

DISSERTATION

AN EXAMINATION IN THE ROLE CULTURE PLAYS IN THE ACCEPTANCE OF
E-LEARNING AT A GLOBAL ORGANIZATION

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ABSTRACT

AN EXAMINATION IN THE ROLE CULTURE PLAYS IN THE ACCEPTANCE OF E-LEARNING AT A GLOBAL ORGANIZATION

One of the biggest challenges a global company faces when implementing e-learning is overcoming the cultural differences of its employees. Hofstede's Power Index Scale is a means to study how culture can impact an organization. In high-power-distance cultures, employees look to leaders as authorities and expect an uneven distribution of power. In low-power-distance cultures, employees see themselves as equal to and as powerful as the leaders. The population for this study was members of the Sales and Marketing and Human Resources departments at a global technology company with offices representing different national cultures and power distance levels. The purpose of this study was to determine how national culture, as measured by power distance, affects e-learning acceptance using the technology acceptance model as a framework. This nonexperimental, associational, comparative research study was a way to examine how a global company with employees representing different national cultures and varying levels of power distance accept e-learning based on perceived ease of use, perceived usefulness, behavioral intention, and actual usage of the Technology Acceptance Model (TAM). Answering the two research questions entailed determining whether there were correlations and/or differences between power distance, perceived usefulness, perceived ease of use, behavioral intention, and actual usage.

This study used a survey to test the original TAM across multiple geographic locations. A Spearman's rho statistic and a one-way analysis of variance (ANOVA) were used to answer the

research questions. The findings of the study support TAM as a reliable model but did not find a significant correlation between PDI scale and perceived usefulness, perceived ease of use, or behavioral intention but was weakly correlated to actual usage.

The researcher had access only to Sales and Marketing and key members of Human Resources within a technology company. The participants represented were from developed countries with relatively strong e-learning market shares. Future researchers may want to explore the study in developing countries and may want to explore links between technology companies, self-efficacy, and their impact on e-learning acceptance.

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DEDICATION

I dedicate this dissertation to Jason, Ryan, and Ian. Jason, I will never forget how excited you were when I told you that I was accepted to CSU and starting this journey. You have been my loudest cheerleader. To my sons, Ryan and Ian, I hope this accomplishment shows you that all things are possible. Mountains can be climbed simply by putting one foot in front of the other over and over again.

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CHAPTER 1: INTRODUCTION

Training in the workplace impacts job turnover and job satisfaction levels. Adequately trained employees work harder and stay on the job longer (Dardar et al., 2012). Job-related training supports higher levels of engagement, which, in turn, contribute to a lower turnover rate (Memon et al., 2016). Shuck et al. (2014) found that employees who felt supported in their development efforts and had various learning opportunities showed less intent to leave their organization. An international study by Deloitte indicated employee retention as a top challenge facing businesses today (Hagel et al., 2014).

Providing training may be a viable means to increase employee retention. A popular method for training employees is via e-learning, which typically occurs via computer (Ellis & Kuznia, 2014). E-learning is a compound term comprising *electronic* and *learning* (Oztekin et al., 2010). Users of e-learning include students, school board members, and employees (Oztekin et al., 2010).

E-learning has become a popular means of training and education in the 21st century. In 1960, Programmed Logic for Automated Teaching Operations (PLATO) emerged as the first computer-based training program. Although initially designed for the University of Illinois, PLATO soon found adoption at other schools in the area (Gogos, 2012). The demand for knowledge workers and their need for ongoing education has contributed to the growth of e-learning (Wang & Lin, 2014). Among the 500 top U.S. enterprise organizations, 85% have adopted e-learning as a method to train their employees (Wang & Lin, 2014). In 2018, the Association for Talent Development predicted the use of e-learning would double by 2022.

The customizable nature of e-learning allows leaders to align training with corporate business strategies (Ellis & Kuznia, 2014). Due to the on-demand availability of e-learning, employees can learn at their own pace and time, making it a popular learning method for workforces (Gross, 2012). Organizations often use e-learning to train and onboard new hires, deliver compliance and human resources-related training, such as sexual harassment policies, and teach clients how to use proprietary products. Information technology departments use e-learning to ensure their personnel's skills are up to date.

The consistency provided by e-learning is rare or nonexistent in face-to-face learning. Organizations that adopt strict development quality control procedures, templates, and standards ensure a consistent experience for learners (Sleator, 2010). Learning management systems (LMSs), or e-learning systems, can deliver detailed reports that track who took the training, how much time they spent, how long they stayed on a page, and learners' assessment scores (Ellis & Kuznia, 2014).

According to Ellis and Kuznia (2014), the global nature of many companies has caused a demand for alternative methods for training a workforce. E-learning makes it possible to reach employees, despite their geographical location. Based on the 2017 Staff of the Industry Training Report, U.S.-based companies spent more than \$90 billion on training that year. Statistics Market Research Consulting (2015) indicated the global e-learning market accounted for 165.36 billion in 2014, with the expectation of reaching \$275.1 billion by 2022.

Statement of the Problem

One of the biggest challenges a global company faces when implementing e-learning is overcoming its employees' cultural differences, especially those living in developing countries (Al-Azawei et al., 2016). In most organizations, local culture can influence corporate strategy,

impacting company management (Kustiyadi, 2014). Hofstede's Power Index Scale is a means to study how culture can impact an organization (Suraweera et al., 2014). In high-power-distance cultures, employees look to leaders as authorities and expect an uneven distribution of power. In low-power-distance cultures, employees see themselves as equal to and as powerful as the leaders (Hofstede et al., 2010). This study focused on a global organization with offices representing different national cultures and power distance levels.

The problem facing any global organization trying to implement e-learning is that some cultures may be less likely to accept digital instruction. In high-power-distance cultures, the perception is that learning is better when facilitated by a symbol of authority (Rao, 2011). As a sign of respect, Asian employees, for example, learned as a young student to remember knowledge imparted to them by their instructors; students also learn to ignore anything information not coming specifically from an instructor (Leong et al., 2018). Without a direct symbol of authority, delivering training via e-learning is challenging.

Employees living in countries with different power distance levels vary in their interaction with systems in which the expectation is to demonstrate their level of knowledge. Learners from medium-power-distance countries, such as the United States, typically share what they know at any time; in comparison, learners in high-power-distance countries, such as India, are often conditioned to wait to share their knowledge until they have mastered the material (Leong et al., 2018).

Purpose of the Study

The purpose of this study was to determine how national culture, as measured by power distance, affects e-learning acceptance using the technology acceptance model (TAM) as a framework. The participating company, Company A, is a privately held, global information

technology company with offices in the Americas, Europe, and the Asia Pacific region employing approximately 4,000 people. The company develops software for virtual, physical, and multicloud infrastructures. Company A has used e-learning for technical, product, compliance, and human resources-related training. The company recently switched LMSs. All employees have access to various e-learning courses, some of which are mandatory, such as Harassment Prevention, depending on location. The course materials range from soft skills to technical.

Research Questions

This study was a means to answer two research questions.

1. Are there correlations between power distance, perceived usefulness, perceived ease of use, behavioral intention, and actual usage?
2. Are there differences between three levels of power distance on (a) perceived usefulness, (b) perceived ease of use, (c) behavioral intention, and (d) actual usage?

Definitions

Behavioral intention: An individual's intent to use a system.

E-learning: Learning using technology, typically delivered via computer.

Learning management system/e-learning system: A software application for the administration, documentation, tracking, reporting, and delivery of educational courses or training programs.

Perceived ease of use: The degree to which an individual believes that using a particular system would be free of physical and mental effort.

Perceived usefulness: The degree to which individuals believe that using a particular system would enhance their job performance.

Power distance: The degree of inequality in power between a less powerful individual (I) and a more powerful other (O).

Significance of the Study

In 2015, the global e-learning market exceeded \$100 billion (Bystrova et al., 2015). The e-learning market is growing approximately 39% per year in Asian countries, a growth rate showing this study's significance. Additionally, available research on e-learning acceptance between high- and low-power-distance cultures in the corporate domain is minimal.

Delimitations of the Study

This study's population was employees at a single company where the researcher works; thus, the only data used were from one global organization. The selection of Company A was because it is a privately held, global information technology company employing approximately 4,000 people at offices in the Americas, Europe, and the Asia Pacific regions. The study could potentially have reached participants in 35 different countries with varying power distance levels. To lessen any real or perceived bias, the survey instrument (see Appendix A) did not include any questions that would allow the researcher to identify the participant. Although the researcher hopes the results apply to multiple companies and geographical locations, it is not possible to guarantee transferability to all populations.

Researcher's Perspective

In 2015, the researcher implemented e-learning and a new LMS at a different global organization (Company B). At the time, the company used e-learning in the United States only for new hires as part of the onboarding process. Three courses created and hosted by an outside vendor on an external LMS presented pre-hires (employees who had accepted a job offer but not yet started) with information on company culture, values, and other important information.

Early in the LMS implementation, a leader from Mumbai, India, on assignment in Manila, Philippines, approached the researcher. The leader had heard about the LMS and was concerned about how employees would respond to learning electronically, indicated that the national culture would not support this style of learning. Both India and the Philippines have high power distance scores. Thus, e-learning may not be an appropriate modality in cultures where the power distance level may be a barrier to learning.

CHAPTER 2: LITERATURE REVIEW

A review of the literature showed how culture impacts e-learning adoption. This chapter first presents culture holistically, and then how national and local culture can influence organizational culture. Hofstede's definitions of culture appear, followed by a more specific discussion of power distance. Described are the advantages and disadvantages of e-learning and the TAM. The chapter presents ways of using TAM to measure the acceptance of new technologies in various settings and cultures worldwide, focusing on the impact of power distance on e-learning acceptance.

The Origin of Culture

The word *culture* emerged in relation to agriculture, cultivating things such as barley or bacteria (Jahoda, 2012). In 18th-century France, the term evolved in reference to a refinement of the mind or an individual's tastes. Next, culture shifted as a way to describe someone who was highly educated. Tylor (1920) proclaimed, "Culture, or civilization...is that complex whole which includes knowledge, beliefs, [etc.], and any other capacities acquired by man as a member of society" (p. 1). Hofstede (2001) proposed a definition of culture as "the collective programming of the mind that distinguishes the members of one group or category of people from another" (p. 1). According to anthropological consensus,

Culture consists of patterned ways of thinking, feeling and reacting, acquired and transmitted mainly by symbols, constituting the distinctive achievements of human groups, including their embodiments in artifacts; the essential core of culture consists of traditional ideas and especially their attached values. (Kluckhohn, 1951, as cited in Hofstede, 2001, p. 9)

Culture can define a group of people in the way that a personality can reflect an individual. Hofstede supported the use of culture in describing societies, human categories, or groups, including organizations.

Culture and the Organization

Hofstede (1980) identified organizational culture as the collective mental programming of the people in an environment. Hofstede explained that culture was not the characteristics of an individual, but those of a group of people conditioned by the same education and life experiences. Perceptions of the culture of a group or a country indicate the collective mental program typical across all people referenced, with the shared programming setting this group of people apart from other groups. Within the group, the programming is so ingrained that it is challenging to change (Hofstede, 1980). An example would be a group of people with this traditional way of thinking, all working together at an organization; with this shared understanding, the group would have a noticeable impact on the business's culture.

An organization in its infancy will not develop a culture until its members begin to work through various crises and problems (Schein, 1995). The organization's founder creates this group, shaping and molding the culture by the force of the founder's personality. According to Schein (1995), organizational cultures begin to form when a group works together to face barriers. How the group overcomes obstacles will show whether its approach is valid. If the group can successfully solve the problems, members will consider their system valid. As a result, new members of the organization learn this method as the proper way to work through issues of a similar nature.

Studies on cultural values (e.g., Hofstede, 1980, 2001) continue to show variations between nations. Employees with different cultural backgrounds will react differently in the

work environment, as national values are not easily changed. National values are part of an individual's life experiences. Employees may adopt organizational practices, but national culture influences their feelings and interpretations of the practices (Plijter et al., 2014).

In 1980, Hofstede published the first edition of *Culture's Consequences: Comparing Values, Behaviors, Institutions, and Organizations Across Nations*. The book presented descriptions and classifications of different cultures based on Hofstede's time at IBM, collecting data on employee attitudes and values. After analyzing 116,000 questionnaires from over 40 countries, Hofstede defined four criteria to identify cultural values across various nations: power distance, uncertainty avoidance, individualism, and masculinity. As referenced, power distance is related to the degree to which employees accept an unequal distribution of power. Uncertainty avoidance describes how cultures handle an uncertain future. Individualism refers to how some cultures care for their own interests and not the collective interests of the nation as a whole. Finally, masculinity applies to cultures that emphasize values perceived as more masculine, such as money and performance, instead of feminine values, such as quality of life.

In 1981, Hofstede developed a research partnership with Michael Harris Bond of the Chinese University of Hong Kong (Bond, 1988). Bond launched the Chinese Value Survey project to help counter the bias found in survey instruments designed by Westerners, which the scholar believed reflected only the Western mind and bias. Bond's colleagues constructed the survey as a questionnaire with deliberate Chinese mental bias, subsequently administering the survey worldwide, in both Asian and non-Asian countries. The survey produced four cultural dimensions, but only three correlated with Hofstede's dimensions: power distance, individualism, and masculinity. In response, Hofstede (2001) created a fifth dimension, long-

term orientation, described as “the fostering of virtues oriented towards future rewards, in particular, perseverance and thrift” (p. 359).

