administrators and participants selected performed as expected of a Delphi panel. Table 2 shows participants' demographics.

Table 2

Participant Demographics

Participants	Gender		Position			Years in Position		
	Male	Female	Administrator	Lecture	Both	1-5	6-10	Unknown
11	82%	12%	46%	36%	18%	64%	9%	27%

Data Collection

There were three Delphi rounds in the data collection process. Three researcher-developed instruments were used to collect the data. Using the first instrument (see Appendix A for a copy of the Round 1 instrument), participants were presented with 10 e-learning implementation solutions proposed by researchers for Ghana's e-learning initiatives. Participants were asked to suggest strategies that university administrators and professors could use to implement the solutions presented to them. The questionnaire was created in Microsoft Forms and the link was sent to participants to give

them access to the Microsoft Form in which their answers were recorded. It took 4 weeks to receive the responses from 11 participants in Round 1. On average, participants used about 67 minutes to complete the questionnaire. The goal for this first round was to identify patterns that emerged from participants' responses regarding strategies for implementing the e-learning solutions presented to them. Table 3 shows the full results from Round 1. Participants suggested many different strategies which were grouped into five main categories. Table 4 shows a summary of the five broad categories which emerged from this first round.

Table 3

Nodes, Sub-nodes, and Number of Responses

Parent nodes	Sub-nodes	# of responses
E-learning solution 1: Develop e-learning policies to guide e-learning initiatives	Set up a committee for e-learning policy development	5
	Assess needs	4
	Ask the government to provide policies for e-learning	1
E-learning solution 2: Create e-learning budget to finance e-learning initiatives	Determine sources of funds	5
	Assess potential cost of e-learning	3
	Assess relevant e-learning areas to fund	2
E-learning solution 3: Address stakeholder's concerns regarding e-learning	Organize training workshops for staff and faculty	8
	Assess training needs of faculty and other relevant stakeholders	2
	Provide needed resources	2
	Provide incentives for professors who show e-learning initiative	2
	Organize training workshops for staff and faculty	8
E-Learning Solution 4: Train and motivate faculty and staff to engage in the e-learning discussion	Organize training workshops for staff and faculty	8
	Assess training needs of faculty and other relevant stakeholders	2
	Provide needed resources	2
E-Learning Solution 5: Create e-learning action plans in each university and designate someone to be in charge of implementation	Provide incentives for professors who show e-learning initiative	2
	Assess interest and appoint someone to be in charge.	8
	Engage in strategic planning	3

E-Learning Solution 6: Develop a comprehensive strategic plan which includes strategies for e-learning	Determine strategic actions and develop goals	5
	Set goals and vision for e-learning	3
	Assess needs	2
	Determine resources needed to implement goals	2
	Determine internal and external factors that could impact e-learning	1
E-learning solution 7: Prioritize the development of e-learning in your institution	Determine resources needed and provide them	4
	Provide needed training	3
	Involve top management	2
	Involve stakeholders in setting e-learning priorities	2
	Set goals and make e-learning part of the institutional strategy	4

(table continues)

Parent nodes	Subnodes	# of reponses
E-learning solution 8: Provide resources including IT infrastructure to support e-learning institutions	Identify sources of financing	4
	Involve stakeholders in determining IT sources needed	4
	Assessing IT needs and costs	2
	Determine and provide appropriate IT resources	2
	Seek government and other funding to acquire resources	3
E-Learning Solution 9: Run workshops and training programs to educate stakeholders about 3-learning before introducing online courses	Organize workshops and seminars	6
	Communicate needs and involve stakeholders	3
	Provide resources needed	1
	Set goals and clarify them to stakeholders	1
	Set up committee to take responsibility for all e-learning activities	1
E-Learning Solution 10: Conducts your own institution research to determine how to implement e-learning	Conduct survey to determine readiness and acceptance of e-learning	5
	Form a committee to conduct institutional research	1
	Provide resources for Institutional research	1

Table 4

Overall Categories from Round 1 Responses

Overall categories from Round 1	Number of responses
Assess needs regarding implementation, IT and funding.	12
Set goals and find ways to implement them	11
Involve top management and stakeholders	7
Determine and provide needed resources	6
Provide training	3

Based on the categories of responses from Round 1, 10 Likert-type statements were developed for Round 2 using the second researcher-developed questionnaire (see Appendix B for a copy of the Round 2 instrument). The statements were a summary of strategies that participants had suggested under each of the broad categories in Round 1. Participants used a scale of 1 to 5 to rate the statements, with 5 being the most desirable and the most feasible strategies and 1 being not desirable and not feasible strategies. The questionnaire was placed in Microsoft Forms for participants to respond. For participants to receive the second questionnaire they were identified through their e-mails and the PIN numbers they created in the first round. Most of the responses for Round 2 were received in 1 week, and the rest were received in about nine days. Participants used an average of 11 minutes to complete this second-round survey. The goal was to have consensus among participants regarding the top-most e-learning strategies that were both desirable and feasible for implementing e-learning solutions in Ghana's universities.

As the scores that are discussed in the next section show, all 10 statements were rewritten in the form of strategies and moved to Round 3. Participants were asked to rank the strategies in order of importance, one being the most important and 10 being the least important (see Appendix C for a copy of the Round 3 instrument). The researcher-developed instrument for this round was created in Microsoft Forms as well, and the link was sent to participants as was done in the first two rounds. It took about eight days to receive all the responses. The average completion time for each participant in this third round was 14 minutes.

Data Analysis

NVivo 12was used to analyze the data in Round 1. The existing e-learning solutions presented to participants in Round 1 were placed in parent-nodes in NVivo. Based on the patterns observed in participants' responses, sub-nodes were also created. The responses were then entered into appropriate sub-nodes as shown in Table 3. Once all the responses were entered into the sub-nodes, similar patterns from the responses were merged to arrive at the five overall categories: assess needs regarding implementation, IT and funding, set goals and find ways to implement them, involve top management and other stakeholders, determine and provide needed resources, and provide training. These categories are listed in Table 4.

In Round 2, 10 Likert-type statements were developed from the five overall categories, and participants were asked to use a scale of 1 to 5 to rate them for desirability and feasibility. The statements were a summary of the actual strategies suggested by participants under each of the broad categories. Five represented the most desirable and

the most feasible strategies, and 1 represented not desirable and feasible strategies (see Appendix B for a copy of the Round 2 questionnaire). The ratings for each statement, in terms of the desirability category and the feasibility category, were used to create an Excel spreadsheet and the median of the score for each statement was calculated. Table 5 shows a summary of the results after the median scores were calculated.

Table 5

Median Scores for Each Likert-Type Statement in Round 2 in Terms of Desirability and Feasibility

Desirability of Suggested Strategies	Median	Feasibility of Suggested Strategies	Median
How desirable is it to assess overall needs of a university before e-learning is implemented?	4	How feasibility is it to assess overall needs of a university before e-learning is implemented?	4
How desirable is it to assess specific IT needs in order to implement e-learning?	5	How feasibility is it to assess specific IT needs in order to implement e-learning?	4
How desirable is it to assess actual financing options for e-learning, before implementation?	5	How feasibility is it to assess actual financing options for e-learning, before implementation?	4
How desirable is it to set goals for implementing e-learning?	5	How feasibility is it to set goals for implementing e-learning?	4
How desirable is it to find different options/strategies for implementing e-learning goals?	4	How feasibility is it to find different options/strategies for implementing e-learning goals?	4
How desirable is it to assign responsibilities to specific personnel or committee to oversee the implementation of e-learning goals?	5	How feasibility is it to assign responsibilities to specific personnel or committee to oversee the implementation of e-learning goals?	4
How desirable is it to involve top management in developing and implementing e-learning strategies?	5	How feasibility is it to involve top management in developing and implementing e-learning strategies?	5
How desirable is it to involve other stakeholders besides top management in developing and implementing e-learning strategies?	5	How feasibility is it to involve other stakeholders besides top management in developing and implementing e-learning strategies?	4
How desirable is it to provide needed resources for e-learning?	5	How feasibility is it to provide needed resources for e-learning?	4
How desirable is it to provide e-learning training to relevant stakeholders?	5	How feasibility is it to provide e-learning training to relevant stakeholders?	4

Based on the methodology planned for this study, any statement in round two which had a median score of 3.5 or higher in both the desirability and feasibility categories represent consensus and had to move to round three. The summary of participants' responses in Table 5 indicate that each of the Likert-type statements had a median of four or higher in both of the desirability and feasibility categories. Therefore, all 10 statements were reworded into ten strategies and moved to round three where participants were given the opportunity to rank them in order of importance, from one to 10. One represented the most important and 10 represented the least important. Table 6B in Appendix D shows a summary of the rankings of the 10 strategies in round three, and the mean score of each.

