ISSN: 2319-6505

Available Online at http://journalijcar.org

International Journal of Current Advanced Research
Vol 5, Issue 11, pp 1407-1417, November 2016

CASE STUDY

International Journal of Current Advanced Research

ISSN: 2319 - 6475

THE IMPACT OF TECHNOLOGY ON U.S. ARMY AVIATION'S ORGANIZATIONAL CULTURE: A QUALITATIVE EXPLORATORY CASE STUDY

Emmanuel Adu-Gyamfi, D.M., Thomas Griffin, D.B.A., Betty Ahmed, D.B.A and Julio DeCarvalho, Ed.D

University of Phoenix

A R T I C L E I N F O

Article History:

Received 16th August, 2016
Received in revised form 21st September, 2016 Accepted 16th October, 2016
Published online 28th November, 2016

Key words:

Leading Change Team; Cultural Change Initiative; Exploratory Case Study; U.S. Army Aviation; Organizational Culture; organizational performance; Technology; Military technology; U.S. Army Aviation's Culture.

A B S T R A C T

The U.S. Army Aviation's budget cuts on science and technology have shifted the organization's focus from modernization to readiness. Due to the shrinking budget and the change in focus of Army Aviation, it was imperative to investigate the influence of technology on Army Aviation's organizational culture to ascertain its impact on Army Aviation's readiness. The specific problem that was investigated in this qualitative exploratory case study was the impact of technology on the implementation and outcome of the Army Aviation's 2009 cultural change initiative. Three different data sources were used for this research, which included: (a) interview data from enlisted personnel, (b) interview data from warrant and commissioned officers, and (c) data from Army Aviation Publications. The main findings and conclusions of the research were as follow: (a) technology plays a significant role in the implementation and outcome of the culture change initiative, (b) Army Aviation leaders are responsible for the implementation of technology, and (c) technology can positively increase motivation, performance and productivity of Army Aviation, (d) the most valuable asset leaders have in Army Aviation are people and not technology.

INTRODUCTION

The economic challenges that the United States has experienced since 2008 has not only affected the business sector but the United States military services have been affected as well. The U.S. Army Aviation invests a tremendous amount of resources in technology with the expectation that it will contribute to the modernization, growth, and performance of the organization. Army Aviation's budget cuts have shifted its focus from modernization to readiness (Melanic 2016: Tan, 2015). Army Aviation's readiness in embedded in its organizational culture because readiness encompasses policies and practices related to organizational management, which includes communication and supervision. The reduction in Army Aviation's budget has compelled it to make drastic changes to its force size, procurement, and modernization agenda. The budget cuts have also caused Army Aviation to evaluate the significance and influence of its technological advancement or modernization program because these programs take the majority of the branch's budget (McLeary, 2014). This study examined the influence of technology on Army Aviation's organizational culture given its new focus on readiness. In 2009, the U.S. Army Aviation Chief initiated an initiative for cultural change in Army Aviation (U.S. Army Aviation LCT, 2016). This cultural change initiative was directed at improving and increasing the proficiency, effectiveness, and performance of the U.S. Army Aviation (U.S. Army Aviation LCT, 2016). A team called the Leading Change Team (LCT) was tasked with pursuing the cultural change initiative. This team is made up of leaders from all levels in the Army Aviation community. Given the budget cuts, which began in 2011, the funds for Army Aviation's modernization projects have been significantly affected.

The U.S. Army Aviation's organizational culture is an integral part of the organization's readiness hence this cultural change initiative could help improve the organization's culture, thereby increasing its readiness. The U.S. Army Aviation's operations and missions are accomplished by using technologies such as drones, helicopters, navigation systems, computer, global positioning systems and so on. Technology is the bedrock of Army Aviation (Army Field Manual 3-04). The aforementioned is the reason why the focus of Army Aviation was on technological advancement and modernization until the budget cuts. Exploring the influence of technology on the 2009 Army Aviation's cultural change initiative provided a greater understanding of the role of technology in the implementation and outcome of the cultural change initiative. The tasks of the LCT are significant in promoting the readiness focus of Army Aviation. Investigating the role technology plays in the cultural change initiative may have some useful insights for the LCT in promoting the new focus on readiness.

Background of the Problem

The United States Army spends about $2.4 billion annually on science and technology (McLeary, 2014). About 25% of the Army's science and technology budget goes to Army

Aviation (Whittle, 2016). Army Aviation is the U.S. Army's largest modernization account, taking about 25% of the Army's procurement budget (Whittle, 2016). The U.S. Army's shrinking budget and the drawdown of troops have adversely affected its science and technology budget (Vergun, 2014). Army Aviation has experienced the largest budget cut in the Army's shrinking budget. The science and technology budget of Army Aviation has been drastically affected by the budget cuts and the drawdown of troops. The primary focus of the Army in the midst of the budget cuts and resource constraints has shifted from modernization to readiness (Tan, 2015).

Organizational culture plays a vital role in the new focus of the Army, which is readiness. The beliefs, common practices, norms, and working environment as well as the cohesiveness of teams within an organization define its culture and contribute to its readiness. In the midst of the Army Aviation budget cuts and the new focus on readiness, it is imperative to investigate the impact of technology on Army Aviation's organizational culture to ascertain possible ways of improving organizational readiness through modernization. The United States Army Aviation is known for its high standards and excellence when it comes to conducting training and wartime missions (Army Aviation, 2016). The agile, swift, and lethal capabilities of Army Aviation in support of the U.S. Army's ground troops is unmatched by any other military aviation (Tan, 2015). Army Aviation has a unique culture that enables it to function effectively and efficiently (Army Aviation, 2016). It is this culture that the Army Aviation Chief seeks to improve with the change initiative. The change initiative was initiated to strengthen and increase the readiness of the U.S. Army Aviation on the battlefield (U.S. Army Aviation LCT, 2016).

The Army Aviation Branch Chief initiated the cultural change initiative in 2009 and appointed the LCT to champion this course (U.S. Army Aviation LCT, 2016). The LCT's vision is to empower U.S. Army Aviation members to facilitate and take ownership of the responsibility for organizational cultural change (U.S. Army Aviation LCT, 2016). The responsibilities of the LCT encompass promoting a cultural change that will produce and supports the best Aviation warfighters for the future (U.S. Army Aviation LCT, 2016). For the cultural change initiative to be successful and effective, it is critical to explore some of the factors that may affect or influence Army Aviation's organizational culture. One of such factors in the aforementioned assertion that was investigated in this study was technology. Technology plays a major role in the daily endeavors of the U.S. Army Aviation (Army Field Manual 3-04: Sauls, 2015). In view of the aforementioned assertion, it is imperative to investigate the role technology may play in the 2009 cultural change initiative. Organizational culture has an effect on organizational performance and employees' motivation towards work (Murugan, 2009; Shane, 2009) because organizational culture elements such as communication and cohesiveness allow workers to perform their jobs effectively. Organizations that strive to improve their organizational culture can harness the full potential of its workforce because organizational culture sets the foundation for successful operations.