To expand the information available about cultures, House et al. (2004) implemented the Global Leadership and Organizational Behavior Effectiveness project. The study focused first on leadership but later branched out to include national and organizational culture. However, Hofstede (2001) criticized the study for using confusing jargon, which is one of the reasons House et al.’s study was not a part of this study. Per Hofstede, results are only meaningful when they come from simple questions about easily understood issues (see Hofstede et al., 2010).

Hofstede’s study and book set the stage for examining cross-cultural differences in organizations (Lo et al., 2017). Although published nearly 40 years ago, Hofstede’s work and definition of culture have endured. Many researchers have cited Hofstede, suggesting the merit of the work. Kirkman et al. (2006) quantified the studies published between 1980 and 2002 in which researchers drew upon Hofstede’s dimensions of power distance. The researchers presented a summary of the 180 studies published in 40 academic journals and as a book series (see Table 1). Kirkman et al. also reflected on how research based on Hofstede’s dimensions have shown consistent results throughout the years. The vast number of journal publications regarding power distance indicates the high relevance and sustainability of Hofstede’s research (Eringa et al., 2015). Power distance is defined as the measure of the power or influence between a boss and a subordinate, with the subordinate considered less powerful than the boss (Hofstede, 2001).

Table 1*Studies That Used Hofstede's Dimensions Between 1980 and 2002*

Journal name	Number of articles
<i>Academy of Management Journal</i>	22
<i>Administrative Science Quarterly</i>	7
<i>Advances in Global Leadership</i>	1
<i>Advances in International Comparative Management</i>	1
<i>British Journal of Social Psychology</i>	2
<i>European Journal of Social Psychology</i>	1
<i>Group and Organization Management</i>	1
<i>Human Relations</i>	2
<i>International Journal of Commerce and Management</i>	2
<i>International Journal of Conflict Management</i>	1
<i>International Journal of Intercultural Relations</i>	5
<i>International Journal of Organizational Analysis</i>	2
<i>International Journal of Psychology</i>	2
<i>International Studies of Management and Organization</i>	1
<i>Journal of Applied Behavioral Science</i>	1
<i>Journal of Applied Psychology</i>	7
<i>Journal of Applied Social Psychology</i>	3
<i>Journal of Cross-Cultural Psychology</i>	16
<i>Journal of Experimental Social Psychology</i>	1
<i>Journal of International Business Studies</i>	41
<i>Journal of International Management</i>	5
<i>Journal of Management</i>	9
<i>Journal of Organizational Behavior</i>	6
<i>Journal of Personality and Social Psychology</i>	11
<i>Journal of Research in Personality</i>	1
<i>Journal of World Business</i>	1
<i>Leadership Quarterly</i>	1
<i>Management International Review</i>	6
<i>Management Science</i>	1
<i>Multinational Business Review</i>	2
<i>Organizational Behavior and Human Decision Processes</i>	4
<i>Personnel Psychology</i>	2
<i>Small Group Research</i>	1
<i>Strategic Management Journal</i>	11
Total	180

Power Distance Cultures

This study centered on power distance, the first of the four dimensions of national culture as indicated by the IBM data. The term *power distance* comes from the Dutch social psychologist Mulder based on 1960s experiments on interpersonal power dynamics. Mulder defined power as “the potential to determine or direct (to a certain extent) the behavior of another person or other persons more so than the other way around” (Hofstede, 2001, p. 83). In turn, power distance is “the degree of inequality in power between a less powerful Individual (I) and a more powerful Other (O), in which I and O belong to the same (loosely or tightly knit) social system” (Hofstede, 2001, p. 83).

More clearly, power distance is the measure of the power or influence between a boss and a subordinate, with the subordinate considered less powerful than the boss (Hofstede, 2001). The superior-subordinate relationship is similar to the parent-child relationships experienced in early childhood. This type of connection is evident in pecking orders witnessed among chickens. Humans are biologically inclined to establish a pecking order as part of human mental programming. In organizations, the unequal distribution of power is expected and essential to creating control and order.

The power distance index measures power distance. Calculation of the power distance index for each of the 50 countries and three regions in the original IBM survey was based on the countries’ mean scores for the following three items:

- Nonmanagerial employees’ perceptions that employees are afraid to disagree with their managers.
- Subordinates’ perceptions that their boss tends to make decisions in an autocratic or persuasive/paternalistic way.

- Subordinates' preference for anything but a consultative style of decision-making in their boss, such as autocratic, a persuasive/paternalistic, or a democratic style (Hofstede, 2001).

The country index uses values ranging from a high power distance of 104 (Malaysia) and a low power distance of 11 (Austria); the overall mean was 57, with a standard deviation of 22.

Steel et al. (2012) stated that high-power-distance cultures are more autocratic, and low-power-distance cultures are more democratic. In high-power-distance cultures, employees rely on their supervisors for direction; there is no expectation for employees to make decisions or for supervisors to help employees feel empowered (Hauff & Richter, 2015). In a high-power-distance culture, the norm is to accept and respect the rules; in a low-power-distance culture, the standard is the ability to choose (Lee & Antonakis, 2014). Figure 1 presents a visual display of power distance levels throughout the world: The darker the green, the larger the power distance.

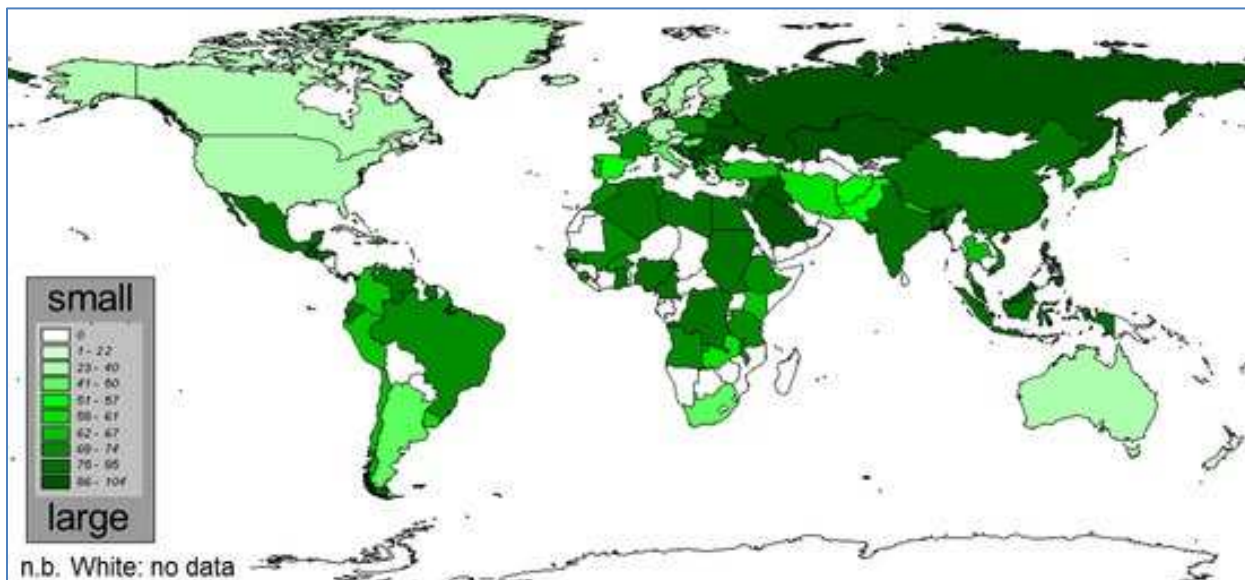


Figure 1: Power Distance World Map

Note. Countries identified by power distance level, as indicated by shades of green. Reprinted from “Dimension Maps: Power Distance,” by G. Hofstede, 1980. Used with permission.

The original IBM questionnaire and a later improved version, Values Survey Module, have been administered throughout the years. The Values Survey Module data helped to increase the number of countries included in the Power Distance Index. Table 2 shows Power Distance Index (PDI) scores as informed by *Cultures and Organizations: Software of the Mind* (Hofstede et al., 2010). This table presents a sample of the countries represented in this study. Countries with multiple languages, such as Belgium and Switzerland, appear based on the largest geographic areas. Power distance scores from 0 to 39 are low, 40 to 69 are medium, and 70 to over 100 are high.

Table 2*Hofstede's Power Distance Index for Countries With Presence in Company A*

Country	PDI	PDI range
Argentina	49	Medium
Australia	38	Low
Austria	11	Low
Belgium (Dutch-speaking)	61	Medium
Belgium (French-speaking)	67	Medium
Canada	39	Low
China	80	High
Czech Republic	57	Medium
Denmark	18	Low
Finland	33	Low
France	68	Medium
Germany	35	Low
India	77	High
Indonesia	78	High
Ireland	28	Low
Israel	13	Low
Italy	50	Medium
Japan	54	Medium
Korea	60	Medium
Malaysia	104	High
Mexico	81	High
Netherlands	38	Low
Norway	31	Low
Poland	68	Medium
Romania	90	High
Russia	93	High
Singapore	74	High
South Africa	49	Medium
Spain	57	Medium
Sweden	31	Low
Taiwan	58	Medium
Switzerland (French speaking)	70	High
Switzerland (German speaking)	26	Low
Turkey	66	Medium
United Arab Emirates	80	High
United Kingdom	35	Medium
United States	40	Medium

Power Distance and e-Learning

One of the biggest challenges global companies face when implementing e-learning is overcoming their employees' cultural differences (Al-Azawei et al., 2016). With so many organizations in the United States and developing countries implementing e-learning, it is essential to understand how culture impacts e-learning adoption and usage. In an educational context, learners from high-power-distance cultures receive significant interaction with and direction from their instructors. With e-learning, direction and interaction are sparse or nonexistent. In low-power-distance cultures, learners expect to complete assignments with little to no direction (Alamri et al., 2014). The difference in how various cultures approach computer-based learning necessitates the study of power distance specific to a company's adoption of e-learning.

One of the benefits of e-learning is that it simplifies reaching a global audience in any country with Internet access. According to a survey by Ellis and Kuznia (2014), e-learning can help employees understand their jobs better and increase their managing ability, efficiency, and job skills. E-learning is a self-paced and flexible means of education and training. Ellis and Kuznia found that employees choose e-learning because it makes their jobs easier and assists them in their work. This survey indicated that employees believe the use of e-learning can lead to higher job satisfaction. When given the option, employees often choose e-learning because they can learn at their desks. Employees appreciate that e-learning is efficient, flexible, and interactive (Gross, 2012).

Organizational leaders may choose e-learning when they need to reach employees around the world. Per Ellis and Kuznia (2014), the use of e-learning helps to reduce corporate training budgets. Learning via computer reduces the environmental impact and cost of business travel.

Employees who need training on a topic no longer have to travel; for this and other reasons, e-learning has shown a positive return on investment.

Even with all of e-learning's advantages, the availability of online training is not a guarantee of its use. Sleator (2010) noted employees must have a level of self-discipline and self-direction to learn effectively via e-learning. Some employees need an opportunity to pose questions to a person of authority as they arise; not having an option for immediate feedback may impact their ability to master the content. Therefore, it is essential to track the use and adoption of e-learning.

Technology Acceptance Model (TAM)

Researchers frequently use TAM to explain a user's intention to use a new system or technology, such as e-learning. TAM is a reliable approach, with Cronbach's alpha values generally exceeding 0.90 (Davis & Venkatash, 2000). Davis (1985) developed TAM to provide a valid theoretical explanation of what motivates individuals to use computer systems. TAM is a means to explain the usage of a wide variety of technologies within user populations. Davis proposed TAM in response to the growing necessity of determining why individuals accept or reject technologies. TAM emerged from Ajzen and Fishbein's (1980) theory of reasoned action (TRA), developed to understand behavior and attitudes. According to TRA, actions are a predictor of behavior intention, and attitude's influence on behavior intercedes through intention (Marangunić & Granić, 2014). Based on TRA, people's prior intentions, along with their beliefs about the given behaviors, determine behavior (Davis, 1985).

TRA comprises three equations. According to the first equation, an individual's overt performance of the behavior determines the intention to perform a behavior. Further, behavior intention determines the individual's intention toward performing the behavior. The social

influence of others significant to the individual also determines attitude (Davis, 1985). Equation 2 indicates that perceived consequences impact the individual's attitude toward performing the behavior. Finally, the third equation suggests that an individual's subjective norm is related to the expectations of specific groups and the motivation to comply with those expectations. Subjective norm, simplified, is an individual's perception about what the most influential people in an individual's life think about the individual performing or not performing a specific behavior. Davis (1985) went on to develop TAM based on the TRA as a reliable way to predict the actual usage of a specific technology.

The Original TAM

In developing the TAM, Davis (1985) tested the survey instrument on 112 employees working at an IBM development laboratory in Toronto, Canada. The TAM was a foundational model that could explain user motivation to use a new computer system. According to the TAM, a potential user's overall attitude toward a computer system is a determinant of usage. Two components determine an individual's attitude toward a system: perceived usefulness and perceived ease of use. According to Davis,

[Perceived usefulness is] the degree to which an individual believes that using a particular system would enhance job performance. ...[Perceived ease of use is] the degree to which an individual believes that using a particular system would be free of physical and mental effort. (p. 82)

Figure 2 shows the original TAM proposed by Davis.