Evidence of Trustworthiness

Credibility

In qualitative research, Yin (2011) suggested that credibility can be built through transparency, methodical-ness and adherence to evidence. Transparency in this study was not an issue because the results for each subsequent questionnaire was based on the results of the previous round. With the results of each round sent to participants, they clearly knew where the questions were coming from and how they were formulated. A summary of the results of each round and the questionnaire were also sent to the IRB for approval. Methodical-ness, which is Yin's (2011) second criteria for credibility, means that there is a structure for the research process, and the discovery is done through an orderly process. The Delphi method used for this study was very well structured. It started from purposive sampling and recruitment of appropriate panelists, with three

structured rounds of questioning which gradually led panelists to reach consensus regarding strategies which addressed the research questions. The final measure of credibility, according to Yin (2011), is adherence to evidence. For this study, I adhered to evidence by strictly using information provided by panelists in the three Delphi rounds. Credibility was also enhanced when the first round instrument was sent out for field testing and confirmation of appropriateness, before it was actually used.

Transferability

Transferability refers to the extent to which research results could be generalized (White et al., 2012). In qualitative research, transferability means that the findings from one study conducted under a specific context could be applied to other contexts. The research findings from one study could be transferred to a different context when there are similarities between the contexts under consideration (Schrier, 2018). This means that a researcher would have to provide a thorough description of a research context, for other researchers to determine if they can transfer or use the research model in other studies.

For this study, a thorough description of the research context and background were provided. The criteria for selecting participants were clearly stipulated and the process of collecting and analyzing the data were also explained. Additionally, the limitations of the study, my biases, and strategies for addressing those biases were all explained. This process was in line with Lincoln and Guba's (1979) concept of fittingness between the two contexts, and Geertz's (1973) recommendation for thick description of the research context.

Dependability

Dependability means that the raw research data is consistent with the outcome of the analysis (White et al., 2012). Dependability implies that when other researchers analyze the same data, they would arrive at the same conclusion as the original researcher did (White et al., 2012). Qualitative research needs to be dependable in order to indicate that the researcher was thorough and accurate in analyzing the data and drawing conclusions. A dependable research is reliable and can be replicated by other researchers under similar conditions (Schrier, 2018).

Inquiry audit is one strategy used to ensure dependability (White et al., 2012). In inquiry audits, external qualified individuals are recruited to review the data and the analysis completed by the original researcher to determine if anything was missed or overlooked. For this modified Delphi study, dependability was established when data from each round was analyzed, summarized and sent back to the panelists, before they responded to the questionnaire in the next round. The results for Round 1 was sent to participants, before the link for the second round was sent to them in a separate email. The results for Round 2 was sent to them in the same email which had the link for the round three questionnaire. Participants took a day or two to go over the Round 2 results before responding to the survey for Round 3. The final result from Round 3 has not been sent to them yet. The panelists served as reviewers for each round because each of them was able to easily determine if their views were represented in the results sent to them, before they responded to the next questionnaire. In addition, the chair of the study was

given access to the raw data and she was involved in every step of all the three Delphi rounds. Her involvement allowed her to review the link between the data and results.

Confirmability

Confirmability in qualitative research is established when the research results are a reflection of the participants' views and not those of the researcher. It is the degree to which other researchers can confirm the research findings (White et al, 2012). Two common strategies used by qualitative researchers to establish confirmability is audit trail and reflexivity (White et al., 2012). Audit trail occurs when the researcher thoroughly accounts for the processes used in collecting and analyzing the research data (White et al., 2012). By leaving a proper trail of the processes used, other researchers and stakeholders could trace the details and authenticate what the original researcher did. Reflexivity is a technique used to monitor and control the researcher's findings (White et al., 2012). In this technique a reflective journal was used to record the researcher's background and personal opinion about the topic being studied, to determine how those researcher opinions would influence the topic being studied. The reflection of personal attitude and opinion could allow me to control any biases and remain objective in the research being conducted (White et al., 2012).

For this study, the audit trail strategy was used to establish confirmability. All the process and procedures for collecting and analyzing data were documented and followed during the data collection and analysis stages. Stakeholders could use the trail of records to confirm the research outcome.

Study Results

Participants identified 10 strategies which are both desirable and feasible to fulfill the purpose of the research. The top five of the 10 strategies are listed in order of importance in Table 6A. The full list can also be found in Table 6B (Appendix D).

Table 6A

Top Five Strategies from Round 3 and Mean Scores

Strategy	Ranking	Mean score
Assess overall needs of a university before e-learning is implemented.	1	1.6
Set goals for implementing e-learning.	2	3.6
Involve top management in developing and implementing e-learning strategies	3	3.8
Assess specific IT needs in order to implement e-learning.	4	4.5
Assess actual financing options for e-learning, before implementation.	5	4.9

Round 1

Participants suggested strategies which could be used to implement ten existing e-learning solutions. Based on the analysis from that round, different patterns emerged and were summarized into five key categories emerged: assess needs regarding implementation, information technology and funding; set goals and find ways to implement them; involve top management and stakeholders; determine and provide needed resources, provide training. Details of the patterns can be found in Table 3, and the summarized five categories can be found in Table 4.

The first category appeared 12 times in participants' responses in Round 1 and they focused on Needs Assessment: Assessment of Overall E-learning Needs,

Assessment of IT Resources and Assessment of Funding Needs. In the category of assessing overall e-learning needs, participants suggested that university administrators should determine the capabilities of personnel and overall readiness for e-learning in their institutions. Some of the panelists suggested that this assessment could be done through SWOT analysis to understand the internal strengths and weaknesses the university had, with regards to e-learning. A SWOT analysis would also help the university administrators to understand the opportunities they could take advantage of, as well as the threats they could face in e-learning implementation. For assessment of IT resources, participants mentioned that university leaders should evaluate their current IT infrastructure and the expertise of personnel in order to determine additional technology and training needed, before e-learning could be implemented. The final needs assessment suggested by participants was about funding. Most responses on this category focused on assessing the cost of e-learning, creating a budget, and identifying sources of financing. Some participants suggested that students should be made to pay the full cost of introducing e-learning and the universities should aim at making profits which could be re-invested into the programs. Others mentioned that the government and non-governmental organization could be contacted to solicit funds. These three needs assessment categories; overall e-learning assessment, assessment of IT resources and assessment of funding needs, became part of the strategies rated in Round 2. Details are discussed in the section for Round 2 results.