The U.S. Army Aviation's cultural change initiative was initiated to increase performance, motivation, and the mission readiness of Army Aviation Units (Army Aviation LCT, 2016). The cultural change initiative enabled Army Aviation to harness the full potential of its workforce to become a dynamic force on the battlefield (Army Aviation LCT, 2016). Any organizations that can improve or change its culture will inevitably have a positive influence on its performance (Al-Bourini, Al-Abdallah, & Abou-Moghli, 2013). Positive change in organizational culture would translate into other aspects of the organization such as communication, coordination, and a conducive working atmosphere that affect performance. Army Aviation's initiative for cultural change may have an influence on its performance. Therefore, it is critical to investigate the role of other performance contributors in Army Aviation such as technology. Investigating the influence of technology on Army Aviation's cultural change initiative might enable the LCT to gain more insight into how technology may influence the overall performance of the cultural change process in Army Aviation. The general problem is that the Army Aviation's budget cuts on science and technology as well as the shift in focus from modernization to readiness may have an influence on its organizational culture. Army Aviation's budget cut on modernizations has called for a judicious use of the science and technology funds. Given the change in focus from modernization to readiness, technological advancement must be directed towards readiness. Army Aviation's organizational culture sets the platform for soldiers' behavior and motivation as well as the overall performance and readiness of the organization (Army Aviation LCT, 2016). Technology is one of the major factors that may influence the organizational culture of Army Aviation, which is why this study investigated the role of technology in the implementation and outcome of the 2009 cultural change initiative. The study purpose is to examine the role of technology in the implementation and outcomes of the 2009 cultural change initiative.

MATERIALS AND METHOD

The qualitative research method was chosen for this study. Qualitative research approaches phenomena from a standpoint or perspective of the subject or insider to provide a further understanding of the phenomena in its natural form (Yin, 2011). The research design used in this study was the case study. A case study allows the researcher to explore the real-life events by examining a phenomenon related to a person, organization or group (Yin, 2009). The purpose of this study was not to test a theory's predictions hence this method was rejected. The descriptive method provides a highly accurate and detail picture of a situation by locating new data and contradicting past data (Neuman, 2006) but the purpose of this study was not to contradict new and past data hence this method was not appropriate for this study.

***Research question**:* A research question forms an essential part of every qualitative research (Cameron, 2011). The research question in this study enabled the researcher to explore the perception of participants on the phenomenon under study. The research question that guided the investigation of the influence of technology on the cultural change initiative and the culture of the U.S. Army Aviation was as follows: what is the impact of technology on the U.S. Army Aviation's organizational cultural?

The research question enabled the researcher to gain an in-depth understanding of the phenomenon under study. The research question guided the selection of interview questions for the study. The interview questions for this study were formulated based on two basic approaches. The first approach was reasoning based on the researcher's experience and knowledge in U.S. Army Aviation and the second approach was the use of literature. The formulation of interview questions was base on ordinary conversational language and specialized vocabulary used by interviewees on daily bases, which were culturally appropriate. The aforementioned ensured that the interview questions were not ambiguous and that interviewees understood the questions. Interview questions were formulated to allow research participants to answer the questions in their own words in order not to restrict them on how to approach or answer the questions.

Two main probing techniques as outlined by Rubin and Rubin (2012) were used in this study. The two main probe techniques included attention probes, and conversational management probes. Attention probes indicated that the interviewer was listening carefully with undivided attention. The conversational management probes helped to regulate the level of detail and depth by clarifying any ambiguity and keeping the interview focused on the topic. Probes enabled the researcher to regulate the extent of detail, the length of answers as well as clarify ambiguous sentences to keep the conversation on the topic. The interview questions were mapped to the main research question.

Conceptual Framework: Shane (2009) and Schein (2004) provided the conceptual framework for technology and organizational culture respectively in this study. There are three distinct levels in organizational culture: (a) espoused belief and values, (b) artifacts and behavior, and (c) underlying assumption (Schein, 2004). Schein's theory served as the conceptual framework for organizational culture in this study. The artifacts and behavior aspect of the theory captured the ceremonies, uniform, and the rank structure of the Army's organizational culture. The belief system of Army Aviation's organizational culture was covered under the underlying assumption level of the theory. The policies, norms, and common practices aspect of Army Aviation's organizational culture were captured by the espoused belief and values level of Schein's theory.

Shane's (2009) concept of technology formed the conceptual framework for technology in this study. Shane (2009) defines technology as "the application of tools, material, processes, and techniques to human activity" (p. 4). Shane's concept of technology is that tools, material, processes, techniques that are applied to human activities to make work easier, efficient and effective are classified as technology. This study investigated the influence of technology on U.S. Army Aviation's 2009 cultural change initiative. Technology is an instrumental tool that organizations can use to improve their performance and gain a competitive advantage (Bansal, 2009). The United States Army Aviation has technology as one of its major contributing factors to its competitive edge over other military aviation organizations (Army Aviation, 2016).

LITERATURE REVIEW

Historical overview of technology*:* The term technology had a different meaning before the 17th century (Olsen, Pedersen, & Hendricks, 2009). Technology as used in the English language and other European languages before the 17th century referred to treatises and Publications describing technical crafts (Olsen *et al*., 2009). Jacob Bigelow, a Harvard professor, is often credited with coining the term technology in his 1829 book entitled Elements of Technology (Olsen *et al*., 2009). Bigelow's new meaning of technology did not immediately change the public opinion of technology and how the term was used until 1865.

The new meaning of technology as proposed by Bigelow (1829), gained the most public recognition when he gave a speech at Massachusetts Institute of Technology (MIT) in 1865 (Segal, 1985). After Bigelow's speech at MIT, most institutions and organizations in the United States and around the world adopted the term technology and its new meaning. Bigelow's coinage of the term technology transformed it from its previous meaning in the 17th century and earlier to its 21st-century meaning. Terms such as technonomy, technoscience, sociotechnical, and many others have all emerge to explain the complexities and diverse views people have about technology. Technology, as viewed from historians and philosophers' perspectives presents an intriguing argument that has been going on for decades. Philosophers of technology are of the viewed that technology is an applied science that can be used to explore a change in the society (Shane, 2009). Historians of technology, on the other hand, believe that technology is not an applied science, but rather an entirely different independent entity (Olsen *et al*., 2009). Whereas historians and philosophers of technology may often have divergent views on technology and its impact on the society, both parties have contributed immensely to the study of technology (Brunett, 2009). Philosophers and historians of technology have been instrumental in shaping the direction and development of technology over the years.