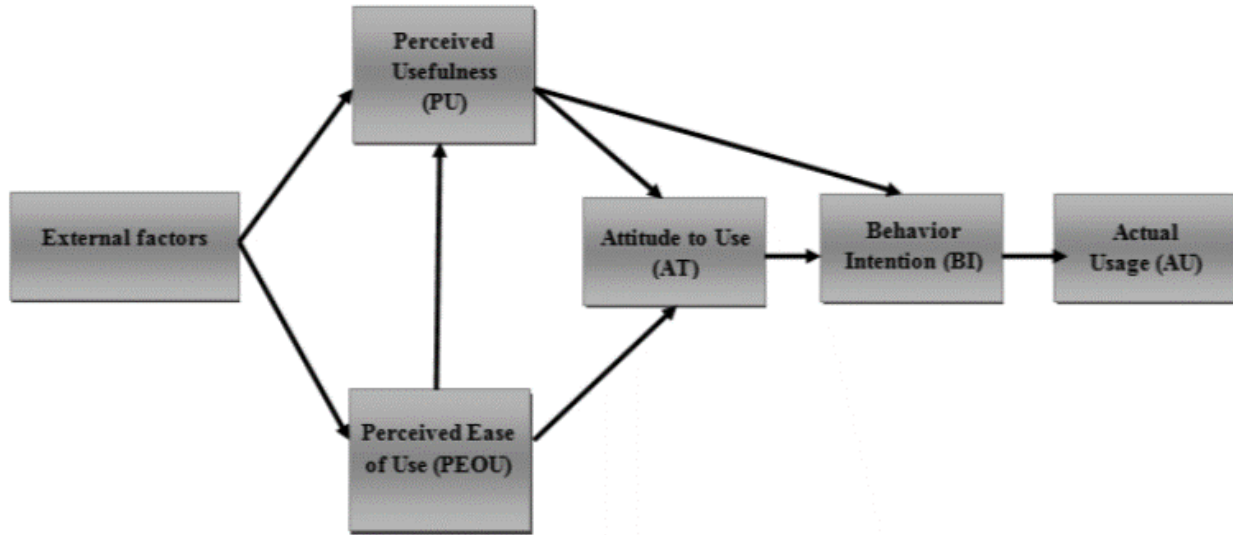


Figure 2: Technology Acceptance Model

Note. From “A Technology Acceptance Model for Empirically Testing New End-User Information Systems: Theory and Results,” by F. Davis, 1985. Used with permission.

The Updated TAM

In 1989, Davis et al. examined TRA and TAM to understand further why users accept or reject technology, and to compare how each of the models predicted acceptance of the technology. The researchers found TAM was superior in explaining acceptance. Davis et al. removed the attitude construct from TAM, asserting that one can have a behavioral intention to use a system without forming an attitude about it. According to the updated TAM, actual usage depends upon behavioral intention, itself influenced by perceived ease of use and perceived usefulness. Figure 3 shows the updated TAM without the attitude construct.

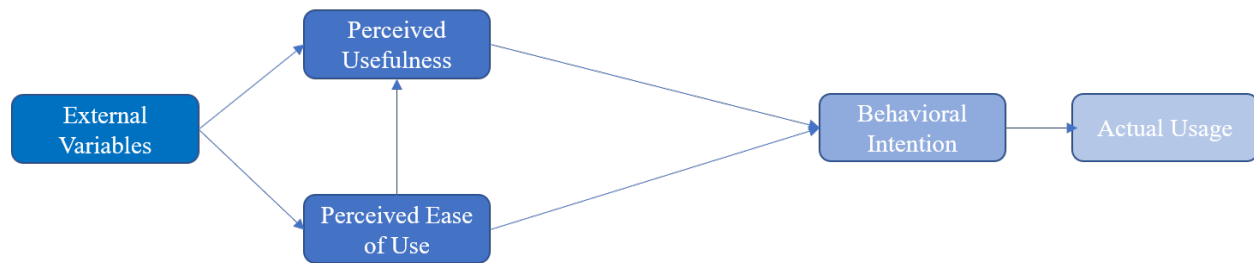


Figure 3: Parsimonious Technology Acceptance Model

Note. Adapted from “A Critical Assessment of Potential Measurement Biases in the Technology Acceptance Model: Three Experiments,” *International Journal of Human-Computer Studies*, 45(1), 1996, by F. D. Davis and V. Venkatash. Copyright 1996 by Elsevier. Used with permission.

TAM Extensions

The revised version of TAM included social influence and cognitive instrumental processes to better explain perceived usefulness and intention (Davis & Venkatash, 2000). In 2008, TAM 3 debuted, adding anchor factors, computer self-efficacy, perceptions of external control, computer anxiety, computer playfulness, perceived enjoyment, and objective usability, all believed to influence perceived ease of use (Venkatash & Bala, 2008).

TAM Uses

Adams et al. (1992) examined TAM in word processing programs, graphics, spreadsheets, e-mail, and v-mail, finding that TAM maintained consistency to validly explain a user’s behavior and acceptance of information systems technology. Davis (1993) replicated the 1985 study by examining the use of e-mail and a text editor among 112 workers, finding that TAM could explain the adoption of both technologies. From 1991 through 2001, researchers conducted TAM studies for many different purposes. Explored were various subjects,

information systems, and tasks under different environments. Study results appeared in leading information systems journals, classified into four major systems: communication, general-purpose, office, and specialized business (Lee et al., 2003). Communication systems represent studies conducted on e-mail, v-mail, fax, dial-up systems, and other systems used for communicating. General-purpose systems included studies conducted on Microsoft Windows, personal computers, microcomputers, workstations, the Internet, and other computer facilities. Office systems referred to studies conducted on word processors and spreadsheet applications. Finally, specialized business systems comprised studies on systems developed for specific uses and company developed systems.

Selim (2003) set out to investigate TAM's effectiveness in determining e-learning acceptance and usage. At the time of the study, research assessing the use of TAM against course websites for teaching and learning was scarce. Selim determined that perceived usefulness and perceived ease of use were good indicators of acceptance and use of a course website or LMS. Researchers continued the studies on e-learning adoption using TAM (Park, 2009).

Liu et al. (2005) integrated TAM with flow theory to study e-learning system users. They compared a concentration measurement with the traditional TAM model across three versions of the same course delivered by text-audio, audio-video, and text-audio-video. The study's purpose was to determine if the presentation style influenced learners' concentration level or flow and their intention to use a system repeatedly. Results indicated that perceived usefulness was a predictor of user intention, with perceived ease of use an indicator of perceived usefulness. Additionally, the findings supported the theory that e-learning presentation types are related to an individual's intention to use technology.

Pituch and Lee (2006) used TAM to study system characteristics. The researchers sought to explain students' use of e-learning systems for two purposes: as a supplement for face-to-face training or as a standalone learning experience. The researchers employed TAM to identify if the effects of external variables, such as system characteristics, affected perceived ease of use and perceived usefulness. Pituch and Lee corroborated that system characteristics influenced students' perceived ease of use, which affected perceived usefulness, with both constructs determinants of e-learning use.

To validate TAM's usefulness, Saadé et al. (2007) established a model to study the acceptance of multimedia learning tools. The study was a continuation of the work of Saadé and Galloway (2005), who developed a Flash-based multimedia learning tool used by undergraduate students to learn the concepts of entity-relationship diagrams. These findings showed that perceived usefulness had a significant impact on student attitude, which Saadé et al. identified as determining the future use of the multimedia learning tool. Subsequently, in a 2013 case study, Al-Adwan et al. showed TAM's ability to identify intent to use e-learning.

Šumak et al. (2011) conducted a meta-analysis of literature specific to e-learning acceptance, finding TAM the most commonly used theory in e-learning acceptance literature between 2002 and 2011. Of the 42 papers they studied, 86% had TAM as a theoretical framework. The literature supported the relationships between TAM's perceived ease of use and perceived usefulness, leaving Šumak et al. to conclude that TAM is an excellent model for investigating e-learning acceptance. Table 3 presents a list of the journals publishing the studied articles.

Table 3*Distribution of e-Learning Acceptance Research Papers*

Journal	Number of articles
<i>Computer & Education</i>	25
<i>Computers in Human Behavior</i>	5
<i>Information & Management</i>	5
<i>International Journal of Human-Computer Studies</i>	2
<i>The Electronic Journal of Information Systems in Developing Countries</i>	1
<i>Knowledge-Based Systems</i>	1
<i>Tsinghua Science & Technology</i>	1
<i>Journal of European Industrial Training</i>	1
Other	1
Total	42

TAM Reliability and Validity

Napitupulu et al. (2017) conducted a study to determine the current-day relevance of the original TAM. They used factor analysis to test the TAM with one modification, with behavioral intention using three items instead of two, evaluating 15 items in total. The Cronbach's alpha for all 15 items was 0.885. The items for perceived ease, perceived usefulness, and behavioral intention generated factor analysis values above 0.5. Based on these data, the constructs for perceived ease of use, perceived usefulness, and behavioral intentions are both reliable and valid, with the total Cronbach's alpha for the 15 items exceeding 0.7 and the factor analysis values for each item exceeding 0.5.

TAM and e-Learning

Selim (2003) set out to investigate TAM's effectiveness in determining e-learning acceptance and usage. Selim learned that perceived usefulness and perceived ease of use were good indicators of acceptance and use of a course website or LMS. In 2005, 2006, and 2007, various researchers studied e-learning adoption through the use of TAM (Park, 2009). To make sense of TAM in the e-learning world, perceived usefulness is the belief that using e-learning

will boost learning potential, and perceived ease of use as the perception that using e-learning will be free of cognitive effort (Park, 2009). Learner satisfaction and acceptance, which is the user's intention to use the e-learning system, is a factor frequently mentioned in e-learning-based studies (Liaw, 2008). Without the acceptance and use of the system, the achievement of e-learning benefits is not possible (Pituch & Lee, 2006).

CHAPTER 3: METHODS

According to Gliner et al. (2011), the purpose of research is to look for relationships among variables. An investigation needs to be well planned and organized using a method that is repeatable and prescriptive (Jones & Kottler, 2005). The goal of this study was to provide a systematic process for investigating similar research problems within a corporate setting to enhance the body of knowledge. After planning and researching, the researcher obtained permission for the study from the Colorado State University Institutional Review Board (IRB; see Appendix B). Next, the researcher sought and obtained permission from Company A to move forward (see Appendices C and D).

Research Approach and Rationale

This nonexperimental, associational, comparative research study examined how a global company accepts e-learning based on perceived ease of use, perceived usefulness, behavioral intention, and actual usage. A nonexperimental approach is appropriate when a researcher has no control over the independent variables and is not using random assignments (Gliner et al., 2011). This study used a survey (see Appendix A) to test the original TAM across multiple geographic locations. The benefit of using the original TAM over the extended version is that it is a simple model with enough power to determine user acceptance (Davis et al., 1989).

The independent variable in this quantitative study was the Power Distance Index scale, with the levels categorized as low, medium, and high; the dependent variables were the participants' acceptance of e-learning based on perceived ease of use, perceived usefulness, behavioral intention, and actual usage. According to Creswell (2003), quantitative research is a highly structured research method using a survey or questionnaire as the data collection

instrument. A quantitative approach is appropriate when a researcher wants to understand a possible relationship between variables, as explored in this study.

Power Distance and TAM

The Power Distance Index was the external independent variable (see Figure 4).

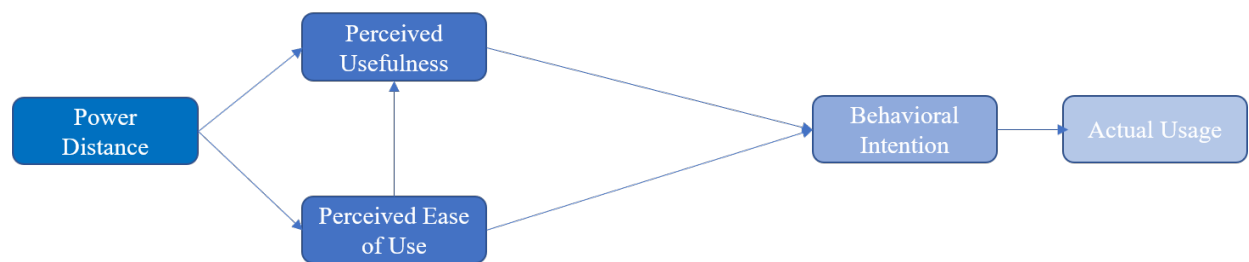


Figure 4: Technology Acceptance Model With Power Distance

Two research questions guided this study:

1. Are there correlations between power distance, perceived usefulness, perceived ease of use, behavioral intention, and actual usage?
2. Are there differences between three levels of power distance on (a) perceived usefulness, (b) perceived ease of use, (c) behavioral intention, and (d) actual usage?

