Review of Social Sciences

Volume 05, Issue 01, 2020: 01-11
Article Received: 12-09-2019
Accepted: 03-03-2020
Available Online: 29-04-2020
ISSN 2378-8569(Print), ISSN 2378-8550(Online)
DOI: http://dx.doi.org/10.18533/rss.v5i1.143

Adopting e-learning Technologies in Higher Educational Institutions: The role of Organizational Culture, Technology Acceptance and Attitude

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ABSTRACT

Twenty-first century learning environments entail integration of technology into the educational settings. This study focused on organizational culture, technology acceptance and attitude as push and pull factors in the adoption of e-learning technologies in a university setting. The study is a descriptive-correlational research. The respondents of the study are faculty members from universities in the Philippines. The study utilized the Organizational Culture Assessment Instrument (Cameron and Quinn, 2005), Technology Acceptance Questionnaire (Davis, 1986) and Technology Infusion model. The results of the study reveal that hierarchical culture is the dominant culture that exists in higher educational institution. Teachers' technology acceptance is strongly related in the adoption of e-learning. Linear regression revealed that four out of six dimensions of organizational culture influences adoption of technology and all constructs of the Technology Acceptance Model (TAM), as well as attitude and behavior predicts actual adoption of e-learning technologies in an educational setting. Results suggests that empowerment and active involvement of faculty is a key factor in adopting technology in an educational environment. Thus, teachers are both designers of learning environment and organizational culture.

Keywords: Educational technology, e-learning, organizational culture, technology infusion, technology acceptance.

1. Introduction

In the advent of the age of instant communication, information and e-learning, there is a need for broader concept of education in a situation of rapid and radical change with challenging consequences. "It is time to fully integrate technology into the educational settings since skillful use of technology supports the development of process skills such as, higher order thinking skills, adaptability and collaboration that are essential to success in our rapidly changing information age" (Koc, 2005, p. 2). This must go hand-in-hand with a blueprint for the future. The efficiency of the

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school system should concentrate on the improvement and changing role of teachers. Teachers on the other hand will have to bring about within themselves a new professional profile. Teachers must be participants in the management of change in education.

Technology is redefining the role and function of teachers. The teacher is more of a designer of the learning environment. Teachers must learn to use technology so they can relate to today's students who are very media aware, and use new approaches to curriculum and instruction (Schwarz, 2000). The teachers, like their students, must adapt themselves to the new structures and fulfil their mission as change agents. Without doubt, technology is redefining the role and function of teachers.

Amidst these changes, the form, character and culture of university education will most likely to follow suit. Schools must also shift their focus so that teachers can function and compete in the emerging information-based community. Administrators should be the driving force to empower the teachers, furnishing them with support, skills, competencies and opportunities necessary for them to function autonomously and collaboratively. By recognizing the role of teachers in the change management process and consequently their role as change agents, will provide a smooth transition in managing the interactions associated with it. Teachers should realize that utilization and adoption of e-learning can give them a competitive edge in enhancing their teaching and learning activities; and as knowledge workers they need to enhance their knowledge and skills continuously to advance their career development (Jan, Lu, and Chou, 2012)

Organizational culture has rarely been mentioned on studies involving technology infusion as an influential factor in technology usage (Carmeli, Sternberg, and Elizur, 2008). Most studies on technology infusion points to teacher training, attitudes and beliefs, as well as administrative policies and infrastructure present in an institution. Infusion of technology in an educational setting is much like introducing change in a structured environment. Change management in any organization, be it in business or education sector, must be managed appropriately to address resistance. According to Iljins, Skvarciany, and Gaile-Sarkane (2015), organizational culture can be an influencing factor in any change management process, and as such, can be considered too as a change agent. Likewise, culture can also represent barrier when trying to implement new strategies.

Culture has been defined in many ways. Rapport and Overing (2000) defined culture as a set of norms, values or practice that form a system. Schein (2014), on the other hand, describes culture as a dynamic phenomenon, being constantly enacted and created by the interactions within the organization and can be shaped by the leadership's behavior. In the context of school culture, Wagner (2006) defined it as a value system for schools to attain effectiveness and educational change. Given these definitions, this research deliberates organizational culture as an influencing factor in the infusion of technological innovations in educational institutions.