Current Findings on technology*:* The significance of technology in organizations is among the contributing factors leading to the relentless studies that have been conducted on this topic over the years. Researchers build upon previous studies to discover new findings that will improve the use of technology as well as enable leaders to manage organizational culture effectively. This section provides an overview of the current findings on technology. The study of technology has evolved over the years, and technology historians and scholars have monitored technological advancement keenly (Ho-Chang, Chang & Prybutok, 2014). Technology has become a critical tool that institutions and organizations use to achieve their goals, as well as gain a competitive advantage in their industries (Litwin, 2011). Organizations that have technologies that allow them to work efficiently in a timely manner can produce goods or provide services better than their counterparts who do not have those technologies, thereby giving them a competitive advantage on the market. Technology plays a major role in the decision-making processes of organizations and companies in the 21st Century (Yoo, Huang, & Lee, 2012). Organizational leaders have to consider technology in all their decisions if they want to stay competitive in the market because technological advancement can make their organization leaders in their industry. Technology has afforded companies and organizations the opportunity to create and introduce a vast variety of products and services onto the market at a faster pace than before

because it has reduced most of the processes that wasted time and resources (Zhang, & BadenFuller, 2010).

Technology has and continues to change how military and civilian institutions operate and function (Rappert, Moyes, Crowe & Nash, 2012). The use of aviation technologies such as unmanned aerial vehicles and drones by different military aviation branches depicts the salient contribution of technology to the military aviation community. John Watts, a security consultant, suggested that both civilian and military organizations could use tools such as analytical gaming to develop new concepts as well as plan for technological change (Watts, 2013). Most soldiers, just like their civilian counterparts use technology to satisfy their lifestyle needs and leisure (Stetz, 2013). The U.S. Armed forces have more technological savvy service personnel than ever before (Watt, 2013). Soldiers use smartphones, laptops, and other technological gadgets that make their lives comfortable and easier hence; they expect such technology at their workplaces as well.

The U.S. Army leadership acknowledges the necessity of using technology to achieve organizational goals and has thereby revised sections of the U.S. Army's Field Manual 7.0 (Training for full spectrum operations) to comfort to the technological advancement. The Army's Field Manual 7.0 (Training for full spectrum operations) prescribes the technology of gaming as a tool for training soldiers using computerized systems, flying simulators, and other systems (Department of Army, 2009). The use and implementation of technology directly affect the organizational culture of companies (Olsen *et al*., 2009). When technology makes the work of employees' easier, they tend to have a positive attitude at work, and this translates into other aspects of the organization. Yang, Moon, and Rowley (2009) asserted that technology affects organizational relationships and culture as well as employee behavior. The use of technology can tremendously improve performance and motivation of employees (Shane, 2009). The behaviors, motivation, and performance of employees, as well as organizational relationship, can be positively affected when the organization employs technologies that enable work to be done efficiently and promptly. When this happens, employees can accomplish their jobs with fewer frustrations, and they become happier, thereby increasing their motivation and performance. Exploring the influence of technology on organizational culture may enable Army Aviation Unit leaders to gain an in-depth understanding of how to improve the performance and motivation of Army Aviation soldiers.

Organizational Culture

Historical Overview of Organizational Culture; Scholars and researchers in the field of organizational behavior and management did not give much attention to the concept of organizational culture and its influence on organizations until the twentieth century (Al-Bourini, Al-Abdallah, & Abou-Moghli, 2013). The concept of organizational culture gradually gained the attention of management experts and researchers in the late 1970s (Sims, & Sauser, 2013). The concept of organizational culture became significantly recognized in the early 1990s (Deal & Kennedy, 1999). The interest in organizational culture surfaced as attempts to understand the reality of systems, identity, constitution, and group life in organizations increased. The attention gained by organizational culture in the late 1970s and early 1990s came with a similar challenge for scholars and experts in defining the concept. The various attempts made by management scholars and organizational behavior experts to define organizational culture have lead to the development of the concept to its theoretical status (Ouchi & Wilkins, 1985). Smircich's (1983), posited that organizational culture "expresses the values of social ideals and the patterns of beliefs that are shared by organizational members and manifested by symbolic devices such as myths, rituals, stories, legends, and specialized languages" (p. 4). Buono, Bowditch, and Lewis (1985) described organizational culture as a unique characteristic of an organization regarding its shared beliefs and organizational life expectations. Deshpande and Webster (1989) suggested that organizational culture is a pattern of shared beliefs and values that shape the understanding of individuals about organizational functioning and stipulates acceptable behavior in the organization. Smircich (1983), asserted that organizational culture, when viewed as shared key beliefs and values can fulfill the following functions within an organization: (a) serve a sense making guidance and direction for organizational members' behavior (b) promote organizational goals rather that individual goals (c) ensure the stability of the social system; and (d) fosters a sense of identity among organizational members.

Current Findings on organizational culture*:* Organizational leadership and organizational culture are interconnected. Organizational leaders are responsible for creating and setting the boundaries for the culture in their organization (Shahzad, Iqbal, & Gulzar, 2013). Organizational leaders have a direct influence on the culture of the organization (Armenakis & Wigand 2010). Employees look up to their leaders to emulate their norms, values, work ethics, and other attributes that shape and build organizational culture. Hsu, & Lee, (2012) asserted that organizational leaders are the primary shapers and builders of organizational culture. Though the aforementioned is often underestimated in many organizations, there are numerous debates about the position and role of leaders in building organizational culture. These debates examined whether or not leaders and top organizational executives can influence, create, or change the organizational culture (Tziner, & Sharoni, 2014). Notwithstanding the debate on the role of organizational leaders in creating or changing organizational culture, there is empirical evidence to support leaders' role in building and shaping organizational culture (Sims, & Sauser, 2013).

There are numerous literature and studies on how the behaviors of top organizational leaders have a tremendous effect on the organizational culture of an organization (Shahzad, Iqbal, & Gulzar, 2013). Puhakainen and Siponen (2010) are among the scholars who have conducted studies on the influence and role of organizational leaders in creating and maintaining organizational culture. Puhakainen and Siponen (2010) conducted a study, which was aimed at identifying and testing how top organizational leaders influenced their organizational culture in the implementation of effective training modules and programs for information security policy compliance. Puhakainen and Siponen (2010) examined in their research that when the CEO exhibited a lukewarm or passive attitude in promoting and complying with the established information security policies, employees