Participants and Sampling

Company A is a privately held, global information technology company employing approximately 4,000 people at offices in the Americas, Europe, and the Asia Pacific regions. The company develops software for virtual, physical, and multicloud infrastructures. Company A has used e-learning for technical, product, compliance, and human resources-related training and had recently switched LMSs. To avoid survey fatigue, the researcher obtained permission to survey the entire Sales and Marketing department and select individuals of Human Resources. The target population was approximately 400 employees who worked within either Sales and Marketing or Human Resources. A consultation with Human Resources was a precursor to

launching the survey, during which time one of the leaders suggested that key people within the department participate, as well. The Director of Sales and Marketing sent a group e-mail to employees in that department, informing them about the survey (see Appendix E). Additionally, Human Resources leaders provided 11 names for the researcher to e-mail with a request to participate (see Appendix F). With no identifiable information requested or tracked, there was no way to identify how many individuals from Sales and Marketing or Human Resources either read the e-mails or completed the survey.

Demographic questions related to the countries of residence and birth enabled the identification of cultural power distance levels. Any respondents reporting different countries of residence and birth were ineligible, as individuals who can identify with two countries were outside the scope of this study. To ensure employees had used e-learning at the organization, one qualifying question requested participants to identify how many nonmandatory e-learning courses they had taken since joining the organization; a response of *none* disqualified the participant. The decision to include only individuals who had taken at least one nonmandatory course at the organization was based on early user acceptance studies, which indicated that mandatory technology usage can produce contradictory data, limiting the understanding of end users' behavior (Brown et al., 2002; Rawstorne et al., 2000). Further explanation of this point appears later in this chapter.

The Survey Instrument

The survey instrument (see Appendix A) comprised 21 questions: five demographic questions and 16 items directly related to the TAM. Perceived ease of use and perceived usefulness each consisted of six questions. Behavioral intention and actual usage each had two questions. A potential user's overall attitude toward a computer system is a presumed indicator

of usage. Perceived usefulness and perceived ease of use determine attitude. Davis (1985) defined perceived usefulness and perceived ease of use accordingly:

[Perceived usefulness is] the degree to which an individual believes that using a particular system would enhance his or her job performance. ...[Perceived ease of use is] the degree to which an individual believes that using a particular system would be free of physical and mental effort. (p. 82)

The survey had a 7-point Likert scale originally used by Davis (1985), which ranged from 1 (*strongly disagree*) to 7 (*strongly agree*) for perceived usefulness, perceived ease of use, and behavioral intention. Two questions that measured frequency and duration were used to determine the actual usage items. The frequency question used a scale of 1 (*infrequent*) through 7 (*frequent*). The 7-point scale to measure duration had the following options: 1 = *none*, 2 = *less than once a week*, 3 = *about once a week*, 4 = *two to three times a week*, 5 = *four to six times a week*, 6 = *about once a day*, and 7 = *more than once a day*. It was necessary to adapt the survey slightly to support questions related to e-learning. Instead of referencing the technology from Davis's original study, e-mail, the researcher changed the terminology to e-learning—for example, "Using e-learning in my job enables me to accomplish tasks more quickly." Davis provided permission via e-mail to adapt the instrument (see Appendix G). Table 4 presents the constructs grouped by number of questions, the study that referenced the construct, and values indicating reliability and validity.

Table 4*Constructs, Questions per Construct, and Past Studies Referencing Construct*

Construct	Items	Studies	Cronbach's alpha (> 0.7)	Factor analysis (> 0.7)
PEOU	6	Attis (2014); Davis (1989)	0.96	0.63 to 0.97
PU	6	Attis (2014); Davis (1989)	0.96	0.88 to 0.98
BI	2	Cheng et al. (2012); Davis & Venkatash (2000)	0.89	0.86 to 0.87
AU	2	Aldholay et al. (2018); Davis (1985)	0.81	0.92

Note. PEOU = perceived ease of use; PU = perceived usefulness; BI = behavioral intention; AU = actual usage.

Perceived Ease of Use and Perceived Usefulness

The six questions each for perceived ease of use and perceived usefulness were adaptations from Davis (1989) with minor modifications to fit the context of e-learning. These questions were part of the original TAM proposed by Davis in 1985; however, in the 1989 refinement, Davis shortened perceived ease of use and perceived usefulness, making them more concise. The resultant six questions for each came after Davis conducted a field study and a lab study involving 152 users and four application programs. The refined six-item scales for each resulted in .98 reliability for perceived usefulness and .94 reliability for perceived ease of use (Davis, 1989). Assessing the 12 items for factorial validity showed 0.63 to 0.97 for perceived ease of use; perceived usefulness ranged from 0.88 to 0.98, with results higher than 0.70 indicating validity. It is important to note that the question referring to flexibility for perceived ease of use is the only item that is not statistically significant; however, this does not invalidate the instrument due to its overall high reliability. The flexibility question is one question out of six for the PEOU construct. The construct itself had very high reliability due to its 0.96 Cronbach alpha. Therefore the researcher felt confident that the construct would hold up and chose to keep the flexibility question in the construct to more closely align with Davis's initial instrument.

In 2014, a researcher used the updated six questions in a dissertation about e-learning acceptance. Attis (2014) asked Davis for permission to modify the items, with the word “e-learning” replacing the original terminology. Davis granted permission, asserting that the adaptation should not invalidate the instrument. Attis inferred the validity based on the original studies. For reliability, both perceived ease of use and perceived usefulness had Cronbach’s alphas of 0.96.

Behavioral Intention

The behavioral intention construct questions were adaptations from Davis and Venkatesh (2000) with minor modifications to fit the context of e-learning. The behavioral intention questions outlined in the proposed survey instrument were by Cheng et al. (2012), with Cronbach’s alpha scores of 0.89. The factor loading for each behavioral intention question was over 0.7, with Question 1 having a value of 0.87 and Question 3 a value of 0.86.

Actual Usage

Self-reported actual usage questions pertained to usage as time and frequency. This survey incorporated questions adapted from Davis and validated in the e-learning context by Aldholay et al. (2018). The two actual usage items generated a Cronbach’s alpha of 0.81, indicating good reliability. For validity, the factor loading for the frequency and duration questions was 0.92 for each.

Demographic Questions

The demographic questions in the survey were specific to age, gender, country of birth, and country of residence. Country of birth and country of residence enabled the identification of cultural power distance level. No respondents with inconsistency between country of birth and

country of residence were eligible because including responses from participants who may associate with multiple national cultures was out of the scope of this study.

Data Collection Procedures

The researcher used Qualtrics to build and disseminate the survey, sharing the link with the Chief Marketing Officer, Director of Learning, and a member of Human Resources. These three individuals e-mailed or directly contacted all members of their respective departments and asked them to complete the survey using the link provided. The researcher also directly e-mailed selected individuals in Human Resources and asked them to complete the survey using the link. Upon clicking the link in the e-mail, participants were required to read and click to acknowledge the statement of consent (see Appendix H). The potential participants had 2 weeks to complete the survey, with one reminder e-mail sent to by Sales and Marketing Team (see Appendix E). The storage of all study data is on a password-protected computer.

Data Analysis

Much of the literature described power distance as either small or large, low or high. Initially, the researcher thought to categorize the survey responses in two buckets (small versus large). Once the researcher investigated further, it was determined that despite these classifications (low versus high, small versus large), power distance is not a dichotomy to clarify the distinctions between the cultures; the values are a continuum within which countries are polarized (Hofstede, 2001). In *Culture's Consequences: Comparing Values, Behaviors, Institutions and Organizations Across Nations*, Hofstede (2001) identified all represented countries as either low, medium, or high power distance. Figure 5 shows this range of values compared to power distance and individualism, indicating the correlation between power distance and collectivism. The correlation is not relevant for this study but presented for

informational purposes. Cultures in which people are dependent on their internal groups are also dependent on power figures (Hofstede et al., 2010).

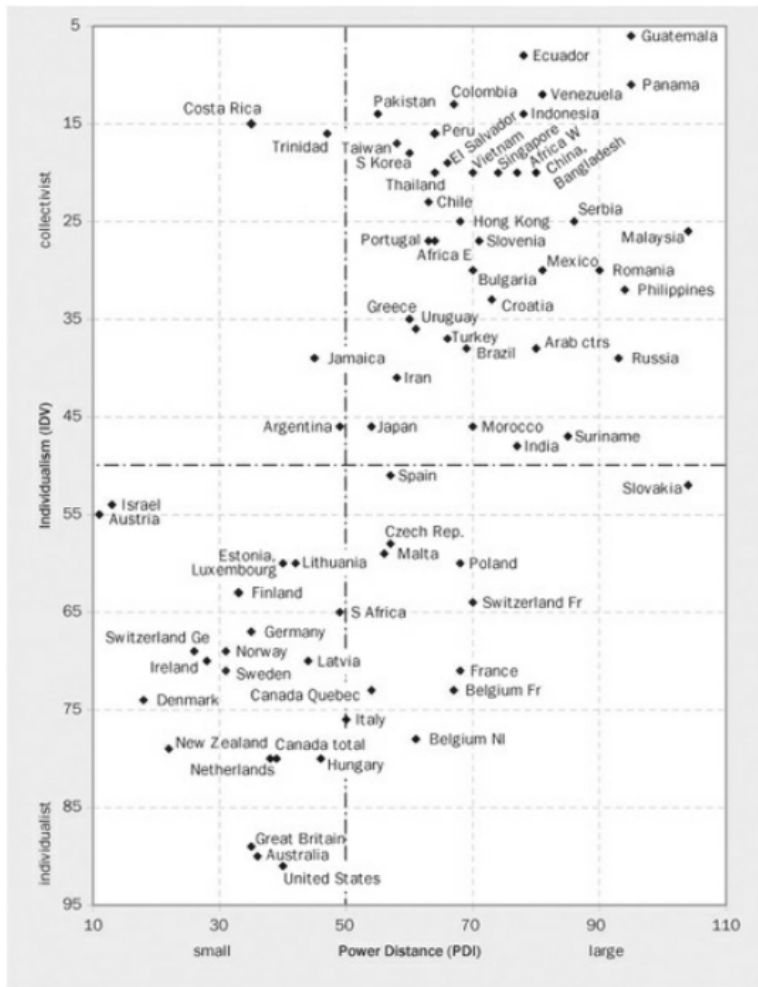


Figure 5: Power Distance Versus Individualism

Note. From *Cultures and Organizations: Software of the Mind* (3rd rev. ed.), 2010, by G.

Hofstede, G. J. Hofstede, and M. Minkov. Copyright 2010 by McGraw-Hill. Reprinted with permission.

In *Principles of Management*, Bright et al. (2019) summarized the ranges, categorizing 0 to 39 as low, 40 to 69 as medium, and 70 to over 100 as high. Table 5 shows the categorization

in both *Culture's Consequences* (Hofstede, 2001) and *Cultures and Organizations* (Hofstede et al., 2010).

Table 5

Hofstede's Model of National Culture

Country	Power distance	Individualism	Uncertainty avoidance	Masculinity
Australia	Low	High	Low	High
Canada	Low	High	Low	High
China	High	Low	Medium	Medium
Germany	Low	High	Medium	High
Mexico	High	Medium	High	High
France	High	High	High	Low
Spain	Medium	Medium	High	Low
Greece	Medium	Medium	High	Medium
Denmark	Low	High	Low	Low
Finland	Low	High	Medium	Low
Brazil	High	Medium	Medium	Medium
India	High	Medium	Low	Medium
Japan	Low	Medium	High	High
United Kingdom	Low	High	Low	High
United States	Low	High	Low	High

Note. Adapted from *Culture's Consequences: Comparing Values, Behaviors and Institutions*

Across Nations (2nd ed.), 2001, by G. Hofstede. Copyright 2001 by SAGE Publications.

In this study, the level of power distance (ordinal) was an independent attribute variable. The level of power distance is not something open to change or manipulation. Studies that use independent attribute variables are nonexperimental (Leech et al., 2010). The dependent variables were perceived usefulness (interval), perceived ease of use (interval), behavioral intention (interval), and actual usage (interval). Determining the survey scores for each construct occurred by calculating the mean of the items within the construct. The researcher performed descriptives for all interval variables.

Research Question 1 pertained to correlations between power distance, perceived usefulness, perceived ease of use, behavioral intention, and actual usage. Because the Power

Distance Index is ordinal, a Spearman's rho statistic was appropriate. If the Power Distance Index had been scale or normally distributed, a Pearson correlation would have been more appropriate. Since power distance has only three levels and is the critical variable in the study and the categories chosen by the researcher and are not equally distributed, a Spearman Rho was computed even though there were no skewed variables. Per Gliner et al. (2011), the Pearson correlation is used when two variables are normal/scale, and the Spearman is used when one or more variables are ordinal. Additionally, because the power distance scale only had three levels and not the recommended five or more, Spearman was the appropriate choice.

A one-way analysis of variance (ANOVA) was suitable to answer Research Question 2 to determine if there were differences between low-, medium-, and high-power-distance countries based on perceived usefulness, perceived ease of use, behavioral intention, and actual usage. Because power distance was the only independent variable, the one-way ANOVA was appropriate. The researcher conducted data analysis using SPSS Version 26.