Consequently, in the Roadmap for 21st century learning framework, leadership and culture were considered as part of the planning tool for educational leaders in order to attain transformation needed for 21st century learning environments. Likewise, there are several studies that claimed the relationship of organizational culture with the innovative climate in an institution (Ubuis and Gall, 2012; Educause, 2004).

Universities in the Philippines are finding their niche in terms of integration of technology in curriculum and instruction. Universities have varied applications of technology – e-learning, blended learning, hybrid learning, distance learning and open universities. Nevertheless, to achieve these applications of technology, various elements in the infusion of technology must be considered in the university setting. Higher educational institutions recognize the competitiveness given by educational technologies and thus are equipping their facilities with state of the art information technologies that their resources can afford. Inevitably, technology will bring a major difference in the way educational system will be delivered.

However, using a systems perspective, the organization must carefully look at the critical issues that affect the input, throughput, and output of the technology infusion. Among these processes, the study focused on the throughput process, taking into consideration the teachers – their attitude and behavior towards use of technology - as the designers of the learning environment and the organizational culture – a subtle yet powerful force, which influences the transformational process accompanying technology infusion.

2. Theoretical background

2.1 Theoretical framework

The study is anchored on the Theory of Reasoned Action (Aizen and Fishbein, 1980). The theory of reasoned action says that a person's intentions are the best guide to behavior. If a person intends to do a behavior then it is likely that the person will do it. Moreover a person's intentions are themselves guided by two things: the person's attitude towards the behavior and the subjective norm. Thus, a person's behavior can be anticipated based on his or her attitude towards that behavior and how would people perceive them if they performed such behavior. This theory is closely associated with the Technology Acceptance Model (TAM) (Fan and Fan, 2014; Jan et al., 2011). It implies that a person's attitude and behavior towards techology, especially in terms of its usefulness, can greatly affect his attitude towards usage and intention to use. This behavior can thus be a leading factor towards infusion of technology.

Another similar theory is the Theory of Planned Behavior (Ajzen, 1985) which also implies that an individual's attitude and individual's perception of behavioral control is influenced by social factors or by subjective norms. This theory further claims the role of attitude and behavior in the use of technology. Further, it looks into the other factors that influence the use of technology wherein social factors may include the profile of the respondents and the environment they are working which may refer to the organizational culture.

2.2 Literature review

The Technology Acceptance Model (TAM) by Davis (1989) is a widely used model in studies pertaining to integration of technology in the educational setting. The model emphasizes on the perceived usefulness, perceived ease of use, attitude and behavioral intent towards acceptance and use of technology. Perceived usefulness (PU) was defined as "the degree to which a person believes that using a particular system would enhance his or her job performance"; while, Perceived ease-of-use (PEOU) was defined as "the degree to which a person believes that using a particular system would be free from effort" (Davis, 1989). TAM further suggests that a user's perception on the ease of use and usefulness, coupled with positive attitude and behavioral norms, can have an impact on the usage and adoption of the new technologies. The same model was used in the study of Amoroso and Hunsinger (2009) where some of the constructs were used in order to measure the acceptance of internet technology by consumers.

A good model to follow for the organizational culture is the Competing Values Model (CVM) of Quinn (1988; Quinn and Rohrbaugh, 1983; Cameron and Quinn, 2000). Competing Values Model represents a valid framework for examining organizational cultures. It offers potential for addressing three of the critical issues involved with analysis of organizational culture: 1. it specifies a descriptive content of organizational culture; 2. it identifies dimensions whereby similarities and differences across cultures might be evaluated; and 3. it suggests tools and techniques for organizational analysis that enable measurement and representation of culture. The model specifies four types of organizational culture such as: clan, adhocracy, market and hierarchical. The same organizational culture was applied in the study of Kolodziejczak (2015) where the study investigated coaching and organizational culture. The study further revealed the role of coaching in bringing about changes in the organizational culture.