tend to show the similar attitude towards the training and implementation of the information security policies. When the CEO changed his attitude and by becoming, more actively involved in the implementation of the information security policies, employees also showed similar behavior toward the entire process (Puhakainen and Siponen, 2010). The result of the study reveals that the behavior and attitude of the organization's CEO had a tremendous effect on the attitude of workers towards the training and the entire change process (Puhakainen and Siponen, 2010). Al-Bourini (2013), conducted a study to examine the effect of organizational culture on the total quality management (TQM) in insurance companies located in Jordan. Elements of organizational culture as stipulated by Al-Bourini (2013) in the research included; support, promotion values, meaningful values, freestyle values, and discipline values. The results of the study showed that organizational culture has a significant effect on the total quality management of the companies studied for the research. Given the numerous definitions and stipulated elements of organizational culture by scholars and researchers, Hsu (2012), posited that organizational culture comprises of two significantly dominant perspectives. The first dominant perspective focuses on how organizational culture guides and shape employees' values, behavior, and cognition in the organization. The second dominant perspective concentrates on the relationship between organizational leadership and culture. This perspective suggests that organizational leaders have direct influence in shaping and manipulating organizational culture (Canaan Messarra, & El-Kassar, 2013; Schein, 2004; Muratović, 2013). Organizational culture guides, directs, and shapes organizational members' behavior through shared values and traditions as well as their commitment to the organization (Hsu, 2012). Jones, Jimmieson, and Griffiths (2005) conducted a longitudinal study on employees' perception of how organizational culture affects the organization's readiness to change as well as the success of change in the organization. Jones *et al*. (2005) concluded at the end of the study that employees, who perceived their organization to be dominant in human relations value, were likely to have a higher level of readiness to change as well as hold positive views towards organizational change. The influence of organizational culture on employees' attitude, behavior, and cognitive abilities has been established in various studies (Latham, 2013). Previous research such as Puhakainen and Siponen (2010), Al-Bourini (2013), and Jones *et al*. (2005) were instrumental in the choice of the research method and design for this study. Although the use of other qualitative research designs could have allowed Puhakainen and Siponen (2010) to examine the research problem from a different perspective, the case study design was more appropriate in answering the research question. Al-Bourini (2013) used the case study to examine the effect of organizational culture on the total quality management (TQM) in insurance companies located in Jordan. The case study was appropriate for AlBourini's (2013) study because the objective of the study was met. Jones *et al*. (2005) used the longitudinal study to examine employees' perception of how organizational culture affects the organization's readiness as well as the success of change in the organizations. Jones *et al*. (2005) longitudinal research informed this study.

Technology and Organizational Culture of the U.S. Army Aviation: Technology and Organizational Culture of the U.S. Army Aviation Technology and organizational culture both play vital roles in the management of Army Aviation. Technology and organizational culture have their peculiar influence on the operations and activities of Army Aviation. This section gives an overview of technology and its influence on Army Aviation's culture. The section also covers an overview of U.S. Army's organizational culture and ends with how the influence of technology on Army Aviation's culture fits into the broader context of technology and culture in organizations in general. The U.S. Army Aviation was founded about 100 years ago, working closely with the inventors of the airplane, the Wright Brothers. The Wright Brothers built the first Army Aviation airplane called Army Aeroplane No. 1, on August 2, 1909 (Army Aviation, 2016). U.S. Army Aviation has since then become a pacesetter in the military aviation community.

The contributions of Army Aviation have helped shaped the U.S. Army's battlefield doctrines and tactics (Army Aviation, 2016). The U.S. Army Aviation has evolved over the years in terms of its technological capabilities. The U.S. Army Aviation's technology has significantly improved since its first airplane in 1909 (Army Aviation, 2016). Army Aviation technology has tremendously advanced from Army aircraft No. 1 to jet fighters, helicopters and much more. Reconnaissance satellites, unmanned aerial vehicles, armed drones, and man-portable air-defense systems are some of the latest technological advancements in U.S. Army Aviation (Army Aviation, 2016). Technology in U. S. Army Aviation encompasses both hardware and software that are used to accomplish multiple tasks and missions. The roles of soldiers in Army Aviation have changed over the years because of technological advancements (Army Aviation, 2016). U.S. Army Aviators perform multiple complex missions such as piloting unmanned aerial vehicles to dominate the modern battlefield (Army Aviation, 2016).

Technological advancements and innovation of the U.S. Army Aviation have made it a highly efficient and powerful force in military aviation as well as the civilian aviation community. The transformation of the Army Aviation culture encompassed creating a mindset that promotes a sense of optimism, accomplishment, accountability, and mission readiness (LCT, 2016). The ultimate goal of the cultural change initiative initiated by the Army Aviation Chief was to establish and maintain an agile and combat ready Army Aviation branch that will adequately support the needs of the United States Army (U.S. Army Aviation Center of Excellence-Leading culture change, 2014).

RESEARCH RESULTS

This study covered the examination of the impact of technology on the implementation and outcome of the cultural change initiative. The specific problem under study was that influence of technology on the cultural change initiative was unknown. Three different data sources were used in this study, which included data from Army Aviation Publications, data from interviewing officers, and data from interviewing enlisted personnel. Data from the three different sources were converted into Pdf files and transferred into NVivo 11 for analysis. The summative content analysis was used to examine and analyze the research data. Data triangulation was achieved by using three different data sources for this study. The sample frame for the interview data consisted of

all Army Aviation Units at Fort Benning. The unit of this case study was an Army Aviation Unit at Fort Benning, Georgia. The study sample consisted of soldiers in the Army Aviation Unit at Fort Benning. This study examined the understanding, experience, and perception of 11 soldiers from a U.S. Army Aviation Unit at Fort Benning, Georgia.

The selection of the subject for this case study was based on factors such as logistical constraints, the proximity of participants to the researcher, and easy accessibility to the commander of the Unit. Potential research participants were required to have a minimum of two years working experience in Army Aviation.

Four major themes that emerged from the analysis of gathered data were as follow: (a) the role of leaders in the use of technology and managing organizational culture, (b) the effect of technology on organizational culture, performance, productivity and leadership, (c) implementation and outcome of the cultural change initiative, and (d) factors that affect organizational culture.

Theme 1: ***The role of leaders in the use of technology and managing organizational culture.***

This theme addressed leaders' role in answering the research question. Data from Army Aviation Publications shows that leaders have an important role in the affairs of their organization. Leaders are responsible for their organizations' actions and inactions (ADP 6-22: FM 6-22). Leaders are the lifeblood of the U.S. Army and the make a difference in their everyday endeavors (ADP 6-22). All the research participants were of the view that their leaders have a significant role in influencing the activities of their organization. All the research participants agreed that their leadership has the responsibility and power for creating and changing their unit's organizational culture as well as the implementation of technology.

Theme 2: ***The effect of technology on organizational culture, performance, productivity, and leadership.***

This theme enabled the researcher to address the research question from the perspective of the effect of technology on organizational culture, performance, productivity, and leadership. According to data from Army Aviation Publications, about 85% of the articles and publications supported the assertion that technology affects organizational performance, productivity, and leadership. The remaining 15% could not confirm or deny the effect of technology on organizational culture, performance, productivity, and leadership. The different explanations given by the research participants depict how they perceive technology in their line of work. Research participants understanding of technology was the baseline for their understanding of how technology may influence the culture of their organization and the cultural change initiative.

On the influence of technology on the organizational culture, performance, productivity, and leadership, 82% (9 out of 11) of the research participants believed that technology affects organizational culture, performance, productivity, and leadership. Eighteen percent (2 out of 11) of research participants were of the view that technology does affect some aspects of their organization but not necessarily the organizational culture, performance, productivity, and leadership. The response of research participants on the question of technology's influence on their organization's performance and productivity were as follow: all the participants were of the view that technology has an influence on their organization's performance, culture, and productivity. According to data from Army Aviation Publications, the efficiency, and effectiveness of Army Aviation Units requires the employment of technology. Lack of technology will overburden aviators and their supporting personnel with manually performing several jobs, which will reduce efficiency and waste time (Sauls, 2015). Technology saves Army Aviation Units time and makes jobs easier; hence more work can be done in less time (Sauls, 2015).