Other Data Analysis Considerations

Although only two research questions were presented and approved in the proposal, the researcher thought to explore the potential of adding a third research question answered using multiple regression analysis to see if anything further could be uncovered. The researcher discovered an issue with the analysis due to the high correlations that emerged. According to Gliner et al. (2011), when conducting a multiple regression, there are assumptions such as that the relationship among the variables is linear, the errors are normally distributed, and the difference between the actual and predicted scores is constant, which must be present to make a multiple regression a viable option to use during analysis. There is also an assumption that high correlations among the variables are problematic. High correlations can occur when predictor

variables are measuring the same information. The nature of the TAM explained in earlier chapters is that the variables are all connected and influence one another. Therefore, the researcher rejected the idea of adding a third research question because the high correlations would lead to multicollinearity.

CHAPTER 4: RESULTS

This chapter presents the data analysis and findings of the survey. The purpose of this study was to determine how national culture, as measured by power distance, affects e-learning acceptance using the TAM as a framework.

Descriptive Analysis

The researcher downloaded the raw data from Qualtrics, importing them first into Microsoft Excel and then copying and pasting into SPSS Version 26 for checking, cleaning, and coding. There were 194 responses. Because respondents needed to answer all survey sections entirely, responses less than 100% complete were not part of the analysis. Subtracting the 59 incomplete surveys left 135 responses, with 12 subsequently eliminated because the respondents had not taken any nonmandatory courses. The reason for this exclusion was the risk that emotions could arise in discussing mandated activities. Early user acceptance-based studies showed that results obtained in an environment where it is mandatory to use the technology have been contradictory, potentially limiting the understanding of end users' behavior (Brown et al., 2002; Rawstorne et al., 2000). From the 123 remaining responses, 11 indicated inconsistency between the country of birth and country of residence. Including responses from participants who may associate with multiple national cultures was out of the scope of this study; thus, their removal left 112 usable responses.

Demographic data from the 112 participants showed that the majority were female (68%). The most populous age group was 30 to 39 years (42.9%), with 26.8% of respondents between 40 and 49 years old. Table 6 shows the sample distribution by age.

Table 6*Age of Participants*

Age (years)	<i>n</i>	%
20-29	19	16.9
30-39	48	42.9
40-49	30	26.8
50 and older	15	13.4

Table 7 shows the number and percentage of the 112 participants by power distance scale. Countries with a low power distance score represented only 9.8% of respondents, whereas medium and high were almost equal.

Table 7*Number and Percentage of Respondents by Power Distance Scale*

Power distance scale	<i>n</i>	%
Low	11	9.8
Medium	51	45.5
High	50	44.6

The means, standard deviations, and skewness of the five key variables appear in Table 8. The skewness for all five variables was between -1 and 1, indicating acceptability for psychometric purposes as normally distributed. However, the power distance scale has only three levels, so it will still be ordinal (Gliner et al., 2011).

Table 8*Means, Standard Deviations, and Skewness for Key Variables*

Variable	<i>M</i>	<i>SD</i>	Skewness
Power distance scale (PDI)	2.35	.65	-.50
Perceived usefulness (PU)	5.02	1.09	-.53
Perceived ease of use (PEOU)	5.47	.88	-.48
Behavioral intention (BI)	5.44	1.06	-.50
Actual usage (AU)	3.13	1.04	.76

The purpose of Research Question 1 was to determine if there were correlations between power distance, perceived usefulness, perceived ease of use, behavioral intention, and actual usage. Because the Power Distance Index is ordinal, it was appropriate to calculate a Spearman's rho statistic. As shown in Table 9, six of the 10 pairs were significantly correlated. The strongest correlations were between perceived usefulness and perceived ease of use, $r(110) = .65, p < .001$, and perceived ease of use and behavioral intention, $r(110) = .69, p < .001$. This indicates that participants who believed e-learning was useful also believed it was easy to use. Participants who believed e-learning is easy to use intended to use it. These effect sizes are larger than typical (see Cohen, 1988). The r^2 between perceived usefulness and perceived ease of use indicates that 42% of the variance in perceived usefulness can be predicted by perceived ease of use. The results appear as scatterplots in Figures 6 and 7.

Table 9

Spearman's Rho Intercorrelations, Means, and Standard Deviations for Five Variables

(N = 112)

Variable	PDI scale	PU	PEOU	BI	AU	M	SD
PDI scale		.154	.145	.101	.187*	2.35	.654
PU			.647**	.629**	.475**	5.02	1.09
PEOU				.687**	.442**	5.47	.877
BI					.462**	5.44	1.06
AU						3.13	1.04

Note. * $p < .05$; ** $p < .01$

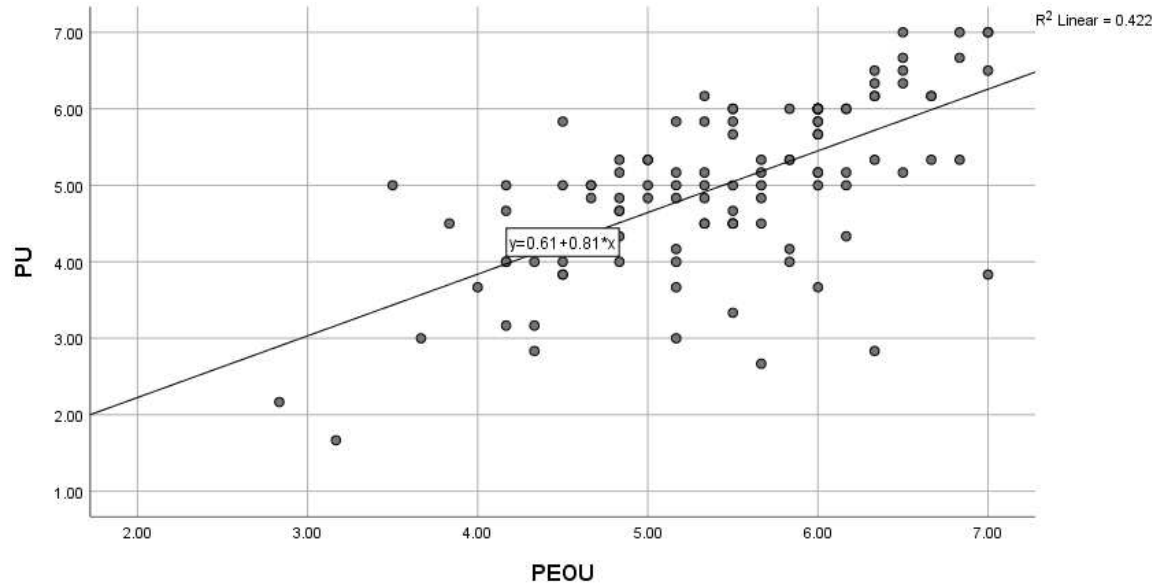


Figure 6: Correlation of Perceived Usefulness With Perceived Ease of Use

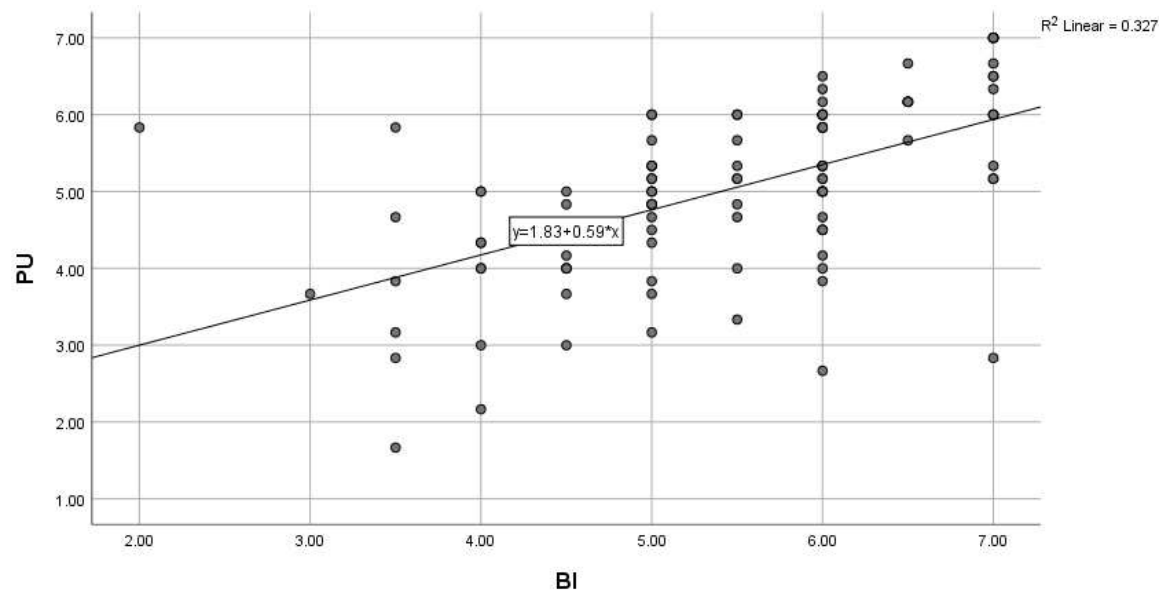


Figure 7: Correlation of Perceived Usefulness With Behavioral Intention

As noted in Table 9, perceived usefulness was also correlated to behavioral intention $r(110) = .63, p < .001$. Actual usage was correlated to perceived usefulness, $r(110) = .48, p < .001$, perceived ease of use, $r(110) = .44, p < .001$, and behavioral intention, $r(110) = .46, p < .001$. These effect sizes were between medium or typical and large or larger than typical, according to Cohen (1988). The scatterplots for each of these computations appear in Figures 8, 9, 10, and 11. As explained above, if the participant perceived e-learning to be useful and easy to use, they were more likely to use it. The participant's intention to use e-learning positively correlated to the actual usage, indicating that those who intended to use e-learning actually did.

The PDI was barely correlated to actual usage with an effect size that was smaller than typical, $r(110) = .19, p < .001$.