Setting goals and finding ways to implement e-learning was the second overall category which emerged from Round 1. This category appeared 11 times in the

responses and panel members mainly suggested that administrators in Ghanaian universities should set overall goals for e-learning and make e-learning a part of each institution's overall strategy. Participants mentioned the need to set goals for every aspect of e-learning, including: goals for e-learning resources which need to be acquired, goals for funds and financing options, and goals for personnel training. Participants also mentioned that relevant stakeholders should be involved in the goal setting process. Other responses indicated that e-learning goals should be incorporated into the overall strategies of public universities for it to be taken seriously.

For the third category in the Round 1 responses, participants indicated the need for involving top management and other stakeholder in the entire e-learning implementation process. Some panelists mentioned the need to have a committee to oversee e-learning initiatives in each institution, with members of the committee comprising of top management and other stakeholders including faculty, e-learning directors, IT personnel and students. Adding the top management team to this e-learning planning and implementation process could motivate them to take ownership and commit to the implementation process. Similarly, other stakeholders on the committee would also be motivated and encouraged to support the initiative. Some participants alluded that the dialogue created through stakeholder involvement would help to identify and address any concerns and possibly avoid or minimize resistance to e-learning. Other participants added that leaders in charge of e-learning should consult with other stakeholders who may not necessarily be on the e-learning committee, to solicit additional views.

The fourth category emerging from Round 1 was focused on determining and providing resources for e-learning. Participants mentioned that university officials should provide financial resources and incentives to support professors and other stakeholders who start e-learning initiatives. There was mention of research grant which should be provided by the university administrators to ensure that professors and researchers in the universities obtain the funds needed to research and produce results which the institutions could use to enhance their e-learning initiatives. Other panel members suggested that IT resources for e-learning must be provided and a technical support team should also be created to address technical issues which stakeholders could face when e-learning is introduced in their institutions. To create awareness, some panel members suggested that university administrators should develop policies to guide any e-learning development and implementation process. Such policies should be based on input provided by relevant stakeholders and should indicate roles and responsibilities of officials designated to oversee the e-learning process. Some panelists also suggestions that there should be posters around campuses and selected public areas to create awareness about e-learning.

The final category from Round 1 was based on training. Suggestions from participants included workshops and seminars to educate faculty and staff about e-learning. While some participants mentioned that workshops should be used to share e-learning experience and encourage acceptance, others said that workshops should be used for full e-learning education to prepare faculty and staff before any initiatives are introduced. Others suggested that the workshops should be ongoing even when the universities start e-learning in order to maintain commitment and improve performance at

all levels. To encourage faculty and staff to participate in these workshop, some participants said that incentives should be provided to those who attend. Seminars were also suggested by some participants, indicating that the seminars should be used to gauge initial interest among faculty and staff, before organizing follow-up workshops for continuous education. Bringing e-learning experts to the workshops to educate faculty and staff was also recommended. Based on the five overall strategy categories in the Round 1 responses discussed above, 10 Likert-type statements were developed and presented to participant in Round 2.

Round 2

Participants were asked to rate the Likert-type statements from 1-5, for desirability and for feasibility. Five represented the most desirable and the most feasible, and one represented not desirable and not feasible. With the methodology planned for this study, any statements in Round 2 that had a median score of 3.5 or higher in both the desirability and for feasibility categories represented consensus. The consensus would indicate that participants had agreed that those statements were both desirable and feasible and should be considered when implementing e-learning in Ghana's public universities. As the summary in Table 5 indicates, each of the Likert-type statements had a median of four or higher in both desirability and feasibility categories. With this consensus, all 10 statements were reworded into 10 e-learning implementation strategies and moved to Round 3 where participants were given the opportunity to rank them in order of importance.

Round 3

Using a scale of 1 - 10, participants ranked the 10 strategies derived from Round 2, in order of importance. One represented the most important and 10 represented the least important. Each participant ranked each of the 10 strategies and the results were recorded into an Excel Spreadsheet. Mean scores were calculated for the rankings participant assigned to each strategy and the results are seen in Table 6B (Appendix D). The results indicated that 'Assessing overall needs of a university before e-learning is implemented' is the most important strategy which Ghana's universities should consider before e-learning initiatives are introduced. Participants' responses indicated that assessing the e-learning will needs enable university officials to understand what should to be done and hopefully prepare before they introduce any e-learning initiatives.

Setting goals was the second most important strategy identified by participants. In their earlier responses, some participants indicated that identifying what is needed for e-learning to start, and setting goals could help university administrators to introduce and track progress made in e-learning. Involving top management in developing and implementing e-learning was the third most important strategy selected by participants. Senior administrators in Ghana's universities make most of the important decisions in the universities and so participants suggested that involving these top managers in e-learning initiatives could lead to the needed support and resources allocation.

Assessing IT needs and assessing financing options for e-learning were the fourth and fifth strategies respectively, based on the Round 3 results. These two strategies are very specific to e-learning, compared to the general needs assessment strategies

participants suggested. IT infrastructure is core to e-learning and funding is needed to acquire those resources. The Delphi panel alluded that university officials should have IT professional evaluate and estimate the relevant equipment and resources needed for e-learning, after which a costing model could be developed to verify the real cost. Once the cost is known, some panel members mentioned that funding options should be identified, including an increase in tuition, looking for government funding or turning to non-governmental organizations to help with funding.

Finding different options/strategies for implementing e-learning goals was the sixth most important strategy suggested by the panel. Some participants stated that current distance learning departments in the universities should team up with the information and communication technology departments to come up with best ways to offer e-learning. Others suggested that they could use Skype video, combined with social media to offer online learning to students. For the seventh strategy, participants chose 'assigning responsibilities to specific personnel or committee to oversee the implementation of e-learning goals. Some panel members explained that without having a designated person of a committee to oversee e-learning, it could be difficult to start because most officials were already pre-occupied with various obligations and may not have the time to add e-learning responsibilities. Panel members also recognized the need to involve other stakeholders besides top management in developing and implementing e-learning strategies. This strategy was ranked eighth on the list. Stakeholders include students, parents, staff and the government. This strategy was not regarded as one of the top five because the universities in Ghana are autonomous and external stakeholders do

not have much influence on the policies developed and used for their operations. Some participants however mentioned that such stakeholder' support was needed for long term sustainability of e-learning programs. For example, students cannot make decisions about how to introduce e-learning but they should be willing to take online courses in order to keep those online courses running. Involving them in the development and implementation process and motivating them to participate, would make sense. The last two strategies on the list, ranked ninth and tenth were, providing needed resources for e-learning and providing e-learning training to relevant stakeholders.

Summary

This chapter has been used to present the data collection, the analysis process and the results of the study. The three Delphi rounds in the study were structured to directly answer the research questions. First, participants were presented with existing solutions for e-learning implementation which have not been used by university administrators in Ghana, and asked to suggest strategies for implementing them. Ten strategies which emerged from that first round were presented to participants in Round 2 and asked to rate them on a scale of 1 -5, for desirability and feasibility. Based on scores assigned by participants in Round 2, strategies which had a median of 3.5 or higher in both desirability and feasibility categories were moved to the third and last round. The third round was used to consolidate the results and helped to answer the research questions, which were: What is the consensus among a panel of university administrators and professors in Ghana, regarding desirable strategies which could be used to implement existing e-learning solutions in their institutions? What is the consensus among a panel

of university administrators and professors in Ghana, regarding feasible strategies which could be used to implement existing e-learning solutions in their institutions? The 10 strategies which were ranked in order of importance by the participants in Round 3, were also rated as both desirable and feasible in Round 2. A full list of the 10 strategies can be found in Table 6B in Appendix D. Based on the order of importance ranked by panelists, the top five of the strategies were: Assess overall needs of a university before e-learning is implemented; Set goals for implementing e-learning; Involve top management in developing and implementing e-learning; Assess specific IT needs in order to implement e-learning and Assess actual financing options for e-learning. With all 10 final strategies being both desirable and feasible, the research questions have been answered and the purpose of the study has been accomplished. The next chapter dissertation is used to present the discussions and conclusion, as well as the recommendations for future actions on the topic.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this modified qualitative Delphi study was to gain consensus from a panel of public university administrators and professors in Ghana, regarding desirable and feasible strategies for implementing existing e-learning solutions. This study was important because the demand for higher education has increased exponentially in Ghana (Ankomah-Asare et al., 2016), and e-learning has been suggested by researchers as the best solution for increasing admission levels (Ndzibah & Ofori, 2017). Public universities in the country have limited physical capacity to meet this increased demand for higher education (Ndzibah & Ofori, 2017).