Theme 3: ***Implementation and outcome of the 2009 cultural change initiative.***

According to data from Army Aviation Publications, the U.S. Army Aviation Branch Chief instituted the cultural change initiative in 2009 at the U.S. Army Aviation Center of Excellence, Fort Rucker, Alabama (LCT, 2016). The purpose of the cultural change initiative was to set in place systems and processes that would transform the Army Aviation's organizational culture, thereby influencing mission accomplishment (LCT, 2016). A team called the LCT (LCT) was tasked with the implementation of the cultural change initiative (LCT, 2016). The LCT is compromised of volunteer leaders from the Army Aviation community. The volunteer leaders consist of both civilians and soldiers from the Army Aviation community. The LCT has sub-initiative groups that enable it to implement the cultural change initiative (LCT, 2016). One of the prominent sub-initiative groups of the LCT is the Professional Development Initiative group. The vision of the Professional Development Initiative is to provide professional development opportunities the personnel at the U.S. Army Aviation Center of Excellence through seminars, networking forums, and professional development education opportunities (LCT, 2016).

Technology has played a significant role in the work of the LCT. Technology has been at the forefront of the implementation process of the cultural change initiative. Some of the technological systems that have been used by the LCT so far include the LCT website, the employment of low-speed electric vehicles, and the creation of the Aviation Branch new web portal. The outcomes of the LCT include the following: (a) Recycling on post initiative, (b) employment of low-speed electric vehicles, (c) The launch of the Aviation Knowledge Network (AKN), (d) the professional development initiative, (e) tactical automatic landing systems working group initiative, (f) Army learning method 2015 sub-team initiative, and (g) Knowledge management tool created at 2-13th Aviation Regiment (LCT, 2016).

Theme 4: ***Factors that affect organizational culture.***

Organizational culture has been defined and explained from various perspectives but having participants explain their perspective of organizational culture established the baseline for them in this study. Army Aviation's organizational culture is one of a competitive type. The culture of excellence in Army Aviation makes its members strive to develop and better themselves in all their endeavors (Army Aviation, 2016). Sixty-three percent (7 out of 11) of the research participants were of the view that organizational culture compromises of communication and the interaction between groups of people with a common goal. Eighteen percent (2

out of 11) of the research participants were of the view that organizational culture could be expressed in terms of the culture of a family, thus what defines a family's culture can be aligned with that of an organization's culture. One participant expressed organizational culture in terms of the competitiveness of the Army Aviation soldiers. Study participant gave different accounts of their organizational culture from their perspective. Thirty-six percent (4 out of 11) of the participants were of the view that their organizational culture was one of a close family because they knew each other and there was cohesion in the unit. Eighteen percent (2 out of 11) of research participants expressed the culture of their unit as not the best or poor. Eighteen percent (2 out of 11) of the research participants see their unit's culture as a work in progress in terms of cohesiveness. Twenty-seven percent (3 out of 11) of research participants believe their organizational culture is unique or different.

Conclusion and Recommendations

Theme 1: The role of leaders in the use of technology and managing organizational culture.

All the research participants and data from Army Aviation Publications confirmed that leader's control and influence organizational culture and all the endeavors of the organization. All the research participants asserted that leaders create and drive the organizational culture. The U.S. Army exist to serve only one purpose, which is serving the people of the United States by protecting enduring national interests as well as fulfilling the military responsibilities of the nation (ADP 6-22). The Army cannot achieve its goals and objectives without relying on leaders with enduring qualities such as values-based leadership, professional competence, and impeccable character (ADP 6-22). Army leaders are responsible for the actions and inactions of their subordinates and their units (AR 600-20). AR 600-20 stipulates that leaders can delegate power and authority to their subordinates leaders and soldiers to facilitate the performance of a task or mission, but leaders cannot delegate their responsibility. The role of leaders in every organization is critical to the success or failure of that organization (Shane, 2009). The role of Army Aviation leaders is paramount to all the successful mission accomplishment of the branch (Army Aviation, 2016). Small unit leaders like the leaders at the Flight Company, have a significant part to play in the overall mission accomplishment of the Army Aviation Branch.

The dynamic, complex, and unstable environment within which the Army operates calls for adaptive leaders. Leadership development programs are critical to producing adaptive, agile, and innovative leaders who can take bold initiatives in dynamic, complex, and unstable situations to execute the mission in accordance with doctrine, training, and orders (FM 6-22). Commanders have an obligation to create and enforce leadership development programs at their units, which will train and educate subordinates leaders for success (Guadalupe, 2015).

Army Aviation leader development is a continuous, progressive, and deliberate process, which is rooted in the seven Army values. Army Aviation leader development enables junior leaders to transition into matured, committed, and highly competent leaders (Dillon, 2013). Army Aviation's future leaders require greater skills, knowledge, and experience than their predecessors, and this can be achieved if leader development programs are tough, and realistic (Lundy, 2015).

Theme 2: The effect of technology on organizational culture, performance, productivity, and leadership.

Technology has been and continues to be a great asset to Army Aviation (Guadalupe, 2015). Army Aviation has been striving to provide unparallel support to ground troops and warfighters with technological advancement (Richardson, 2015). Richardson (2015) asserted that the wars of the Army have changed over the years, and the enemy has been evolving over the years. Technological advancement at different levels in Army Aviation has allowed it to meet the challenges of the evolving enemy and battlefield (Richardson, 2015). Technology can be used to reduce the time aviators' spend in the memorization of *irrelevant information* (Sauls, 2015). All the research participants believe that technology makes their job easier, and it enables them to save time and be more efficient and effective.

On the issue of whether or not technology affects the organizational culture of Army Aviation, 81% (9 out of 11) participants strongly believe technology affects their organizational culture. The remaining two participants believe technology affects the performance of their jobs but not necessarily their organizational culture. Army Aviation Publications data and all the participants acknowledged the impact technology has on the performance of their jobs and how technological advancement can improve their performance output. Army Aviation Publications data and all the participants agreed that technology could tremendously reduce stress in their organization by allowing them to focus on the performance of their jobs rather than spending their time on performing a manual task such as filing paper records manually. All the research participants agreed that technology is a time saver, and it can change the mood or atmosphere of the organization if it works properly. Richardson (2015) posited that technology makes Army Aviation more effective, and it saves the lives of soldiers on the battlefield. Sauls (2015) asserted that Army Aviation should reconsider its training philosophies and make an effort on figuring out how technology can be used to unburden the most significant processor on the aircraft, which is the brain of the aviator. Sauls (2015) posited that it is time for everyone within the Army Aviation community to embrace the advantages that the advancement of technology offers. Army Aviation leaders have a key role in the use of technology in the operations and other endeavors of their units.

Technology has been at the forefront of the 2009 cultural change initiative. The implementation and outcome of the cultural change initiative have been greatly influenced by technology. The LCT has used the technology of the internet to launch a website for the cultural change initiative to outdoor its mission, goals, objectives, and achievements. The achievements of the Team were mostly accomplished with the aid of technology. The achievements of the Team include the launch of the new Army Aviation Web Portal called the Aviation Knowledge Network (AKN), low-speed electric vehicles, tactical automatic landing system, the design of an interactive multimedia instruction and web delivered materials for Army Aviation soldiers (LCT, 2016). These achievements among many others are the testament to the

significance of technology in the implementation and outcome of the 2009 cultural change initiative.