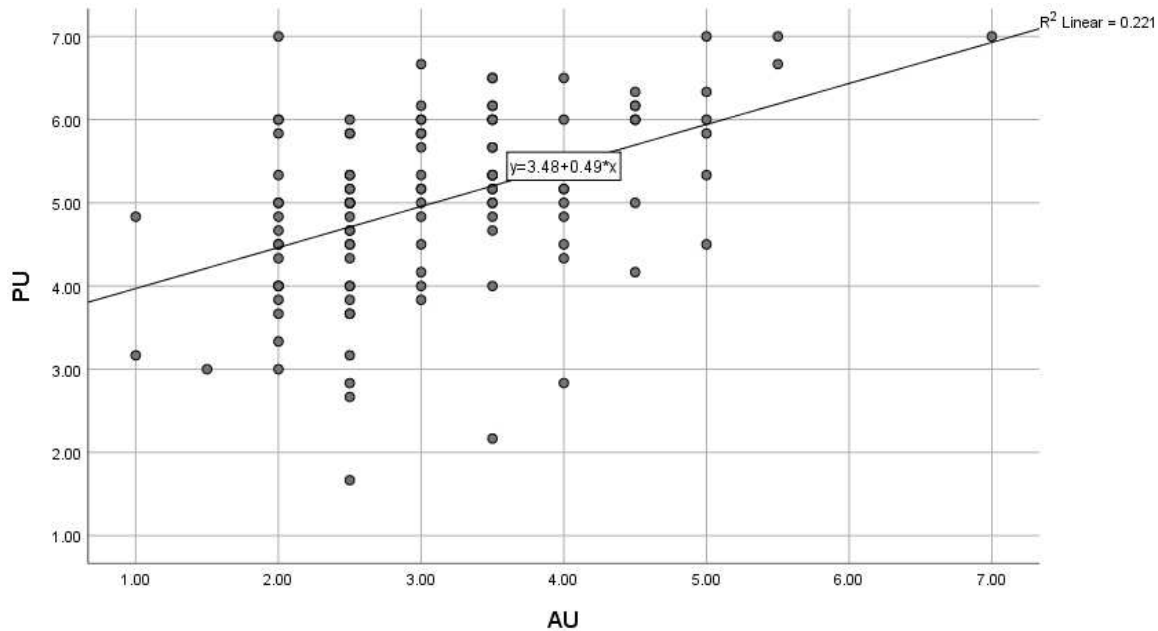


Figure 8: Correlation of Perceived Usefulness With Actual Usage

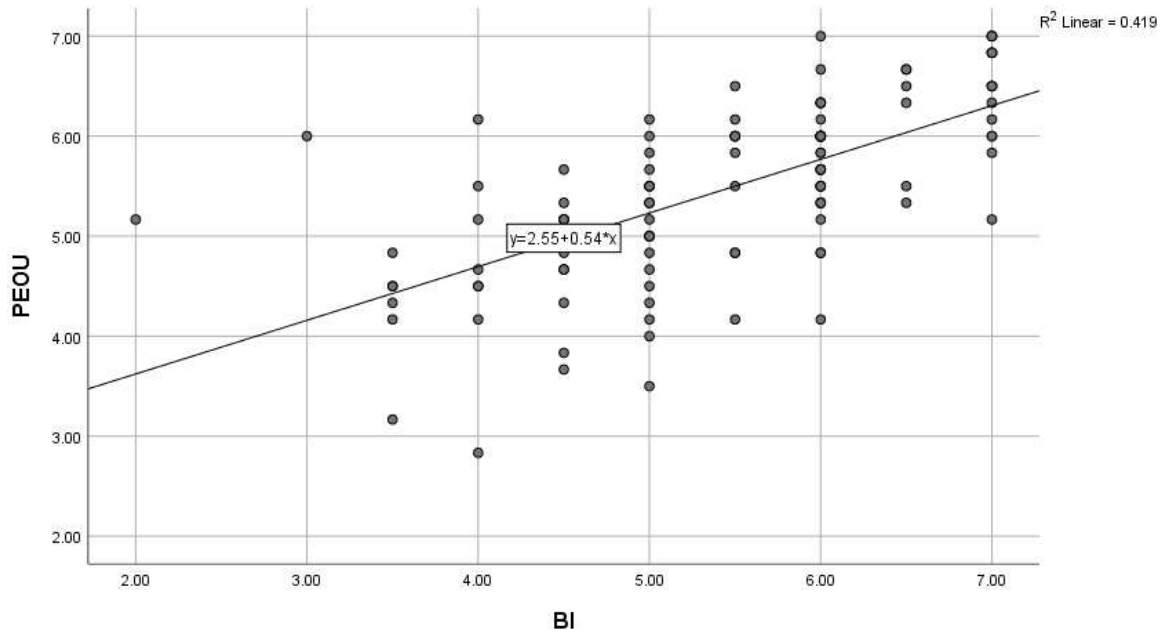


Figure 9: Correlation of Perceived Ease of Use With Behavioral Intention

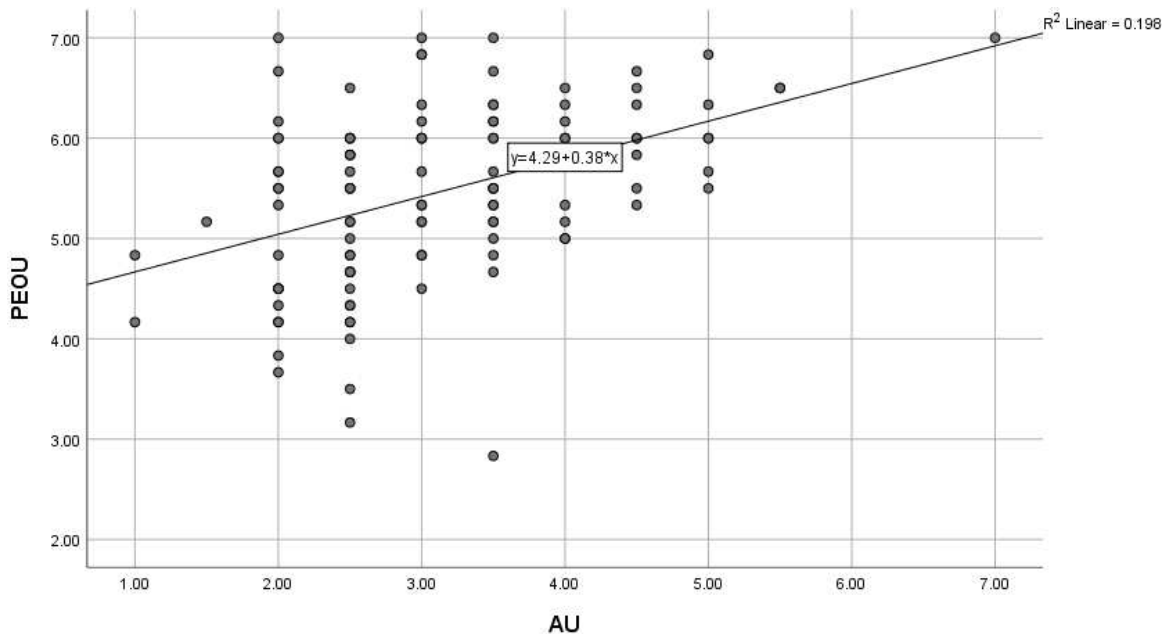


Figure 10: Correlation of Perceived Ease of Use With Actual Usage

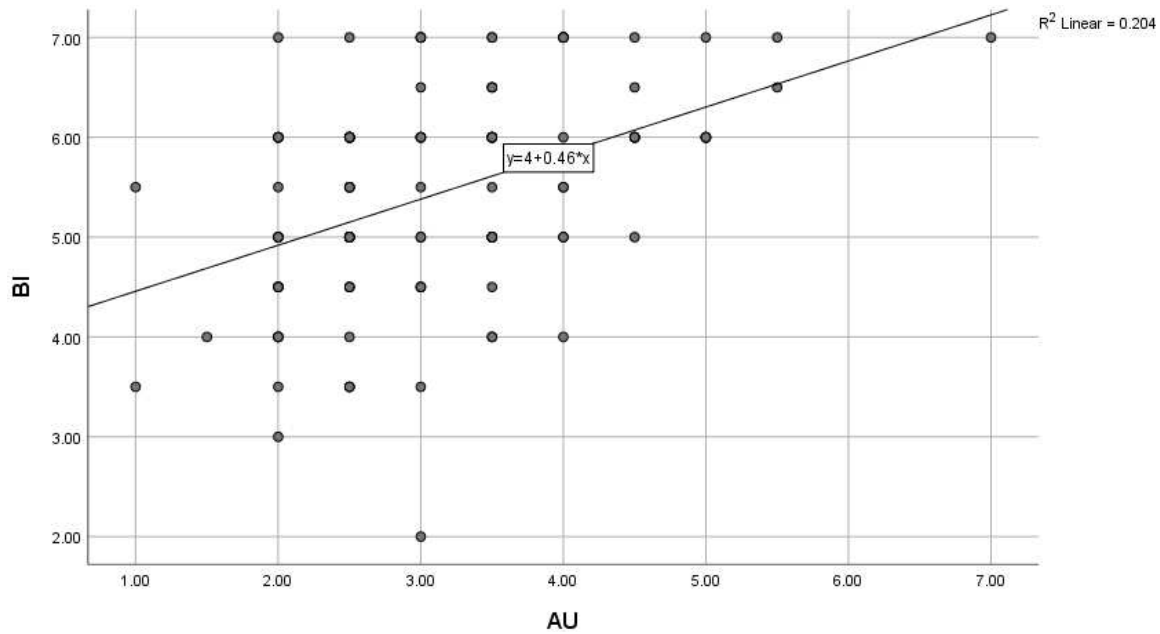


Figure 11: Correlation of Behavioral Intention With Actual Usage

Research Question 2 asked if there were differences between low-, medium-, and high-power-distance countries in regard to perceived usefulness, perceived ease of use, behavioral intention, and actual usage. Table 10 shows that there was not a significant interaction between the PDI scale and perceived usefulness ($F(2, 109) = .861, p = .425$), perceived ease of use ($F(2, 109) = 1.63, p = .201$), behavioral intention ($F(2, 109) = .752, p = .474$), or actual usage ($F(2, 109) = .929, p = .398$).

Table 10

Means and Standard Deviations Comparing Perceived Usefulness, Perceived Ease of Use, Behavioral Intention, and Actual Usage

PDI scale	PU			PEOU			BI			AU		
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
Low	11	4.77	1.36	11	5.06	1.05	11	5.14	1.27	11	3.09	1.53
Medium	51	4.94	.98	51	5.45	.818	51	5.40	1.03	51	3.00	1.05
High	50	5.16	1.13	50	5.58	.884	50	5.55	1.04	50	3.28	.893
Total	112	5.02	1.09	112	5.47	.877	112	5.44	1.06	112	3.13	1.04

Table 11

One-Way Analysis of Variance Summary Table Comparing Perceived Usefulness, Perceived Ease of Use, Behavioral Intention, and Actual Usage

Source	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>f</i>	<i>p</i>
Perceived usefulness					
Between groups	2	2.043	1.02	.861	.425
Within groups	109	129.26	1.19		
Total	111	131.31			
Perceived ease of use					
Between groups	2	2.47	1.24	1.63	.201
Within groups	109	82.83	.76		
Total	111	85.31			
Behavioral intention					
Between groups	2	1.69	.85	.752	.474
Within groups	109	122.68	1.13		
Total	111	124.37			
Actual usage					
Between groups	2	2.00	1.00	.929	.398
Within groups	109	117.49	1.08		
Total	111	119.49			

CHAPTER 5: DISCUSSION

This chapter presents a discussion of the findings displayed in Chapter 4 with regard to the research questions. The purpose of this study was to determine how national culture, as measured by power distance, affects e-learning acceptance using the Technology Acceptance Model (TAM) as a framework.

Research Question 1: Correlations

The calculation of a Spearman's rho statistic was a means to determine if there were correlations between power distance (PDI scale), perceived usefulness, perceived ease of use, behavioral intention, and actual usage. Of the 10 pairs, six were significantly correlated. The strongest correlations were between perceived usefulness and perceived ease of use and between perceived ease of use and behavioral intention. Perceived usefulness was also correlated to behavioral intention. Actual usage was correlated to perceived usefulness, perceived ease of use, and behavioral intention. The PDI scale showed no correlation to perceived usefulness, perceived ease of use, or behavioral intention and was weakly correlated to actual usage.

Although the intention was to see if varying levels of power distance impacted e-learning usage, the more telling result supported the TAM as a viable model for determining e-learning acceptance as measured by actual usage. Liu et al. (2005) also suggested the robustness of the TAM by showing how perceived usefulness was a predictor of user intention, and perceived ease of use was an indicator of perceived usefulness. More recently, Abramson et al. (2015) found that perceived ease of use influenced the intention to use technology.

The findings of the study support the TAM as a reliable model, despite its development 30 years prior. As noted in Table 9, the study resulted in several strong correlations. These

results were similar to those obtained by Davis et al. (1989) in comparing the theory of reasoned action (TRA) to the TAM using a word processing program called WriteOne. Perhaps most interesting is the TAM's application for varying technologies, from personal computers, the Internet, and communication systems such as e-mail to more sophisticated modalities like e-learning. From 1991 through 2001, researchers conducting studies using the TAM explored various information systems and tasks under different environments. Study results appeared in leading information systems journals, classified into four major systems: communication, general purpose, office, and specialized business (Lee et al., 2003). As a reminder, Šumak et al. (2011) conducted a meta-analysis of literature specific to e-learning acceptance and found the TAM to be the most commonly used theory in e-learning acceptance literature between 2002 and 2011. Of the 42 papers they studied, 86% had the TAM as a theoretical framework. The literature has supported the relationship between the TAM's perceived ease of use and perceived usefulness, which this study confirmed. As such, the TAM is as viable in 2020 as it was in 1989, something also supported by this study. Yet, the idea of "swapability" has not received exploration in the literature.

At the time of this writing, scholars had recently published studies in which they had used a version of the TAM on leading-edge technologies, such as electric and self-driving vehicles (Seuwou et al., 2020). It is intriguing to think the TAM can hold up to a technology not yet developed. The TAM has proved to be an extremely flexible model requiring only minor verbiage changes to make sense in the context of any studied technology.

The TAM has received ongoing criticism for being culturally biased (Tarhini et al., 2015). The concerns are that when applied in a non-Western setting, the TAM relationships may not hold. In a study of college students, McCoy et al. (2007) found that in countries with high

power distance, the relationship between perceived usefulness to behavioral intention and perceived ease of use to behavioral intention was not significant. Such findings did not appear in the present study.

In this study, survey respondents represented 15 countries and, therefore, different power distance levels. Of the 113 survey respondents, 11 were from low-power-distance countries, 51 were from medium-power-distance countries, and 51 were from high-power-distance countries. Even with the diversity of the countries represented, the strong correlations showed the cross-cultural robustness of the TAM. Accordingly, the findings from this study contribute to the literature showing the TAM's strength in an e-learning and cross-cultural setting. The importance of a study which supports the TAM's strength in western and non-western countries should increase the confidence levels of future researchers who are interested in using TAM across varying cultures. That PDI showed no correlation to perceived usefulness, perceived ease of use, or behavioral intention was disappointing in one context, but encouraging in the sense that, across the countries and national cultures represented, the findings were consistent.

Research Question 2: Differences

As a reminder, power distance is the measure of the power or influence between a supervisor and a subordinate, with the subordinate considered less powerful than the supervisor (Hofstede, 2001). In an educational context, learners from high-power-distance cultures receive significant interaction with and direction from their instructors. With e-learning, direction and interaction are sparse or nonexistent. In low-power-distance cultures, learners expect to complete assignments with little to no direction (Alamri et al., 2014). The researcher expected to see differences between low-, medium-, and high-power-distance countries related to the other variables. Based on a belief that learning is better when facilitated by a symbol of authority, the

researcher expected to see lower adoption of e-learning among high power distance countries (Rao, 2011). A one-way ANOVA was used to determine if there were differences between low-, medium-, and high-power-distance countries related to perceived usefulness, perceived ease of use, behavioral intention, and actual usage. There was no significant interaction between the PDI scale and perceived usefulness, perceived ease of use, behavioral intention, or actual usage. Although these results are disappointing to the researcher, they are explainable. The hope is that the study results may add to the further understanding of the role of power distance in technology acceptance.

As a reminder, the researcher chose to categorize power distance as low, medium and high based on the literature findings. In *Culture's Consequences: Comparing Values, Behaviors, Institutions and Organizations Across Nations*, Hofstede (2001) identified all represented countries as either low, medium, or high power distance, which is why these three categories were used. Out of curiosity, the researcher did conduct the analysis using the raw PDI scores for each of the 112 participants. Nothing significant was found, and even if there had been significant findings, there was not enough representation in all the 15 countries to make the findings credible.