There were three Delphi rounds of data collection. In the first-round participants were presented with e-learning solutions that researchers have proposed and were asked to suggest strategies that could be used to implement those solutions. Responses from Round 1 were grouped into five main categories. In the second round, 10 Likert-type statements representing the five categories from Round 1 were developed, and participants were asked to rate them using a scale of 1 to 5 (5 being the most and 1 being the least). Participants rated all the strategies as both desirable and feasible, so all 10 were moved to Round 3 for ranking. The result after ranking in Round 3 was a list of 10 e-learning strategies in order of importance, which the university administrators could use to implement existing e-learning solutions. Of the 10 strategies, the five ranked as the most important by the panel were: assess overall needs of a university before e-learning is implemented, set goals for implementing e-learning, involve top management in developing and implementing e-learning, assess specific IT needs in order to implement

e-learning, and assess actual financing options for e-learning. The findings are interpreted in the next section.

Interpretation of Findings

Many researchers have acknowledged the need and importance of e-learning in Ghana and suggested various solutions for the challenges impeding implementation. Nonetheless, most of the researchers have not provided strategies for implementing the solutions proposed. This study was conducted to identify these strategies. In the next section, the strategies developed in the study are aligned to the existing solutions to indicate how the strategies provide a path for implementing those solutions.

Aligning Strategies from This Study to Existing E-Learning Solutions

Islam et al (2015) identified the following as the key challenges impeding e-learning in Ghana's universities: lack of appropriate technology, embedded learning styles and culture, inadequate technical training, and time management issues. As a solution to these challenges, Islam et al (2015) proposed that university administrators should provide adequate resources, but they did not provide strategies or a path which university administrators could use to implement this solution. Two of the strategies which participants developed in this study could be used to implement this solution proposal by Islam et al. (2015). First, participants said that university officials should conduct an overall needs assessment to determine what is needed in their institutions in order to introduce e-learning. Participants also said that university officials should assess specific IT needs to become aware of the necessary IT infrastructure needed for e-learning in their institutions. Through these needs assessment strategies proposed in this

study, university administrators could identify and provide needed resources, as proposed by Islam et al (2015). This study has expanded on existing literature and provided the strategy needed to implement an existing e-learning solution.

Dahms and Zakaria (2015) recognized the importance of e-learning in Ghana's universities and suggested that lack of e-learning policies, lack of resources, and the status of e-learning in the country, were some key challenges hindering implementation. Awidi and Cooper (2015) also concluded that university administrators in Ghana needed policy documents to guide e-learning implementation. A policy is a set of guidelines or principles developed or adopted by an organization to guide operations in order to achieve set objectives and targets (Börjesson et al., 2017). Organizational leaders can develop policies in the following phases: conducting an assessment to identify the issue for which the policy is being formulated for, formulating the policy based on set goals, developing a plan for implementation and evaluating the policy after implementation (Börjesson et al., 2017). Awidi and Cooper (2015) as well as Dahms and Zakaria (2015) suggested that officials in each Ghanaian university need to develop a policy document or action plans to guide e-learning implementation but did not provide a path for developing the policy document. Participants in this study have partly provided a path which could potentially lead to e-learning policy development in Ghana's public universities. The path includes: assessing the needs of a university to determine what is needed; setting e-learning goals and finding ways to achieve them, and involving top management in developing e-learning strategies. These were the first three of the 10 strategies which participants ranked in order of importance. Assessing needs would help the university

administrators to determine what the policies should be about, setting goals would help the administrators to set boundaries for any policies developed and involving top management would enhance authenticity and importance of e-learning in the institutions. These strategies identified by participants in the study could help to develop the e-learning policy document, which Awidi and Cooper (2015); Dahms and Zakaria (2015) proposes as solution for e-learning implementation.

Budu and Ackah (2016) studied the same issue of e-learning challenges in Ghana's universities and mentioned that the attitude and perception towards e-learning systems, lack of institutional support systems for e-learning and lack of educational technology for e-learning implementation, were the challenges hindering e-learning progress. In response to these challenges, they suggested solutions which included the following: enhancing IT infrastructure, creating a budget for e-learning and motivating university personnel to engage in the e-learning process. Budu and Ackah (2016) did not provide a strategy for implementing these solutions. The strategy of assessing actual financing requirements and financing options, which was proposed by the panel in this study, could help the university administrators in Ghana to determine how much money is needed for e-learning and what the sources of financing could be. This could help them to create a budget for e-learning, as proposed by Budu and Ackah (2016).

Employee motivation was also found to be a solution for changing the perception of e-learning in Ghana's universities (Budu & Ackah, 2016). The panel in this study suggested that university administrators should include relevant stakeholders in developing and implementing e-learning initiatives, provide the needed training and then

assign some responsibilities to relevant stakeholders. This stakeholder engagement strategy could help to inform and educate personnel in the universities, and potentially motivate them to adopt e-learning. The study has provided a strategy which could be used to implement Budu and Ackah's e-learning implementation solutions.

Boateng et al. (2016) also recognized the importance of e-learning in Ghana. They found that the level of e-learning usefulness perceived by students, the confidence students have in themselves for using e-learning systems, and the actual ease of using the system, affected students' attitudes towards adopting any online learning initiative. Just as the other researchers, Boateng et al. (2016) did not provide strategies which administrators could use to address the challenges they listed. The stakeholder engagement strategy which came out of this study could be used to boost confidence in students because involving them in e-learning initiatives and training them to use relevant e-learning systems may increase their awareness and boost their confidence to accept e-learning.

Opoku and Kuranchie (2015) saw the e-learning implementation challenges facing Ghana's university administrators and conducted a study to determine stakeholders' awareness and preparedness for online learning in Ghana. Their study revealed that stakeholders of Ghana's universities had concerns which needed to address before introducing any online courses. The concerns raised by students, faculty and administrators, as reported in Opoku and Kuranchie's study included the following: potential difficulty getting on-time feedback from professors, difficulty of supervising students' work, high cost of IT infrastructure and possible impersonation (Opoku &

Kuranchie, 2015). Based on these findings, Opoku and Kuranchie (2015) recommended that university administrators who wanted to start e-learning in their institutions should use workshops and other platforms to educate stakeholders about e-learning and address their concerns, before introducing any online courses. In this study, the seminars, workshops and other stakeholder engagement strategies suggested by participants, could be used as a path for educating administrators, faculty and students, regarding their concerns identified by Opoku and Kuranchie (2015). Participants also suggested that assessing the conditions associated with available financing options could help university officials to become aware of the best alternatives to consider, when deciding on their e-learning financing needs.

The above analysis has illustrated how university administrators in Ghana could apply the strategies identified by participants in this study to implement existing e-learning solutions. In the next section, the findings from the study are compared to other relevant literature in the academia.