Theme 3: Implementation and outcome of the culture change initiative.

The outcome of the cultural change initiative has led to several successful changes in the Army Aviation community. Some of the successful changes brought about by the cultural change initiative include but not limited to the knowledge management web portal called the Aviation Knowledge Network (AKN), the professional development initiative group, recycling on Post, low-speed electric vehicle employment, and the tactical automatic landing system. The Aviation Knowledge Network (AKN) is a one-stop web shop for Army Aviation knowledge; it has over 250 links to Army Aviation topics. The AKN is a time saver and stress reliever for soldiers and the Army Aviation community because it offers valuable information in a centralized location. The LCT is using technology to make the life of Army Aviation soldiers easier. The LCT has also set up different web forums that facilitate discussions on a different variety of topics about Army Aviation. The Aviation Warfighter's Forum and the Army Aviation professional forum are two of the forums set up by the LCT.

The Army's budget constraints have affected all its branches, and this has resulted in cutting down on the cost of professional development and training exercises. The Professional development initiative group was formed to provide cost effective profession development opportunities for the Army Aviation community. The recycling on post project is aimed at reviewing the possibility of recycling items other than cardboard and paper. The low-speed electric vehicles project is aimed at supporting efficiency, and effective use alternate fueled vehicles, hybrids, and LSEVSs at Fort Rucker in view of the President's executive order to minimize fossil-fueled vehicles by 2% each year.

Theme 4: Factors that affect organizational culture

The concept of organizational culture creates a common internal awareness among members of an organization, which makes the organization unique from its competitors (Armenakis, Brown & Mehta, 2011). U.S. Army Aviation's organizational culture promotes safety, cohesiveness, attention-to-detail, and teamwork among its highly dedicated professional (Bruce, 2013). The Flight Company, as a small Army Aviation Unit has its peculiar culture that facilitates its daily operations. Whereas some research participants expressed the culture at their units as that of a close family, others expressed it as competitive, and just a few believed it was bad. All the research participants however unanimously agreed on the influence that their leadership had on their organization's culture. Organizational leaders are the creators of organizational culture (Tidd, & Bessant, 2009). Organizational leaders are also responsible for initiating, influencing, directing, as well as guiding the culture of their organizations (Tidd, & Bessant, 2009). Organizational leaders create the culture of their organizations, and similarly, Army Aviation leaders create the culture of their units.

Army Aviation Publications data and all the participants agreed that the elements that make up organizational culture include but not limited to people, leadership, material (computers, equipment, and another medium), communication, pride, friendship and camaraderie, attitude, motivation, leader's philosophy, collaboration, and working environment. Whereas there is no right or wrong answer to what makes up organizational culture, the type of organization under consideration most often determines what factors have the greatest impact on culture. The above-mentioned factors have different levels of influence on the unit's organizational culture based on the task or mission under consideration. Some of the factors such as communication, attitude, and collaboration affect organization culture regardless of prevailing circumstances.

One of the main responsibilities of the LCT in implementing the cultural change initiative is to anchor change into the organizational culture of Army Aviation. One way the LCT is implementing change in Army Aviation is using technology. The culture change initiative is influencing the organizational culture of Army Aviation in different ways such as easy access to Aviation information at any time through AKN. The professional development initiative groups provide professional workshops at a lower cost to meet the stringent budget of the Army.

Theoretical Implications of Findings

This study, like any other research, had strengths and weaknesses. The strengths of this study were as follow: (a) the study captured the influence of technology on Army Aviation's culture and the LCT's work from three different independent perspectives: enlisted personnel, warrant and commissioned officers and Army Aviation Publications; (b) opened ended questions were used in the interviews and participants had no restrictions on how to answer the questions: (c) data from Army Aviation Publications, which include Army regulations and Field Manuals, articles from Army Aviation's professional magazine and the Army technology magazine, Army Aviation website, and the LCT website, broaden the scope of data to capture the understand and perspectives of General officers, Army civilian scientist, flight instructors, and leaders of the LCT program; and (d) the researcher's knowledge in Army Aviation made it easier to understand term Army Aviation specialized vocabulary and jargons used by participants and authors of the articles used in the study.

The weaknesses of the study included the limited time within which the study had to be completed due to the program's academic calendar. The limited time for the study may have hindered the researcher from extensively covering all other variables or factors in the study. The number of research participants was another weakness. The limited number of research participants may have lessened the scope of obtaining a broader perspective on the topic.

Based on the research method, limitations of the study, and data used in this study the conclusions based on the findings of the study are limited in application to the LCT and the Army Aviation Unit used for the study. Though other Army Aviation Units can use the findings and conclusions as a platform to conduct further studies, the finding and conclusions of this study do not necessarily apply to other Army Aviation Units. Some of the practical applications of the findings of this study include: (a) the LCT could use the findings of the research to improve their use of technology in accomplishing their duties, and (b) the leaders of the unit used

in the study could use the findings of this study to efficiently manage their soldiers and their use of technology.

Alternate theoretical frameworks and viable alternate interpretations

The organizational culture-theoretical framework used for this study was based on the effectiveness of the organization with no relation to the external environment. Schein's (2004) theory of organizational culture guided this research. Other organizational culture theories that consider the effectiveness of an organization with no consideration for external factors that could have been used as a viable alternative interpretation of the research findings include Denison (1984) and Gregory *et al*. (2009). Denison (1984) classifies organizational as less participative or more participative. Gregory *et al*. (2009) classifies organizations as balanced or unbalanced and suggested that balance organizations are more successful that unbalanced organizations.

This study could have been approached from the theoretical framework that considers organizational culture in relation to the external environment. Kotter and Heskett (1992), and Burns and Stalker (1961) are among the scholars who perceive organizational culture based on the effectiveness of an organization with in relation to the external factors. Kotter and Heskett (1992), classified organizational culture into adaptive and unadaptive categories. Kotter and Heskett's (1992) classification of organization culture could have been used in as a viable alternative interpretation of the research findings to provide a different perspective to the study. Burns and Stalker (1961) classification of the organization culture namely; mechanistic and organic could have been another viable alternative in the interpretation of the research findings. River's (2014) theoretical framework of technology could have been an appropriate alternative to the Shane's (2009) theoretical framework used in this study. River (2014) states that knowledge plays a significant role in the implementation of technology and that it is technology cannot be effective without the required knowledge.

The theoretical framework used in this study for organizational culture and technology were appropriate for this research because the U.S. Army is an organization built on core values and beliefs hence it was crucial to examine these factors in the study. The use of technology in the U.S. Army is affected by different factors, but the most prevailing ones that were critical in this study was how it contributed to the effectiveness of the organization in performing its missions thereby affecting organizational culture.