On the other hand, attitude and behavior towards e-learning is based on the Model for Continuum Approach to Information Communications Technology (ICT) Application (Olakulehin, 2004). This is the same model UNESCO is using in determining the ICT infusion in institutions. The model names four different levels in ICT use which are: Emerging, Applying, Infusing and Transforming. The Emerging approach is the first stage wherein the focus is on appreciation of technical functions, components and general uses of ICTs, especially for education and training. The emphasis here is on training of teachers in a range of tools and applications, and increasing teachers' awareness of the opportunities for applying ICT to their teaching in the future. In the Applying approach, teachers use ICT for professional purposes, focusing on improving their subject teaching in order to enrich how they teach with a range of ICT applications. The Infusing approach involves the inclusion of ICT in all aspects of teacher's professional lives in such ways as to improve student learning and the management of learning processes. Lastly, Transforming approach involves teachers and other support staff in the school system regarding ICT as a natural part of everyday life of the system that they begin to look at the processes of teaching and learning in new ways. This continuum approach to ICT infusion can be understood by examining the attidue and behavior of teachers towards the use of elearning technologies. Teachers' attitudes and behavior are defined how they

infuse ICT in their professional life as a teacher in order to improve the teaching and learning process. In addition, according to Rossiter (2007), innovative changes are characterized by experiences, attributes and processes. Thus, the adoption of an e-learning technology entails characterization of the people involved in the process.

E-learning technologies are in different forms depending on the interactivity involved. Adoption of e-learning in institutions also takes different forms depending on the available infrastructure. Bandelaria (2007) expressed that the elearning technology is now on its fourth generation where it can be viewed as an "empowered phase" where both students and teachers now have the flexibility to shape and structure the learning and teaching environment depending on how the available technology can be utilized and maximized. Rossiter (2007) mentioned that use of communication information technologies is part of the dimensions of e-learning; and that, e-learning technologies are technologies that enable or facilitate collaboration and communication. Rossiter further mentioned that these includes "Web 2" technologies that can enhance different levels of communication by using media-rich technologies including high definition video, simulation and 3D immersive environments; podcasting, wireless, mobile and satellite technologies, use of handheld devices, mobile phones and other wireless technologies, providing students with the immediacy of access to e-learning resources, information and activities. As such electronic mail, e-bulletin boards, podcasts, m-learning, i-lectures, u-Learning (ubiquitous learning), with or without a formal learning management system (LMS), are all being applied as different forms of interactivity in an e-learning environment.

The study of Macharia and Pelser (2014) mentioned that information and communications technology provides the stimulus for change in the current educational setting where there is a shift from the traditional concepts of teaching and learning into flexible learning environments. The same study also enumerated several factors that influence the adoption of these learning technologies in the teaching and learning process, among these are environmental, technological, organizational and individual factors. Similarly, Zhu (2013) showed that cultural dimensions (openness and collaboration) and school organizational culture (innovation orientation and structured leadership) were significant factors relating to the implementation of computer-supported learning. Carmeli, Sternberg, and Elizur (2008) included creative behavior as another factor for ICT usage. These studies prove the several factors that have to be considered if educational institutions are keen to carry out the infusion of technology in the system and eventually the transformation process it promised to deliver. However, according to Iljins, Skvarciany, and Gaile-Sarkane (2015) organizational culture can represent a barrier when trying to implement new strategies, thus, it must greatly be considered in the process of change.