Comparing the Findings of this Study to Other Relevant Literature

The Delphi process was used in this study to develop the most desirable and the most feasible strategies that could be used to implement existing e-learning solutions proposed by researchers for Ghana's public universities. The process of developing strategies to achieve organizational goals is a function of management (Kotter, 1996; Porter, 1985). To develop effective strategies, organizational leaders need to assess both internal and external factors impacting their organizations and decide on the best actions necessary to succeed (Porter, 1985). In this study, panel members identified needs

assessment as a key strategy for e-learning implementation. Assessment of overall needs of universities, assessment of IT needs, and assessment of actual financing options before introducing e-learning were among the top five strategies listed by the panel. This needs assessment approach is in line with Porter's (1985) view of strategy development. Porter advocated for an assessment of internal and external factors which impact an organization, before developing any strategies.

Goal setting is another important aspect of strategy development (Porter, 1985). Setting goals for strategy development helps leaders and administrators to prioritize action items and set targets. In this study, the panel chose goal setting as the second most important desirable and feasible strategy for implementing e-learning in Ghana's public universities. The choice of goal setting as a strategy also aligns with the views of Porter (1985). Weighing alternative options and selecting the best option is another important part of strategy development. Porter emphasized the importance of prioritizing and trade-offs when developing strategies. In this study, participants identified 10 desirable and feasible strategies and prioritized them in order of importance. Needs assessment was first, and training for stakeholders was the last. The order of these strategies makes sense because training will be needed after all resources and process for e-learning are in place and the university is ready to offer online courses.

Stakeholder engagement is also a strategy that emerged from this study. Organizational leaders who seek stakeholder concerns and focus on their demands usually receive positive response and are recognized for that effort (Johnson, Redlbacher & Shaltegger, 2018). Engaging with stakeholders allows leaders to understand the views

of the diverse people impacted by the organizations' actions and allows the leaders to find measures to address those views (Johnson et al., 2018). In this study the panelists suggested that top management and other stakeholders should be involved in developing and implementing e-learning initiatives, which is in line with previous research (Johnson et al., 2018).

Assigning responsibilities to specific personnel or committee to oversee the implementation of e-learning is another strategy suggested by panelists in the study. This strategy is comparable to Hersey, Blanchard, and Johnson's (2001) delegating leadership style. In this leadership style, Hersey et al. explained that the leader assigns responsibilities to employees, allows them to complete different tasks and make some decisions. The leader shares authority with subordinates and provides guidelines and tools to enhance success. Although this style of leadership can motivate employees and increase employee performance, it may not be ideal for everyone. Employees who require a high level of supervision will not thrive under a leader who constantly delegates (Hersey et al., 2001). The strategy of assigning aspects of e-learning implementation responsibilities to individuals or committees, which was suggested by participants in this study, is in line with the view of leadership proposed by Hersey et al. After analyzing the how the strategies developed in this study align with other management literature, it is also important to assess the link between the results and the study's conceptual framework.

Linking the Conceptual Framework to the Results

The conceptual framework for the study was made up of three linking concepts: status quo bias, culture, and resistance to change. Status quo bias refers to the tendency to prefer the norm compared to other options in each situation where choice is necessary (Nebel, 2015; Samuelson & Zeckhauser, 1988). This status quo phenomenon explains why leaders have the tendency to choose the default option when making strategic decisions (Geng, 2016). Choice is an essential component of status quo bias. As Johnson and Zeckhauser (1988) mentioned, status quo bias falls into three main categories: rational decision making, cognitive misperceptions, and psychological commitment. The rational decision-making category of status quo bias could be aligned to the process and outcome of this study. This rational decision-making model is used when alternative solutions are evaluated to identify the best option in an uncertain situation (Samuelson & Zeckhauser, 1988). Participants in this study reviewed alternative e-learning implementation strategies in both the second and third Delphi rounds. In the second round, they rated 10 Likert-type statements related to the strategy categories from Round 1, for desirability and feasibility. Strategies rated as both desirable and feasible based on the 3.5 median criteria, were moved to Round 3.

The process of reviewing alternative strategies to arrive at the best ones is similar to the rational decision-making process; however, instead of selecting the best strategies and dropping the rest in Round 2, participants reviewed all the strategies and rated them high enough to move all of them to Round 3. The third round also applied the rational decision-making model with a slight deviation. The similarity was that participants were

presented with 10 strategies developed from Round 2 and were asked to review and rank them. The process of reviewing 10 alternative strategies was similar to the process of weighing alternative solutions in the rational decision-making model. However, participants in this study were asked to rank the 10 strategies in order of importance instead of selecting the best and dropping the rest. The rational decision model reinforces the status quo because when decision makers review alternatives, they prefer and choose the options already known to them (Samuelson & Zeckhauser, 1988).

This assertion of preferring known alternatives to the unknown is partly exemplified in this study. Of the 10 e-learning strategies reviewed and ranked by participants, the top five fell within three of the traditional strategy development and decision-making steps. These three relevant strategies from this study were needs assessment, goal setting, and top management involvement. All of these three strategies fall within the traditional approach to strategy development as proposed by strategic management experts such as Porter (1985). Choosing these traditional strategies as the top three in this study exemplified the assertion that decision makers usually choose strategies or decisions based on what they already know, the status quo (Samuelson & Zeckhauser, 1988).

Culture was the next concept in the conceptual framework. The culture of an organization binds the workforce together, supports the decisions managers make, and helps to provide stability and predictability. In organizations where well-established cultures exist, leaders prefer to maintain the status quo because they believe that existing processes, policies and guidelines work, and may not want to change them (Geng, 2016).

External factors such as the national culture could also influence an organization's culture (Humphries & Whelan, 2017; Marchisotti, Domingos, & De Almeida, 2018). Hofstede (1984) proposed five dimensions of culture and explained how they applied to different countries around the world: power distance, masculinity-femininity, uncertainty avoidance and collectivism-individualism. Power distance refers to power inequality between leaders and subordinates (Hofstede, 1984). In high power distance societies, hierarchy is followed strictly in terms of roles and responsibilities and leaders are expected to exert their power (Hofstede, 1984). An organization operating in such high power distance society is likely to have a culture which mimics the societal culture, with specific hierarchical lines of authority respected and followed by employees (Hofstede, 1984). Low power distance organizations have flexibility and collaborative decision making is practiced (Hofstede, 1984).

For example, based on a study conducted by Bamgboje-Ayodele and Ellis (2015) using Hofstede's dimensions, Ghana scored a high of 80 in power distance, which means that decision-making in Ghanaian organization would most likely be top down. The results of this study reflect this top down management approach because the participants gave high rankings to three strategies that would traditionally be carried out by senior level administrators. This confirms the high power distance culture in Ghanaian universities and also confirms that the status quo is preferred. The other seven strategies that came out of this study could be implemented by middle or first-line managers and do not necessarily confirm or disregard power distance or status quo bias.

Resistance to change is the final link in the conceptual framework. Resistance is an attitude shown by individuals and groups of people when there is fear of the unknown and uncertainty. Employees are comfortable with their organization's culture and processes when they feel that everything is working as expected. When the status quo, which is the known culture changes, the workforce could resist the change due to perceived threat to their work (Beşliu, 2018). In the context of this study, this means that faculty and staff who may not be sure of how e-learning could impact their work, could resist the change when e-learning is introduced. Beşliu (2018) also mentioned that employees could resist change if they anticipate that management do not have the capacity to affect the change being proposed.

This study did not extend to the implementation of the strategies developed and so did not capture the level of resistance which could occur when e-learning is introduced in the universities. The literature on resistance to change was added to the conceptual framework to indicate what could happen when leaders deviate from the status quo of traditional education and introduce e-learning. The level of resistance could only be measured when the strategies are implemented and monitored in another study. Though implementing the strategies was not part of this study and therefore did not capture the level of resistance that could occur, it was worth noting that resistance to e-learning could be reduced or avoided. Administrators in Ghana's universities could reduce resistance if they incorporate e-learning into their institutions' culture (Ower, 2017), motivate employees (Maslow 1943) and/or introduce the changes in manageable and meaningful phases (Lewin, 1947). The above analysis indicates how the results of this study align

with existing e-learning research and exiting management literature as well as the conceptual framework. The limitations of the study will be discussed next.