Potential Future Uses of Data and Findings of the Study

Data collected in this study could have transferable potential in other research settings even though this study included unique factors. The interpretation or evaluation of the study data by other researchers could be useful in other contexts for additional testing or comparison purposes. The findings of the study could be transferred to other contexts for further testing or comparison. Data from the three independent sources used in this study could be evaluated independently in other settings for further interpretation. Other researchers could conduct further studies into the comparison of the different data sources in relation to leaders' role in the use of technology.

Data collected for this study covered diverse factors that this research could not extensively pursue. The factors covered in this study included but not limited to: (a) the elements that make up an organizational culture, (b) leaders' role in building organizational culture, (c) elements that affect organizational culture, (d) the relationship between organization culture and performance, and (e) how technology affects performance, productivity, and the working environment. Although data collected in this study guided the investigating of the research problem, it could be further examined in other contexts for additional testing and evaluation. Other researchers' interpretation of the research findings and data in other settings could broaden the knowledge base in this field.

Summary

The problem statement of the study was that the impact of technology on the cultural change initiative is unknown. The qualitative research method was employed for this study because it was the research method that allowed the researcher to explore and investigate the perception and in-depth understanding of participants about the research topic. This research study was guided by the research question; what is the impact of technology on the U.S. Army Aviation's organizational culture?

The analysis of the research data was done with NVivo 11. The summative content analysis was used to examine and analyze data from research interviews and Army Publications The analysis of the research with NVivo 11 resulted in five main nodes and 15 subnodes. Four themes emerged from the analysis of data. The four themes included: (a) the role of leaders in the use of technology and managing organizational culture, (b) the effect of technology on organizational

Table 1 Demographic table of research participants

Participants	Rank	Position	Years in Army Aviation
ASE1	Enlisted personnel	Crewchief/mechanic	Over 4 years
ASE2	Enlisted personnel	Crewchief/mechanic	Over 4 years
ASE3	Enlisted personnel	Crewchief/Technical Inspector	Over 3 years
ASE4	Enlisted personnel	Crewchief/mechanic	Over 12 years
ASE5	Enlisted personnel	Crewchief/mechanic	Over 6 years
ASO1	Commissioned Officer	Pilot	Over 5 years
ASO2	Commissioned Officer	Pilot	Over 8 years
ASO3	Warrant Officer	Pilot	Over 9 years
ASO4	Warrant Officer	Pilot	Over 10 years
ASO5	Commissioned Officer	Pilot	Over 12 years
ASO6	Warrant Officer	Pilot	Over 18 years

Note. ASO= Commissioned and warrant officers; ASE= Enlisted personnel

performance, productivity and leadership, (c) implementation and outcome of the cultural change initiative, and (d) factors that affect organizational culture.

The four themes guided the discussions and recommendation of this research. The in-depth insights gained from this study as a result of research participants' experiences and perspectives, and information from Army Publications, contributes to the knowledge and understanding of the impact of technology on U.S. Army Aviation's organizational culture. The insights gained from this study would create awareness about the influence of technology on the 2009 cultural change initiative and the Army Aviation's organizational culture. The recommendations and conclusions made in this study were from the themes that resulted from the study. Contribution to the field of study on the impact of technology on Army Aviation's organizational culture can be enriched with further research into this area.

Reference

Al-Bourini, F., Al-Abdallah, G., & Abou-Moghli, A. (2013). Organizational culture and total quality management (TQM). *International Journal of Business and Management, 8*(24), 95-106. Retrieved from http://search.proquest.com

Armenakis, A., Brown, S., & Mehta, A. (2011). Organizational Culture: Assessment and Transformation. *Journal Of Change Management*, *11*(3), 305-328. doi:10.1080/14697017.2011.568949

Armenakis, A., & Wigand, J. (2010). Stakeholder actions and their impact on the organizational cultures of two tobacco companies. *Business & Society Review (00453609)*, *115*(2), 147-171. doi:10.1111/j.1467-8594.2010.00360.x

Army Doctrine Publication 6-22. (2012). *Army leadership.* Washington, DC: Headquarters, Department of the Army.

Army Regulation 600-20. (2014). *Army Command Policy.* Washington, DC: Headquarters, Department of the Army.

Bansal, S. (2009). *Technology scorecards: aligning IT investments with business performance*, (1st ed.). Hoboken, NJ: Wiley.

Bigelow, J. (1831). *Elements of Technology*, (2nd ed), Boston, Mass.: Hilliard, Gray, Little & Wilkins. Originally published 1829.

Bruce, M. (2013, April - June). Leadership & Leader Development. *Aviation Digest Quarterly, 2(1),* 1-48.

Brunett, J. (2009). Practical use of automated tools in computer system compliance. *Journal of Validation Technology*, *15*(4), 73-76. Retrieved from http://www.ivtnetwork.com

Buono, A. F., Bowditch, J. L., & Lewis, J. W. (1985). When cultures collide: The anatomy of a merger. *Human Relations, 38*(5), 477-500. doi: 10.1177/001872678503800506

Burns, T., & Stalker, G. M. (1961). *The management of innovation*. London: Tavistock Publications. Retrieved from http://trove.nla.gov.au

Cameron, R. (2011). Mixed Methods Research: The Five Ps Framework. *Electronic Journal of Business Research Methods, 9*(2), 96-108. Retrieved from www.ejbrm.com

Canaan Messarra, L., & El-Kassar, A. (2013). Identifying organizational climate affecting learning organization. *Business Studies Journal*, *5*(1), 19-28. Retrieved from http://www.academia.edu

Creswell, John (2009). Research Design; Qualitative and Quantitative and Mixed Methods Approaches. London: Sage.

Denison, D. (1984). Bringing corporate culture to the bottom line. *Organizational Dynamics*, *13*(2), pp. 5–22. Doi:10.1016/0090-2616(84)90015-9

Deshpande, R. & Webster, F. (1989). Organizational culture and marketing: Defining the research agenda. *Journal of Marketing, 53*, 3-15. Retrieved from http://www.jstor.org

Dillon, E. B. (2013, June). Mission command as a leader-centric command philosophy. *Aviation Digest Quarterly*, *2(1), 1-48*.

Field Manual 3-04. (2015). *Army Aviation.* Washington, DC: Headquarters, Department of the Army.

Flick, U. (2009). *An introduction to qualitative research*. Thousand Oaks, CA,Sage

Guadalupe, F. (2015, March). Editor's Notes. *Aviation Digest Quarterly*, *3*(1), 1-52.

Hsu, Y.-C., & Lee, C.-C. (2012). The impact of military technology transfer on economic growth: international evidence. *Applied Economics, 44*(19), 2437-2449. **DOI:**
10.1080/00036846.2011.564152

Ho-Chang, C., Chang, E. K., & Prybutok, V. R. (2014). Information technology capability and firm performance: contradictory findings and their possible causes. *MIS Quarterly, 38*(1), 305-A314. Retrieved from http://web.a.ebscohost.com

Jones, R. A., Jimmieson, N. L.,& Griffiths, A. (2005). The impact of organizational culture and reshaping capabilities on change implementation success: The mediating role of readiness for change. *Journal of Management Studies*, 42(2), 361–386. Doi 10.1111/j.1467-6486.2005.00500.x.