2.3 The hypothesized model

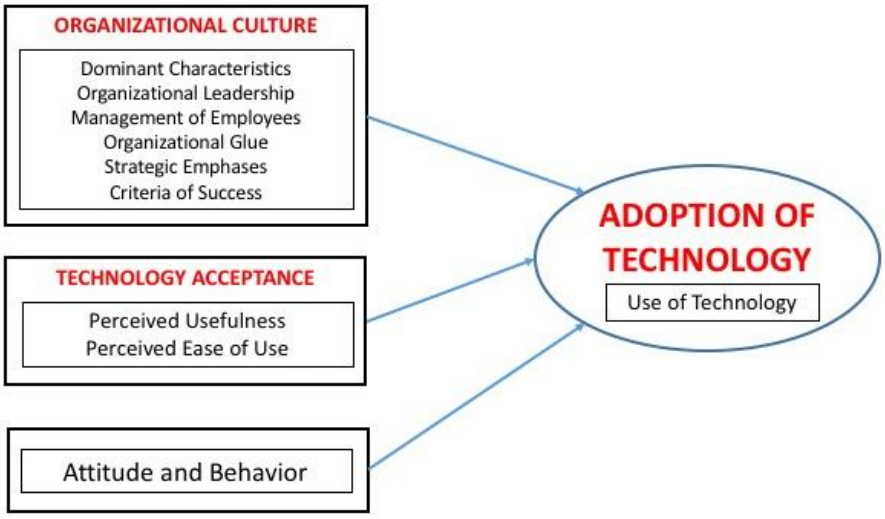

Figure 1. Hypothesized model

H1: Organizational culture has an effect on adoption of technology.
H1.1: Dominant characteristics has an effect on adoption of technology.
H1.2: Organizational leadership has an effect on adoption of technology.

H1.3: Management of employees has an effect on adoption of technology.
H1.4: Organizational glue has an effect on adoption of technology.
H1.5: Strategic Emphases has an effect on adoption of technology.
H1.6: Criteria of Success has an effect on adoption of technology.
H2: High technology acceptance lead to adoption of technology.
H2.1: High perceived usefulness lead to high adoption of technology.
H2.2: High perceived ease of use lead to high adoption of technology.
H3: An individual's attitude and behavior has an effect on adoption of technology.
H3.1: Attitude has an effect on adoption of technology.
H3.2: Behavior has an effect on adoption of technology.

3. Method

3.1 Research design

The study, which aims to determine the relationship of organizational culture and technology acceptance in technology infusion employed a descriptive-correlational research design. According to Sekeran (2003), descriptive study determines and describes the characteristics of the variables of importance in a context. The variables that the study explored are perception on organizational culture, perceived usefulness of technology, perceived ease of use of technology, attitude towards using technology, behavioral intention to use technology and actual usage of technology in teaching and learning activities. Furthermore, correlation of the variables were made in the study. Correlational research involves the measurement of two or more relevant variables and assess the relationship between or among these variables.

3.2 Subjects and study site

The respondents of the study consisted of one hundred two (102) faculty members from private and public higher educational institutions in the Philippines. The respondents were chosen using probability sampling which means that the samples or subjects are representatives of the population with respect to the variables of interest. In the study, faculty members who are employed in a private or public university setting and utilizing any e-learning management system were chosen as respondents of the study. Table 1 shows the modal values of the demographic profile of the respondents of the study.

Table 1.
Modal values of Demographic Profile of the subjects of the study

Demographic and Organizational Culture Variables	Mode
Institution	Private
Age	31 - 40
Gender	Female
Years of Teaching Experience	11 - 20
Academic Rank	Instructor
Faculty Evaluation	Very Satisfactory
Educational Attainment	Masteral

The respondents are mostly employed in the private higher educational institutions, age group is between 31 to 40 years old and most of them are female. Respondents are generally in their 11 to 20 years of teaching experience, have a rank of instructor, have very satisfactory rating in their faculty evaluation and have attained a master's degree. In terms of organizational culture, most respondents agree that their organizational setting is hierarchical in characteristic.

3.3 Instrumentation/Data measures

The questionnaires used in the study were adapted from Organizational Culture Assessment Instrument (OCAI) by Cameron and Quinn (2000) as well as Technology Acceptance Questionnaire of Davis (1989). The purpose of the OCAI is to assess six key dimensions of organizational culture such as: dominant characteristics, organizational leadership, management of employees, organization glue, strategic emphases and criteria of success. These dimensions provide a picture how an organization operated and the values that characterize it. Ultimately, it can determine which type of organizational culture is dominant in the organizational setting namely: clan, adhocracy, market and hierarchical. On

the other hand, the technology acceptance questionnaire measured the perceived usefulness and perceived ease of use. While, technology infusion is measured based on the attitude and behavior of faculty members to actual usage of technology. Some of the items in the questionnaire were modified to fit in the study. Both instruments are considered as standardized questionnaires and have been used in several studies. Table 2 presents a summary of the constructs of the study, items used as well as relevant literatures applied.