Limitations of the Study

The following were the limitations in the study: Attrition and Response Rate, Time Frame for Collecting Data and Participants' Opinions. Twenty-four potential participants were contacted for the data collection but only 11 participated in the three Delphi rounds. Though multiple reminders were sent, 14 participants stopped responding after a while. The 11 participants who remained in the study were contacted multiple times in order to maintain their interest in the study. Though the sample size seemed a bit small, Skulmosky et al. (2007) recommended that 10 to 14 member-panel for a Delphi study could produce the right results if the panel is a homogeneous group. For this study, the panel was considered homogeneous because all the participants were university administrators and professors who were policy makers and/or lecturers in different universities. The 11-member panel met the criteria suggested by Skulmosky et al. (2007) but a higher participation level would have been preferred.

The time frame for collecting the data was another limitation. With this study being conducted as part of a Ph.D. program, the entire process was aligned to the time within which the program was to be completed. Additionally, the topic and scope of the study had to be limited to strategies for managing e-learning because the study was conducted within the school of management at Walden university. E-learning issues such as content development, choosing the right learning management system and identifying the courses to be offered online could not be covered in the study, though I had interest in

those topics. The final limitation was participants' opinions. Delphi panel members were volunteers who were expected to provide accurate information regarding the topic of the study. There was no way of verifying the information they provided.

In addition to the limitations discussed above, the lack of input from relevant government agencies was also a drawback. The ministry of education in Ghana was contacted because the original plan was to have participants from the ministry on the Delphi panel. The views of participants from the ministry would have been important because the government has policies which guide higher education in Ghana. There was no response to the emails sent or phone calls made to the ministry, and so the study proceeded without any government official on the panel. It is not known if the outcome of the study would have been different if representatives from the ministry had joined the panel.

Recommendations

After three Delphi rounds in this study, 10 strategies were developed and ranked in order of importance by the panelists. A follow-up evaluation study is recommended in which, the researcher conducting the study could evaluate universities that implemented the e-learning strategies proposed in this study to determine if they were useful. Any challenges identified and resolved in the evaluation could serve as lessons for other institutional leaders who may also like to apply the 10 strategies.

E-learning is new to both private and public universities in Ghana, but this study was conducted purposely for public universities. A follow-up Delphi study could be conducted either by combining private and public university officials on the panel, or

with a panel of private university officials only. Researchers conducting this study would determine if the e-learning implementation strategies proposed by the panelist from public universities would be the same as those proposed by administrators in private universities. Furthermore, a qualitative case study research could also be conducted, in which a researcher would study both private and public universities implementing the strategies proposed in this study, to determine if the private institutions experience the same outcome as the public institutions.

This study was limited to the management of e-learning as mentioned in the limitations section. With e-learning being new in Ghana, it would be appropriate to expand the study to determine best practices in the areas of e-learning content development and options for choosing appropriate learning management systems. A qualitative case study approach could be used for this recommended study. Studying these vital aspects of e-learning in institutions already practicing them, especially in other African countries, could yield an outcome which institutions in Ghana may use as a 'getting started tool kit' for e-learning development. Government agencies which oversee tertiary education in Ghana could also benefit from this follow-up study because the government has policies governing both private and public universities, and knowing the best practice could improve the policies they develop for the institutions they oversee. Future researchers engaging in all the recommended studies above, could endeavor to include participants from the ministry of education and other relevant government agencies in order to solicit the government's position on e-learning in Ghana. Opinions

of government representatives could be important in the discussion because of the government policies which impact tertiary institutions.

The outcome of this study was based on three Delphi rounds in which participants were presented with existing e-learning solutions in the first round, and asked to suggest strategies for implementing them. Through the three-round Delphi process, participants arrived at 10 strategies ranked in order of importance. This implies that the final results were directly based on the information presented to them in the first round. It is being recommended that another Delphi study could be conducted, in which participants could brainstorm in the first round to identify current e-learning issues on their own. E-learning issues identified in this brainstorming round could become the bases of subsequent Delphi rounds in that study. This approach will introduce more current e-learning issues into the discussions, compel participants to fully take ownership of the outcome and be more committed to implementation.

Furthermore 11 people participated in this study and this is at the lower end of the 10 to 15 member-panel recommended by Skulmosky et al. (2007) for a Delphi study. It is not clear if a larger sample size could have produced a different outcome. A follow-up Delphi study with a larger sample size is being recommended. This larger sample size could include IT personnel and students from the universities who could provide different perspectives to the discussion. In this study, the participants were university professors and administrators from different universities. With IT personnel playing an important role in e-learning and students being at the receiving end of any e-learning initiatives,

soliciting their views in a follow-up study on the topic, could results in a broader, more inclusive results.

Other follow-up Delphi studies on the same topic, targeting individual universities could also be conducted to differ from this study which attracted a combination of participants from different universities. By focusing on individual universities, the panel could review the issues and processes in their own institutions and develop specific strategies to address those issues. Though this study produced e-learning implementation strategies which could be used by all public universities, the strategies were quite general and did not apply to any specific institution. Studying the same topic in individual institutions using the same Delphi approach, could yield customized results for each institution because participants would formulate their responses specifically to address issues that are unique to their institutions. The result will be customized and participants may take greater ownership of the outcome.

The quality of e-learning should be comparable to, or better than traditional classroom education in any given educational environment. Before implementing the e-learning strategies developed in this study, leaders in Ghana's public universities should examine any e-learning policies and standards set by their accreditation bodies, in order to ensure that best practices are followed. Doing so could give credibility to their e-learning courses and/or programs.

Implications

The purpose of this study was to gain consensus from a panel of university administrators and professors regarding desirable and feasible strategies for

implementing existing e-learning solutions and create an opportunity for more admissions into Ghana's public universities. Participants identified 10 strategies to address the research problem. The study was important because it has social change and methodological/empirical implications, as well as implications for professional practice.

Implications for Social Change

Many people in Ghana see higher education as an opportunity for a better future (Asare, Nicholson & Stein, 2017). This idea is usually emphasized by parents, other relatives and society in general (Asare et al., 2017). Different groups or categories of students have diverse reasons why they would like to succeed in higher education. For those from low income families the goal is to gain higher education in order to have the chances of better jobs and change their own future and the future of their families (Asare et al., 2017; Morley & Lussier, 2009; Swain, & Hammond, 2011). Students from high income families are also inclined to have higher education, have good jobs in the future and maintain the standard of living they have enjoyed from their families (Morley & Lussier, 2009; Swain & Hammond, 2011). These expectations show that higher education is very important to many youth and young adults in Ghana.

However, public universities that are the main source of university education for most potential students are unable to accommodate the high demand. With inadequate physical capacity to accommodate all qualified potential students (Yusif, & Ofori-Abebrese, 2017), public universities need alternatives admission options to provide opportunities for the increased number of applicants seeking higher education. E-learning has been identified as a valid alternative (Ndzibah & Ofori, 2017) but public

universities have not been able to implement existing solutions. With the e-learning implementation strategies developed in this study, universities could potentially introduce e-learning and provide more admission to thousands of individuals seeking opportunities through higher education.