Figure 12 shows a breakdown of survey participants by country. As indicated, the majority of the participants were from the United Kingdom (medium power distance), United States (medium power distance), Romania (high power distance), and Russia (high power distance). This is an interesting representation because, in all four countries, the e-learning market is either very well established, as in the United Kingdom and the United States, or growing at an exceptional level, as in Romania and Russia. As of 2017, in Europe, there were 3,000 e-learning companies, and the value of the global e-learning market was over \$4 billion

US (Condruz-Bacescu, 2019). Europe represented 25% of the \$4 billion, which positioned the continent as the second-largest e-learning market behind North America.

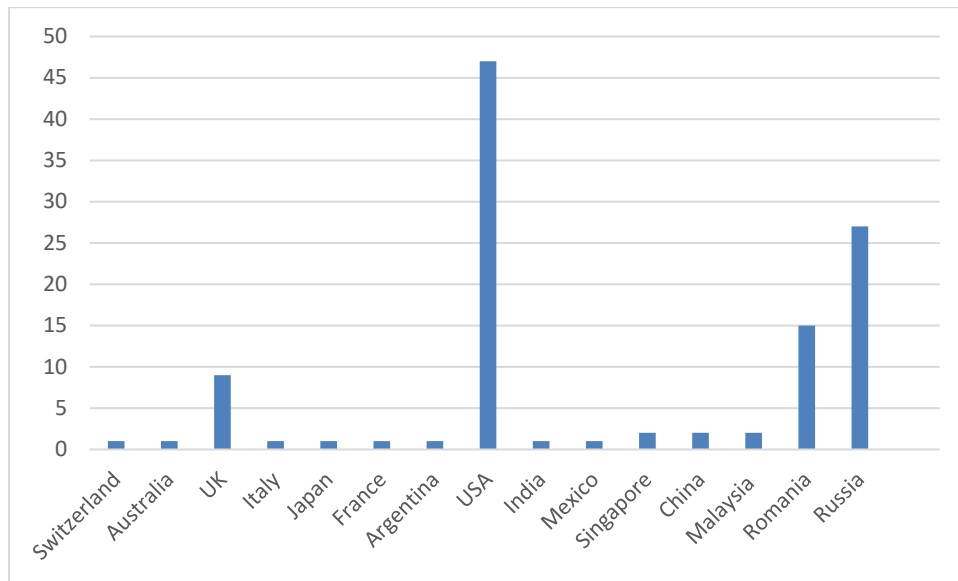


Figure 12: Survey Participants by Country

The Russian e-learning market has become the fastest growing globally, mainly due to start-ups and private educational portals (Sirazetdinova et al., 2019). According to Docebo.com, Russia’s e-learning growth is attributable to private initiatives in distance and e-learning. Russia is considered a mature market with a growth rate of 16% and leads the development of e-learning in Eastern Europe (Rocha, 2014).

Compared to Russia, the e-learning market in Romania is underdeveloped but is catching up rapidly. Although e-learning usage has not grown as quickly in Romania as it did in Russia, the requirement to reduce spending related to travel costs is a driver of e-learning usage (Condruz-Bacescu, 2019). The e-learning market in both Russia and Romania has grown based on investments from the government. Many companies in Romania do not have the appropriate infrastructure to support e-learning (Condruz-Bacescu, 2019), which is what may be impacting the slow adoption. However, because Company A is a technology company, the Romanian office

has all the necessary infrastructures to create, deliver, and facilitate e-learning sessions effectively. The researcher's visit to the company office in Romania was highly enlightening. Infrastructure-wise, the cellular service was superior to even the most developed cities in New York. The office had high-speed Internet, with various advanced technology support departments designed to ensure all employees had technology connections and were as productive as possible. When connected to the company Wi-Fi, the Internet speeds were exceptional, as good as or better than those obtained on the researcher's home network. Clearly, the Romanian office was well equipped and fully capable of delivering exceptional e-learning experiences for its users.

In conclusion, most of the countries represented in the study have a large e-learning market share or one that is rapidly growing. Therefore, it is probable that the survey participants had been using e-learning for years. It is safe to assume that regular usage of a technology can mean that one has adopted and accepted the technology.

Also worth noting is that all participants in this study worked for a technology company. Most high-tech companies have introduced e-learning to respond to challenges in the technology environment, such as change, ambiguity, and global talent competition (Hsia et al., 2012). The use of e-learning enables high-tech firms to train and impart the required technical knowledge to their employees. Because most high-tech firms do not have time to work with complex systems, firms likely choose a system perceived as easy to use, contributing to e-learning usage (Hsia et al., 2012). The e-learning systems in use at Company A have been industry leaders in their popularity within the e-learning market. Accordingly, it is a fair assumption that Company A took care to select the best and most user-friendly systems for e-learning. A user's perceptions about how easy and how useful a system is contributes greatly to the intention to use the system

(Davis, 1985). This perception that a system is easy to use and also useful can help a user feel confident in embracing that technology, thus leading to high levels of self-efficacy.

Self-efficacy is the perception that one can perform a task (Bandura, 1982). Previous e-learning-based researchers who incorporated the TAM explored a notion that self-efficacy can contribute to perceived usefulness and perceived ease of use. In an e-learning context, self-efficacy is the learners' level of confidence in their ability to use a learning management system to access e-learning course (Baki et al., 2018). According to Baki et al. (2018), self-efficacy has a positive influence on perceived ease of use for e-learning systems. Hence, if the participants in this study had higher levels of self-efficacy, they may have already felt confident in using the e-learning system. As a result, they could have already discovered its ease of use and usefulness or been open to the possibility that the system would be easy to use and useful because their company had selected it for them.

The results of this study are important in two aspects. First, future researchers should feel confident in the TAM's ability to measure the acceptance of all technologies, both new and old. Second, the finding that PDI did not impact the acceptance level of e-learning based on actual usage is significant in itself, as this study spanned 15 countries and explored PDI measured as low, medium, or high. Across the countries and national cultures represented, the findings were consistent. This finding is especially important to global companies that are using e-learning or plan to in the future.

Study Limitations

Although there are approximately 11 departments at Company A, the researcher had access only to Sales and Marketing and key members of Human Resources. The executives at Company A were concerned about survey fatigue, as the organization frequently administers

surveys to give employees a voice on varying topics, from technology changes to human resources-related matters. Therefore, the study results may not be representative of the entire company and all departments.

Worth noting is the idea that Sales and Marketing and Human Resources are typically heavy software users. Sales and Marketing are required to access and use Salesforce daily. Salesforce is a customer relationship management program that Sales and Marketing teams use to track customers, sales pipeline, and other activities. The marketing team members are specialists in branding, which often requires sophisticated knowledge of very technical applications. They are also responsible for digital and e-mail marketing, which, again, require software expertise to be effective. In Human Resources, software, such as applicant tracking systems, allow for the tracking of an employee from candidacy to onboarding. Human Resources has also implemented Workday, a highly sophisticated program used by the entire organization to track time off, development plans, and performance reviews, among other endeavors. Worth noting is that because the participants were already technology adopters, they may have been more likely to also accept and adopt e-learning.

The participants were from 15 countries, with most located in Russia, Romania, the United States, and the United Kingdom. The United States and the United Kingdom have high e-learning market share, which could indicate the acceptance of e-learning technology. Russia's e-learning market is growing exponentially, and Romania's market is catching up. E-learning may already be very pervasive in these countries. The concerns related to deploying e-learning in some countries due to limited infrastructure were unfounded because the offices throughout the United States, the United Kingdom, Russia, and Romania are well equipped with the technology necessary to deploy and use e-learning and many other technologies effectively. Additionally,

due to the Coronavirus pandemic, at the time of this writing, many industries across the world have found themselves needing to rely on e-learning or distance learning as a way to educate their workforce. During the distribution of the survey instrument, the pandemic was becoming more of a concern, and many countries in Europe were initiating shelter-in-place procedures. Although Company A typically conducts most of its learning events via e-learning due to its global nature, some events are held live and in person. At the time of the survey distribution, many live events were in the process of being rescheduled or canceled due to concerns over the pandemic. Because there were minimal live training options available during survey implementation, this realization may have impacted how survey respondents felt, as e-learning was the only viable option for company-related training.

Implications for Practice

Most of the respondents represented in this study were from countries with a high or rapidly growing e-learning market share. The reality is that most of these respondents were probably already active e-learning users. Additionally, the respondents work for a technology company and in departments typically known for using technology to streamline and enhance departmental tasks. The researcher did not find any differences in how the represented countries accept e-learning based on actual usage; however, the findings did support the relevance of the TAM and, especially, the importance of perceived ease of use and perceived usefulness. As an instructional designer and e-learning developer, the researcher creates e-learning courses regularly. Although the researcher strives to ensure the courses and all of the elements of the course are perceived to be both useful and easy to use, there are other things worth noting that emerged as practical implications from this study.

Internet access is a necessity for most e-learning courses. All respondents in the study had taken their e-learning courses over the internet via Company A's LMS. The Internet has enhanced lives in many ways, most of them positive. There are, however, drawbacks to using the Internet while learning. The constant reminders, notifications, and distractions while online have created problems in which the brain has difficulty processing information. The Internet presents new information in a dynamic way, serving information in small particles rapidly presented and meant for instant digestion (Petraşuc & Popescul, 2019). Additionally, good e-learning requires interactivity to enhance the learning process. Interactivity within e-learning, when done correctly, allows individuals to engage with the learning environment to apply what they are learning, assess a skill, or potentially enhance their motivation to learn. Interactivity, especially within an e-learning course, is essential to the learning process (Kishabale, 2019).

That learners are naturally distracted when learning via e-learning and expect interactivity within courses makes designing e-learning courses challenging. Working at Company A also proved to be a challenge, as the instructional designers are highly trained and use advanced technologies, such as the Adobe Creative Cloud Suite and Articulate Storyline 360. These technologies are becoming more pervasive within the instructional design and e-learning space; thus, being a successful designer requires having advanced knowledge of these tools. The entire design team strives to increase the amount of learning interactions in every course they create. The belief is that incorporating as many interactive elements as possible into a course increases the potential for knowledge transfer and engagement. These interactions often enhance the course by making it more entertaining. However, this study's findings should serve as a caution for designers to ensure that any type of interaction added to e-learning is perceived by the user to be both useful and easy to use.

The TAM demonstrates how perceived usefulness and perceived ease of use are major drivers and determinants of actual usage. The implications for e-learning developers and instructional designers showed the importance of perceived usefulness and perceived ease of use. In the e-learning context, perceived usefulness is the belief that using e-learning will boost learning potential, and perceived ease of use is the perception that using e-learning will be free of cognitive effort (Park, 2009). Designers should ensure that all interactions added to e-learning serve actual purposes that move beyond simple entertainment. If learners work through an interactive element and find it pointless, they may lose motivation to continue the course. If learners experience a cognitive overload in determining how an interactive element works, they will miss the point of the training. The only course interactive elements should be those perceived as both useful and easy to use.

Future Research Directions

Future researchers may want to replicate this study but focus more on developing countries compared to developed ones. It can be safe to assume that even in 2020, some developing countries do not have adequate infrastructure to support e-learning. The infrastructure limitations and the realization that many developing countries are high power distance can be barriers to successful e-learning acceptance. It would be interesting to see if there is a difference in e-learning acceptance between the two dichotomies (developed versus nondeveloped countries).

Also worthwhile would be examining the notion of self-efficacy specific to high-tech companies and e-learning acceptance. Researchers could expand the literature on e-learning and technology, answering such questions as, “How many employees at high-tech companies believe that they are good at all technology?”; “Are specific departments more likely to have workers

with higher self-efficacy?"; and "Does the fact that the respondents were from Sales and Marketing and Human Resources come into play?" Typically, the two departments are very technology-driven, requiring the regular use of software programs such as Salesforce and proprietary human resources systems. If conducted using less-technology-driven departments, the study might have shown different results. Finally, researchers could seek to determine whether self-efficacy correlates to e-learning usage at a high-tech company. It may be worth exploring how a belief that one is good at using a technology shapes how an individual approaches, uses, and accepts that technology.

Conclusion

The study findings support the TAM as a viable model for exploring the acceptance of any technology. The high correlations showed results consistent with Davis and Venkatash (1996), who examined the acceptance of simple word processor-based technologies when the TAM was in its infancy. It is interesting to see the TAM's staying power and its application to expanding technology while still yielding extremely consistent results.

Another benefit of using the TAM was its consistency culturally. Study respondents were from over 15 countries with three power distance ranges. The lack of correlation of the power distance level to the other constructs was disappointing, as the researcher expected to see some variance related to power distance level. However, the strong correlations despite the power distance levels again show that the TAM is a model useful cross-culturally and for varying technologies. It will be interesting to see how future researchers use this knowledge to expand on TAM and integrate other areas of discovery—such as self-efficacy, departmental analysis, and exploring technology usage in general—in the context of the company industry, such as technology companies versus nontechnology companies.

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APPENDIX A: SURVEY INSTRUMENT

Q1 How old are you?

- Less than 20 (1)
- 20-29 (2)
- 30-39 (3)
- 40-49 (4)
- 50 or older (5)

Q2 Do you identify as male or female?

- Male (1)
- Female (2)
- Other (3)

Q3 In what country do you live?