Kotter, J. and Heskett, J. (1992) *Corporate culture and performance*. New York: Free Press.

Latham, J. R. (2013). A Framework for Leading the Transformation to Performance Excellence Part II: CEO Perspectives on Leadership Behaviors, Individual Leader Characteristics, and Organizational Culture. *Quality Management Journal*, *20*(3), 19-40. Retrieved from www.asq.org

Leading Change Team. (2016). The United States Army Aviation Center of Excellence. Retrieved March 10, 2016, from http://www. Rucker.army.mil/leadingchange/

Litwin, A. S. (2011). Technological change at work: The impact of employee involvement on the effectiveness of health information technology. *Industrial & Labor Relations Review, 64*(5), 863-888. doi: 10.1177/001979391106400502

Lundy, D. M. (2015, June). Defragging the hard drive-A change in Army Aviation training philosophy. *Aviation Digest*, *2(1), 1-52*.

Malenic, M. (2016, February 10). Pentagon budget 2017: Army aviation procurement takes cut to fund readiness. Retrieved June 3, 2016, from http://www.janes.com

McLeary, P. (2014, October 14). Army material command chief: Science and tech funding key to technical edge. Retrieved June 3, 2016, from http://www.armytimes.com

Muratović, H. (2013). Building competitive advantage of the company based on changing organizational culture. *Economic Review: Journal Of Economics & Business / Ekonomska Revija: Casopis Za Ekonomiju I Biznis*, *11*(1), 61-76. Retrieved from http://journaldatabase.info

Murugan, M. (2009). A study on organizational culture and its impact on the performance of IT employees in Chennai. *IUP Journal of Management Research, 8(5), 7-16.* Retrieved from http://web.b.ebscohost.com

Neuman, W. L., (2006). *Social research methods:* Qualitative and quantitative approaches, (6th ed.). Boston, MA: Allyn & Bacon.

Olsen, J.K.B., Pedersen, S., & Hendricks, V. (2009). *A companion to the philosophy of technology*, (1st ed.). Hoboken, NJ: Wiley.

Ouchi, W. G., & Wilkins, A. L. (1985). Organizational culture. *Annual Review of Sociology*, *11*, 457–483. doi: 10.1146/annurev.so.11.080185.002325

Puhakainen, P.,& Siponen, M. (2010). Improving employees' compliance through information systems security training: An action research study. *MIS Quarterly*, 34(4), 757–778. Retrieved from http://web.b.ebscohost.com

Rappert, B., Moyes, R., Crowe, A., & Nash, T. (2012). The roles of civil society in the development of standards around new weapons and other technologies of warfare. *International Review of the Red Cross, 94*(886), 765-785. doi:10.1017/S1816383112000744

Richardson, J. (2015, March/April). The Future of Army Aviation. *Army Technology*, *3(2), 1-32*.

Rivera, J. (2014). A biological battlefield: The potential applications of using remote sensing technology and biomarker organisms for identifying, tracking, and differentiating persons of interest within an area of operations. *Journal Of Commercial Biotechnology*, *20*(1), 43-48. doi: 10.5912/jcb643

Rubin, H. J., & Rubin, I. S. (2012). *Qualitative interviewing: The art of hearing data* (3rd ed.). Thousand Oaks, CA: Sage.

Sauls, J. C. (2015, March). Defragging the hard drive-A change in Army Aviation training philosophy. *Aviation Digest*, *3(1), 1-52*.

Schein, E. (2004). Organizational culture and leadership. (3rd ed.) San Francisco, CA: Jossey-Bass.

Segal, H. P. (1985). *Technological Utopianism in American Culture.* Chicago,IL: University of Chicago Press.

Shahzad, F., Iqbal, Z., & Gulzar, M. (2013). Impact of organizational culture on employees job performance: An empirical study of software houses in Pakistan. *Journal of Business Studies Quarterly, 5*(2), 57-64. Retrieved from http://web.b.ebscohost.com

Shane, S. (2009). *Technology strategy for managers and entrepreneurs*, (1st ed.). Upper Saddle River, NJ: Pearson.

Sims, R. R., & Sauser, W. I. (2013). Toward a better understanding of the relationships among received wisdom, groupthink, and organizational ethical culture. *Journal Of Management Policy & Practice*, *14*(4), 75-90. Retrieved from http://web.b.ebscohost.com

Smircich, L. (1983). Concepts of culture and organizational analysis. *Administrative Science Quarterly*, *28*(3), 339–358. Retrieved from http://web.b.ebscohost.com

Stetz, M. C., Folen, R. A., Horn, S. V., Ruseborn, D., & Samuel, K. M. (2013). Technology complementing military psychology programs and services in the Pacific Regional Medical Command. *Psychological Services, 10*(3), 283-288. doi: 10.1007/s10880-011-9246-3

Tan, M. (2015, April 05). Budget cuts are forcing the Army to lose its competitive edge. Retrieved June 3, 2016, from http://www.armytimes.com

Tidd, J. & Bessant, J. (2009). *Managing innovation: Integrating technological, market and organizational change* (4th ed.). Hoboken, NJ: Wiley.

Tziner, A., & Sharoni, G. (2014). Organizational citizenship behavior, organizational justice, job stress, and work-family conflict: Examination of their interrelationships with respondents from a non-Western culture. *Revista De Psicologia Del Trabajo Y De Las Organizaciones*, *30*(1), 35-42. doi: 10.5093/tr2014a5

U.S. Army Aviation. (n.d.). The United States Army. Retrieved March 10, 2016, from http://www.army.mil/aviation

Vergun, D. (2014, May 07). Army aviation soaring high despite plummeting budget. Retrieved June 3, 2016, from http://www.army.mil

Watts, J. (2013). New Tools for War and Peace: Technology Game Changers. *The Futurist, 47*(4), 20-24. Retrieved from http://web.b.ebscohost.com

Whittle, R. (2016, February 09). Army Aviation budget plunges earthward. Retrieved June 3, 2016, from http://www.breakingdefense.com.

Willis, J. W. (2007). Foundations of qualitative research: Interpretive and critical approaches. Thousand Oaks, CA: Sage.

Yang, H, Moon, Y. J., & Rowley, C. (2009). Social influence knowledge worker's adoption of innovative information technology. *The Journal of Computer Information Systems, 50*(1), 25. Retrieved from http://web.b.ebscohost.com.

Yin, R. K. (2009). *Case study research: Design and methods* (4th ed.). Thousand Oaks, CA: Sage.

Yin, R. K. (2011). Qualitative research from start to finish. New York, NY: Guilford Press.

Yoo, S. J., Huang, W.-H., & Lee, D. Y. (2012). The impact of employee's perception of organizational climate on their technology acceptance toward e-learning in South Korea. *An International Journal, 4*(3), 359-378. Retrieved from http://www.kmel-journal.org

Zhang, J., & Baden-Fuller, C. (2010). The Influence of technological knowledge base and organizational structure on technology collaboration. *Journal of Management Studies, 47*(4), 679-704. doi: 10.1111/j.1467-6486.2009.00885.x

****