Families in Ghana believe that higher education is the key to success and 77% of them have high expectations of their children and relatives in universities (Asare et al., 2017). Family members support their children and other relatives through higher education with the hope that the students would graduate, have good jobs and come back to take care of those who supported them (Asare et al., 2017). In the study conducted by Asare et al. (2017), university students who were interviewed said that parents and other family members explicitly communicated this expectation to them. Ghana has a collective culture, based on Hofstede's (1984) cultural dimension of Individualism vs. Collectivism. Collective cultures tend to place emphasis on the welfare of the extended family and the welfare of society (Hofstede, 1984). Families in Ghana become highly disappointed when the children and relatives they were pooling together to support, do not gain admission into university. Unfortunately, this disappointment happens quite often because public universities do not have the physical capacity to provide admission to all applicants and so thousands of potential students are turned down admission each year (Yusif, & Ofori-Abebrese, 2017). E-learning does not need added physical space on university campuses. If the e-learning implementation strategies developed in this study could help speed up the introduction of e-learning in Ghana's universities, more admission opportunities would be available. If more university admissions and

graduation could lead to higher paying jobs for graduates, then the expectations of the families could be fulfilled.

Furthermore, societies are made up of families. If higher education brings better jobs and better lives to university graduates and their families, society benefits. As Ganiee, (2014) mentioned, education brings about changes in behavior and enables individuals to effectively participate and contribute positively to society. More people gaining admission into universities and participating in the labor force could also help the government to save on social cost (Asamoah, 2017; Watts, 2001). Ampofo et al. (2015) noted that investment in formal education is not a waste because the larger society gets the spill-over benefits. Wilson and Somhlaba (2017) also noted that education is a tool which could bridge the inequality gap in society. If the e-learning strategies developed in this study aid universities to expand the admission capacity and provide admission to more students who eventually graduate to become economically independent, the individual, their families, and the society would have benefited.

Methodological and Empirical Implications

Three Delphi rounds were used in this study to solicit the views of participants regarding the desirable and feasible e-learning implementation strategies for Ghana's universities. The modified Delphi approach used for the study has been used in many studies over the years. The combination of participants selected for this study, the data collection, and the type of data analysis done were consistent with the process involved in this type of Delphi study. For example, the participants had to meet specific criteria set out for the study. They were administrators and professors working in public universities

who had held their positions for at least two years and currently involved in e-learning decisions in their institutions. Those who were not currently involved in e-learning decisions but would be involved in the future, were also included on the Delphi panel. Though the processes in this study were similar to other Delphi studies, the empirical outcome was different. The 10 desirable and feasible strategies identified by the panelists could become a part of e-learning policy in Ghana's public universities. The study has potentially contributed to the process of introducing and managing online learning in those institutions. The researcher-developed instruments used in this study also led to the study's results. Those instruments have become a part of existing literature and other researchers embarking on a similar study who find the instruments relevant, could use them in the original form, or modify them slightly to meet their own research goals.

Furthermore, the three concepts in the conceptual framework: status quo bias, culture and resistance to change, have been used many times by different researchers in the academia but have not been combined in a framework to specifically examine e-learning implementation challenges in Ghana's public universities. Leaders usually prefer the status quo when making decisions because they may be used to existing processes and may not want to take risks with the unknown (Geng, 2016). The status quo is also maintained if leaders want to work within the existing culture and they become reluctant to introduce any change which could cause disruption of what the workers are comfortable with (Geng, 2016). Deviating from the status quo and from the culture could result in resistance to change because employees and other stakeholders could be worried about the impact of the changes being introduced. In the context of this study, this

implies that stakeholders in Ghana's public universities are used to the traditional form of education, the status quo. Introducing full e-learning could result in some level of resistance because some of the stakeholders may be uncertain about how the culture in the institutions would be affected and how that change could impact their work routines. Leaders introducing e-learning should have strategies to address any potential resistance. By combining these three concepts to analyze e-learning strategies in Ghana's public universities, the outcome has added another practical approach to investigating e-learning implementation issues in Ghana's public universities.

Implications for Professional Practice

The e-learning solutions presented to participants in the first round of this study were real solutions which other researchers had already confirmed. Using those solutions as the base of the two other rounds led to realistic, practical e-learning strategies which the panel members and other leaders in Ghana's public universities could use to implement e-learning in their institutions. Information presented in this study confirms that officials in Ghana's universities were not fully prepared to start full e-learning in their institutions. This challenge is even more prevalent in the 'COVID–19' pandemic environment, in which many institutions around the world have resorted to online delivery. Using the top five desirable and feasible strategies developed in this study, university administrators in Ghana could assess the needs of their institutions to determine what is required for e-learning to start, set goals based on the needs assessed, involve top management in planning for e-learning initiatives, assess the actual IT infrastructure needed and then determine options for financing. Once financing options

are determined and obtained, e-learning activities could start. These practical strategies which have emerged from this study could be implemented immediately in order to speed up e-learning initiatives in Ghana's public universities.

Conclusion

In the 2018/2019 academic year, administrators at the University of Ghana admitted 28,149 students out of 43, 215 applicants. This represented a 65% admission rate (GhanaWeb, 2018). Officials at the KNUST, which is another premier university in Ghana, admitted 22,011 students out of the 43, 877 qualified applicants in 2019/2020 academic year, representing about 50% admission rate (GhanaWeb, 20 19). Other public universities in Ghana were no different, and this low admission rate was not new. For the 2012/2013 academic year, the National Council for Tertiary Education reported that 111,140 high school students qualified for university entry but only 66,589 of them gained admission. These low admission numbers into mainstream public universities are mainly due to the lack of capacity on university campuses to accommodate the increased demand for higher education (Gyimah-Brempong**,** 2017). Students who do not gain admission into public universities go to private universities if their families can afford to pay the higher tuition. Those who cannot afford the higher private university tuition either wait and try again for admission into public universities the following year, or sign up for other options such as evening and weekend classes offered by the universities. There are others who also, simply give up. E-learning has been proposed as the best way of increasing admissions in these public universities, but significant progress has not been made for implementation to occur (Ndzibah & Ofori, 2017).

In this study, administrators and professors in Ghana's public universities have identified strategies which are desirable and feasible for managing e-learning implementation. Of the 10 strategies identified, the top five most important were: assess overall needs of a university before e-learning is implemented; set goals for implementing e-learning; involve top management in developing and implementing e-learning; assess specific IT needs in order to implement e-learning and assess actual financing options for e-learning. By applying these strategies, university administrators in Ghana could implement e-learning in their institutions. Introducing and managing e-learning efficiently and effectively will not only help to expand admission opportunities for students, but will also modernize Ghana's education system and serve students during uncertain times such as what is occurring now with COVID -19. Alternative means of learning other than face-to-face are needed by educational institutions to connect with students. The strategies developed in this study could help Ghana's public university administrators to achieve this goal.

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Appendix A: Questionnaire for Round 1

Please indicate: Gender _____Position _____ How long in this Position _____

A study of the literature has indicated that researchers have suggested solutions which could help administrators in Ghana's universities implement e-learning. However, these solutions have not been implemented so e-learning is not available to many students. Ten of the solutions are listed below. If there are other solutions not listed, please add them to the list.

For each of the solutions listed, please indicate at least one strategy which could be used to implement it in your institution.

1. Solution 1: Develop e-learning policies to guide e-learning initiatives

   What strategy(ies) could be used to implement this e-learning solution?

2. Solution 2: Create e-learning budget to finance e-learning initiatives

   What strategy(ies) could be used to implement this e-learning solution?

3. Address stakeholders' concerns regarding e-learning

   What strategy(ies) could be used to implement this e-learning solution?

4. Train/motivate faculty and staff to engage in the e-learning discussion

   What strategy(ies) could be used to implement this e-learning solution?

5. Create e-learning action plans in each university and designate someone to be in charge of implementation.

   What strategy(ies) could be used to implement this e-learning solution?

6. Develop a comprehensive strategic plan which includes strategies for e-learning

What strategy(ies) could be used to implement this e-learning solution?

7. Prioritize the development of e-learning in your institution.

   What strategy(ies) could be used to implement this e-learning solution?