- Argentina (1)
- Australia (2)
- Austria (3)
- Belgium Flemish (Dutch Speaking) (4)
- Belgium Walloon (French Speaking) (5)
- Canada (6)
- China (7)
- Czech Republic (8)
- Denmark (9)
- Finland (10)
- France (11)
- Germany (12)
- India (13)

- Indonesia (14)
- Ireland (15)
- Israel (16)
- Italy (17)
- Japan (18)
- Korea (19)
- Malaysia (20)
- Mexico (21)
- Netherlands (22)
- Norway (23)
- Poland (24)
- Romania (25)
- Russia (26)
- Singapore (27)
- South Africa (28)
- Spain (29)
- Sweden (30)
- Taiwan (31)
- Switzerland (French Speaking) (32)
- Switzerland (German Speaking) (33)
- Turkey (34)
- UAE (35)
- UK (36)
- USA (37)
- Other (38)

Q7 In what country were you born?

- Argentina (1)
- Australia (2)
- Austria (3)
- Belgium Flemish (Dutch Speaking) (4)
- Belgium Walloon (French Speaking) (5)
- Canada (6)
- China (7)
- Czech Republic (8)
- Denmark (9)
- Finland (10)
- France (11)
- Germany (12)
- India (13)
- Indonesia (14)
- Ireland (15)
- Israel (16)
- Italy (17)
- Japan (18)
- Korea (19)
- Malaysia (20)
- Mexico (21)
- Netherlands (22)
- Norway (23)
- Poland (24)
- Romania (25)
- Russia (26)

- Singapore (27)
- South Africa (28)
- Spain (29)
- Sweden (30)
- Taiwan (31)
- Switzerland (French Speaking) (32)
- Switzerland (German Speaking) (33)
- Turkey (34)
- UAE (35)
- UK (36)
- USA (37)
- Other (38)

Q14 How many non-mandatory e-learning courses have you taken since joining the organization?

- None (1)
- 1-5 (2)
- 6-10 (3)
- 11-15 (4)
- 16-20 (5)
- More than 20 (6)

Q9 Read the following statements then select the choice that best represents your level of agreement.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
1. Using e-learning in my job enables me to accomplish tasks more quickly. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Using e-learning improves my job performance. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Using e-learning increases my productivity. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Using e-learning enhances my effectiveness on the job. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Using e-learning makes it easier to do my job. (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. I find e-learning useful in my job. (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q10 Read the following statements then select the choice that best represents your level of agreement.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
1. Learning to operate e-learning is easy for me. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I find it easy to get e-learning to do what I want to do. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. My interaction with e-learning is clear and understandable. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I find e-learning to be flexible to interact with. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. It is easy for me to become skillful at using e-learning. (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. I find e-learning easy to use. (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>


Q11 Read the following statements then select the choice that best represents your level of agreement.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
1. Assuming I have access to the e-learning system, I intend to use it (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Given that I had access to this e-learning system, I predict that I would use it. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q12 Read the following statement then select the appropriate response.

	When using e-learning, how much time do you spend in a week directly using e-learning? (1)
None (15)	<input type="radio"/>
less than once a week (16)	<input type="radio"/>
About once a week (22)	<input type="radio"/>
two to three times a week (18)	<input type="radio"/>
Four to six times a week (19)	<input type="radio"/>
About once a day (20)	<input type="radio"/>
More than once a day (21)	<input type="radio"/>

Q13 On a scale of one through seven, where 1 is infrequent and seven is frequent, using the slider, please indicate how often you use e-learning.

	Infrequent 1 2 2 3 3 4 5 5 6 6 7 Frequent
e-learning Usage ()	

APPENDIX B: IRB APPROVAL E-MAIL

From: Tammy.Felton-Noyle@colostate.edu <Tammy.Felton-Noyle@colostate.edu>
Sent: Tuesday, January 14, 2020 11:55 AM
To: Reed,Jaclyn <Jaclyn.Reed@colostate.edu>; Clark,Kelli <Kelli.Clark@colostate.edu>; Kaiser,Leann <Leann.Kaiser@colostate.edu>
Subject: The following Protocol has been Approved: 19-9714H

The IRB has approved your protocol referenced below:

Protocol ID: 19-9714H
Principal Investigator: Kaiser, Leann

Protocol Title: An Examination in the Role Culture Plays in the Acceptance of eLearning at a Global Organization
Review Type: EXEMPT
Approval Date: January 14, 2020

If this study is sponsored and receiving funds through Office of Sponsored Programs, submit your formal Approval Letter to your OSP team. This email is not sufficient documentation of your approval.

This is not an official letter of approval. Your approval letter is available to you in the "Event History" section of your approved protocol in eProtocol. Note that specific information regarding the approval and any conditions of approval are available below the signature line in the footer of the approval letter.

Further instructions can be found here: <https://www.research.colostate.edu/ricro/>

IMPORTANT REMINDER: If you will consent your participants with a signed consent document, it is your responsibility to use the consent form that has been finalized and uploaded into the consent section of eProtocol by the IRB coordinators. Failure to use the finalized consent form available to you in eProtocol is a reportable protocol violation.

If you have any questions regarding this approval, please contact:

CSU IRB: RICRO_IRB@mail.colostate.edu; 970-491-1553
Claire Chance: Claire.Chance@Colostate.edu; 970-491-1381
Tammy Felton-Noyle: Tammy.Felton-Noyle@colostate.edu; 970-491-1655

TO ACCESS THIS PROTOCOL, LINK TO:
<https://csu.keyusa.net/>

APPENDIX C: SALES AND MARKETING PERMISSION E-MAIL

Jaclyn Reed

From: [REDACTED]
Sent: Friday, December 6, 2019 7:10 PM
To: Jaclyn Reed
Subject: Fwd: Dissertation Help

From: J [REDACTED]
Sent: Friday, December 6, 2019 6:57:30 PM
To: M [REDACTED]
Subject: RE: Dissertation Help

Sure. I definitely support it. We can make it voluntary and send a message out before to the WW marketing team. Just have her do a quick write up and I can send out when she is ready.

From: [REDACTED]
Sent: Friday, December 6, 2019 10:36 AM
To: [REDACTED]
Subject: Fwd: Dissertation Help

Good afternoon Jim

Per the note below. Would you be willing to "sponsor" this.

I was thinking rather than all [REDACTED] perhaps just the ww marketing org under you could be the target of the survey. I would do it for just [REDACTED] but that does not give Jackie enough statistical significance.

We can be flexible on the timing and find a window that you feel is acceptable if you want to pursue. Since she is not capturing any unique identifying detail I believe we are GDPR safe.

Thanks for your consideration.

Thoughts?

APPENDIX D: HUMAN RESOURCES PERMISSION E-MAIL

Jaclyn Reed

From: [REDACTED]
Sent: Friday, February 28, 2020 5:49 AM
To: Jaclyn Reed; [REDACTED]
Cc: [REDACTED]
Subject: Re: Dissertation Survey

Hi Jackie,

Apologies for my delayed response.

For the HR group, [REDACTED] and I agreed that it is OK for you to send the email directly, given that you are the researcher. You may however want to edit the text slightly so that it reads as coming from you.

HR distribution as follows:

[REDACTED]

Kind regards,

[REDACTED]

[REDACTED]

APPENDIX E: SALES AND MARKETING PARTICIPANT E-MAIL

Jaclyn Reed

From: [REDACTED]
Sent: [REDACTED]
To: [REDACTED]
Subject: FW: Survey - Please Participate

Team,

Just a quick reminder about Jaclyn's survey. The last day to complete it is **Monday, March 16**.

Thanks!

[REDACTED]

Sent: Wednesday, March 4, 2020 11:33 AM

Subject: Survey - Please Participate

Hi Team,

Jaclyn Reed, an Instructional Designer on the [REDACTED] is in the final stages of pursuing her Ph.D. in Educational Leadership at Colorado State University. This is an amazing accomplishment – congratulations Jaclyn!!

In order to fulfill her educational requirements, Jaclyn has created a survey to explore the role culture plays in the acceptance of eLearning. We can all help her by completing a 10-15 minute survey provided below. You may complete the survey during normal business hours using any device you choose. Your participation in this study is purely voluntary and will help further the body of knowledge related to national culture and eLearning.

If you have any questions about this survey or the research study, feel free to reach out to Jaclyn directly.

Please complete the survey no later than **EOD Monday, March 16**. Thank you in advance for your participation and for helping Jaclyn!

http://colostate.az1.qualtrics.com/ife/form/SV_aXzGv18ai5ITTxj

[REDACTED]

APPENDIX F: HUMAN RESOURCES PARTICIPANT E-MAIL

Jaclyn Reed

From: Jaclyn Reed
Sent: Wednesday, March 4, 2020 2:48 PM
To: [REDACTED]
Subject: FW: Survey - Please Participate

Hi All,

Please see the below note from Jim.

[REDACTED] suggested that I reach out to you all for assistance. If you took a few moments out of your very busy days to participate in my survey, it would help me immensely. The link is below. If you have any questions, please do not hesitate to contact me.

Thank you in advance! I appreciate the support.

Jackie

Jaclyn Reed

Instructional Designer | [REDACTED]

From: J [REDACTED]
Sent: Wednesday, March 4, 2020 2:33 PM
To: [REDACTED]
Subject: Survey - Please Participate

Hi Team,

Jaclyn Reed, an Instructional Designer on the [REDACTED] is in the final stages of pursuing her Ph.D. in Educational Leadership at Colorado State University. This is an amazing accomplishment – congratulations Jaclyn!!

APPENDIX G: PERMISSION TO USE AND ADAPT
TECHNOLOGY ACCEPTANCE INSTRUMENT

From: Davis, Fred
Sent: Saturday, November 23, 2019 2:06 PM
To: Jaclyn Reed
Subject: RE: TAM for research
Hi

You have my permission to adapt the scales for your research. It looks like you adapted them fine. Adapting them like that should not affect the reliability and validity. You can also assess the reliability and validity (convergent, discriminant, and factorial) on the new data you collect as a confirmation.

Best wishes

Fred Davis

From: Jaclyn Reed <jaclynjreed@gmail.com>
Sent: Friday, November 22, 2019 12:04 AM
To: Davis, Fred <Fred.Davis@ttu.edu>
Subject: TAM for research

Hello, again Dr. Davis,

I don't think I introduced myself in my last e-mail.

My name is Jaclyn Reed. I am a doctoral student at Colorado State University studying educational leadership.

Would you mind reviewing my survey instrument? I would like permission to use and adapt the scale items of your instrument to fit the technological context of my study. Also, will the adaptation of the scale items affect the validity and reliability of my scale, or could I use the validity and reliability information that is currently associated with your scale?

Please let me know if you have any questions or if I can provide any additional information.

Thank you again in advance!

Jaclyn Reed

516-427-4039

APPENDIX H: CONSENT FORM

An Examination in the Role Culture Plays in the Acceptance of e-Learning at a Global Organization

Jaclyn Reed, Doctoral Candidate Colorado State University, School of Education

You are invited to be in a research study designed to explore the role culture plays in the acceptance of e-learning. You were selected as a possible participant because you currently work at a global organization that uses e-learning.

This study is being conducted by: Jaclyn Reed, Doctoral Candidate at Colorado State University.

Background Information:

One of the biggest challenges a global company faces when implementing e-learning is overcoming its employees' cultural differences. In most corporate organizations, local culture can influence corporate strategy which impacts how an organization is managed.

If you agree to be in this study, I would ask that you click on the secure URL link (below) to complete a 10-15-minute survey to determine which factors influence e-learning acceptance.

You will complete:

1. five demographics questions
2. six perceived ease of use items
3. six perceived usefulness items
4. two behavioral intention items
5. two actual usage items

Risks and Benefits of Being in the Study:

The risks are no more than what you would expect to encounter during a normal working day. You may complete the survey during normal business hours using any device you choose.

The benefits of this study include the opportunity to be a part of a study that contributes to the body of knowledge related to national culture and e-learning.

Compensation:

No compensation will be provided.

Confidentiality:

All survey responses will be private, and all of the collected data will be anonymous.

Published reports will not include any identifying information or names of the participants. Pseudonyms will be used to the name of the organization. All records will be stored securely on a password-protected computer and only the researcher will have access to the records.

The only individuals who will see the information gained from the questionnaires will be the researcher, Dr. Leann Kaiser, Advisor, or Gene Gloeckner, Methodologist. The results of the study will be available to participants upon request.

Voluntary Nature of the Study:

Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with the organization or the researcher. If you decide to participate, you are free withdraw at any time without affecting those relationships.

Contacts and Questions:

Provided below are the names of the committee members overseeing this project:

Advisor: Leann Kaiser
Gene Gloeckner
Don Quick
Jamie Switzer

If you have any questions or concerns regarding this study, please contact the research, Jaclyn Reed, at jaclynjreed@gmail.com, or any committee members at the e-mail addresses listed above.

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, you are encouraged to contact the Institutional Review Board, XXXX

Thank you so much for your participation in this important study.
Sincerely,

Jaclyn Reed
School of Education Colorado State University

IRB Code Number: 19-9714H
IRB Expiration Date: 1/13/2025

Statement of Consent:

I have read and understood the above information. I have asked questions and have received answers. I consent to participate in the study.