8. Provide resources including IT infrastructure to support e-learning initiatives.

   What strategy(ies) could be used to implement this e-learning solution?

9. Run workshops and training programs to educate stakeholders about e-learning before introducing online courses.

   What strategy(ies) could be used to implement this e-learning solution?

10. Conduct your own institutional research to determine how to implement e-learning.

    What strategy(ies) could be used to implement this e-learning solution?

Appendix B: Questionnaire for Round 2

Below are the overall strategy categories that emerged from your responses in Round 1

- Assess needs regarding implementation, IT and funding
- Set goals and find ways to implement them
- Involve top management and stakeholders
- Determine and provide needed resources
- Provide training

These categories have been used to develop the following questions for Round 2. There are two sections in the questionnaire as indicated below.

Section A
On a scale of 1-5 with **1 being not desirable and 5 being very desirable,** please rate the following e-learning implementation strategies which emerged from the first round.

Please note: In this study, a strategy is defined as **desirable** if:

- it is likely to help university administrators to implement e-learning and provide an avenue for more applicants to gain admission.

How desirable is it to assess overall needs of a university before e-learning is implemented?

1 2 3 4 5

How desirable is it to assess specific IT needs in order to implement e-learning?

1 2 3 4 5

How desirable is it to assess actual financing options for e-learning before implementation?

1 2 3 4 5

How desirable is it to set goals for implementing e-learning?

1 2 3 4 5

How desirable is it to find different options/strategies for implementing e-learning goals?

1 2 3 4 5

How desirable is it to assign responsibilities to specific personnel to oversee the implementing of e-learning goals?

1 2 3 4 5

How desirable is it to involve top management in developing and implementing e-learning strategies?

1 2 3 4 5

How desirable is it to involve other stakeholders besides top management in developing and implementing e-learning strategies?

1 2 3 4 5

How desirable is it to provide needed resources for e-learning?

1 2 3 4 5

How desirable is it to provide e-learning training to relevant stakeholders?

1 2 3 4 5

Section B

On a scale of 1-5 with **1 being not feasible** and **5 being very feasible** please rate the following e-learning implementation strategies which emerged from the first round.

Please note: In this study, a strategy is defined as **feasible** if:

- it has the potential to promote e-learning in a university
- the university has the ability/resources to implement it
- it fits the culture of the university.

How feasible is it to assess overall needs of a university in order to implement e-learning?

1 2 3 4 5

How feasible is it to assess IT needs in order to implement e-learning?

1 2 3 4 5

How feasible is it to assess funding needs in order to implement e-learning?

1 2 3 4 5

How feasible is it to set goals for implementing e-learning?

1 2 3 4 5

How feasible is it to determine ways for implementing e-learning goals?

1 2 3 4 5

How feasible is it to assign responsibility to specific personnel to oversee the implementing of e-learning goals?

1 2 3 4 5

How feasible is it to involve top management in developing and implementing e-learning strategies?

1 2 3 4 5

How feasible is it to involve stakeholders in developing and implementing e-learning strategies?

1 2 3 4 5

How feasible is it to provide needed resources for e-learning?

1 2 3 4 5

How feasible is it to provide e-learning training to relevant stakeholders?

1 2 3 4 5

Appendix C: Questionnaire for Round 3

For this final round of the data collection, you are presented with the strategies from Round 2, which you rated as both desirable and feasible.

Please rank each of the strategies from most to least important, with 1 being most important to 10 being least important.

_____Assess overall needs of a university before e-learning is implemented?

_____Assess specific IT needs in order to implement e-learning?

_____Assess actual financing options for e-learning, before implementation?

_____Set goals for implementing e-learning?

_____Find different options/strategies for implementing e-learning goals?

_____ Assign responsibilities to specific personnel or committee to oversee the implementation of e-learning goals?

_____ Involve top management in developing and implementing e-learning strategies?

_____Involve other stakeholders besides top management in developing and implementing e-learning strategies?

_____Provide needed resources for e-learning?

_____Provide e-learning training to relevant stakeholders?

_____Other (please explain)

Appendix D: Overall Results from Round 3 and Mean Scores

Table 6B
Ranking of Ten Strategies from Round 3

Strategy	Ranking	Mean Score of Strategy
Assess overall needs of a university before e-learning is implemented.	1	1.6
Set goals for implementing e-learning.	2	3.6
Involve top management in developing and implementing e-learning strategies	3	3.8
Assess specific IT needs in order to implement e-learning.	4	4.5
Assess actual financing options for e-learning, before implementation.	5	4.9
Find different options/strategies for implementing e-learning goals.	6	6
Involve other stakeholders besides top management in developing and implementing e-learning strategies.	7	6.4
Assign responsibilities to specific personnel or committee to oversee the implementation of e-learning goals .	8	6.6
Provide needed resources for e-learning	9	8
Provide e-learning training to relevant stakeholders.	10	9

Appendix E: Cronbach's Alpha for Desirability of Strategies

Likert Statements Ratings for Desirability of Strategies

Q1 score	4	5	4	5	4	5	5	5	3	4	4	**0.454545**
Q2 score	5	5	5	5	4	5	4	5	4	4	5	**0.254545**
Q3 score	5	5	5	5	4	4	4	5	3	5	2	**1.018182**
Q4 score	5	5	4	5	4	5	5	5	4	4	3	**0.472727**
Q5 score	4	5	4	5	4	4	4	5	2	4	3	**0.8**
Q6 score	4	5	5	4	4	5	4	5	5	5	4	**0.272727**
Q7 score	5	5	4	3	5	5	4	5	4	5	4	**0.472727**
Q8 score	5	4	4	5	8	5	4	5	2	5	5	**2.018**
Q9 score	4	5	5	5	5	5	4	5	2	5	4	**0.872727**
Q10 score	4	5	5	5	5	5	5	5	4	4	4	**0.254545**
Total	45	49	45	47	47	48	43	50	33	45	38	**25.27272727**

$$\alpha = \left(\frac{k}{k-1}\right)\left(1 - \frac{\sum_{i=1}^{k} \sigma_{y_i}^2}{\sigma_x^2}\right)$$

...where: k refers to the number of scale items

$\sigma_{y_i}^2$ refers to the variance associated with item i

σ_x^2 refers to the variance associated with the observed total scores

Cronbach's Alpha = 0.808153

Appendix F: Cronbach's Alpha for Feasibility of Strategies

Likert Statements Ratings for Feasibility of Strategies

Q1 score	4	2	2	4	3	5	5	5	2	5	3	**1.654545**
Q2 score	5	3	4	4	4	5	4	5	4	4	3	**0.490909**
Q3 score	4	1	5	4	3	5	4	5	2	3	4	**1.654545**
Q4 score	5	4	4	4	5	4	5	5	4	4	4	**0.254545**
Q5 score	4	1	4	5	4	5	4	5	2	4	4	**1.563636**
Q6 score	4	2	5	5	4	5	4	5	4	5	3	**0.963636**
Q7 score	5	4	4	5	4	5	4	5	5	5	3	**0.472727**
Q8 score	5	1	4	5	4	5	4	5	3	4	4	**1.4**
Q9 score	4	2	2	5	5	5	4	5	2	4	4	**1.563636**
Q10 score	4	3	3	5	5	5	5	5	4	4	4	**0.618182**
Total	44	23	37	46	41	49	43	50	32	42	36	**62.41818182**

$$\alpha = \left(\frac{k}{k-1}\right)\left(1-\frac{\sum_{i=1}^{k}\sigma_{y_i}^2}{\sigma_x^2}\right)$$

...where: k refers to the number of scale items

$\sigma_{y_i}^2$ refers to the variance associated with item i

σ_x^2 refers to the variance associated with the observed total scores

Cronbach's Alpha = 0.921772