Table 2.

Measures of the Questionnaire

Constructs	Corresponding Items	Number of Items	Source
Organizational Culture	Dominant Characteristics Organizational Leadership Management of Employees Organization Glue Strategic Emphases	20	Cameron and Quinn (2000)
Technology Acceptance	Perceived Use of Technology Perceived Ease of Use	15	Davis (1989) Fan and Fan (2014)
Attitude and Behavior	Attitude Towards Technology Behavior Towards Technology	13	Rossiter (2007) Jan, Lou and Chou (2012)
Adoption of Technology (use of technology)	Dimensions of e-learning	12	Rossiter (2007)

3.4 Data Gathering Procedure

The data gathering procedure commenced with the approval from the immediate superiors of the faculty respondents. Once approved, a letter of consent were sent to the respondents asking for their voluntary participation in the study. The purpose of the study and the participation of the respondents were thoroughly discussed to ensure an accurate data gathering process. Survey questionnaires were then be distributed and collected.

3.5 Ethical considerations

The researcher considered ethical principles in conducting the study. First is the principle of beneficence or the right not to be harmed. Thus, the respondents were assured that they would not be harmed during the data gathering process. Respect for human dignity was likewise observed since all the information about the study were fully disclosed. The respondents were also informed of their right to privacy and anonymity. As such, confidentiality of their identity and their responses are strictly safeguarded.

3.6 Data analysis

Statistical Package for Social Sciences (SPSS) was used as a software to compute for descriptive and inferential statistics of the collected data. The mean, mode and standard deviation were specifically used for descriptive statistics. For inferential statistics, correlation and linear regression were used to analyze the data.

4. Results and discussion

4.1 H1: Organizational culture has an effect on technology infusion

Table 3.

Linear Regression of Organizational Culture Dimensions and Adoption of Technology.

Organizational Culture	Standardized Coefficients	p-value
Dominant Characteristics	-.011	0.921
Organizational Leadership	-.268	0.014*
Management of Employees	-.532	0.000*
Organization Glue	.417	0.001*

Strategic Emphases	.076	0.536
Criteria of Success	.347	0.003*

**significant*

Table 3 presents relationship of variables of organizational culture to technology infusion. Results reveal that four out of six dimensions of organizational culture influences the infusion of technology in a university. Specifically, significant association was noted on organizational leadership ($r = -.268$, $p < 0.01$), management of employees ($r = -.532$, $p < 0.000$), organization glue ($r = .417$, $p < 0.01$) and criteria of success ($r = -.347$, $p < 0.01$). Thus, from the sub hypotheses, it can be concluded that: 1. *Dominant characteristics does not have an effect on adoption of technology*; 2. *Organizational leadership has an effect on adoption of technology*; 3. *Management of employees has an effect on adoption of technology*; 4. *Organizational glue has an effect on adoption of technology*; 5. *Strategic Emphases does not have an effect on adoption of technology and 6. Criteria of Success has an effect on adoption of technology.*

The dominant organizational culture that emerged from the respondents is hierarchical culture followed by market culture. Incidentally, these two cultures are described in the competing values framework as types of culture that are controlled and at the same time stable. According to Kołodziejczak (2015) in a hierarchical type of organization, members are not actively involved in pursuing the mission and goals of the organization but rather stick to doing an enforced task. These tasks are given usually by a superior and are expected to be carried out strictly following certain procedures as members are checked, monitored and evaluated. Thus, a good employee is a person who knows the procedure and applies them. This type of organizational culture dominates in a higher educational setting as reported by the respondents. This can be true to a traditional organization such as an educational institution where organizational hierarchy is present and there is high level of formalized communication. Unfortunately however, the dominance of this type of organizational culture may be challenging to those who wants to propagate innovation in schools specifically with the use of e-learning. Kołodziejczak (2015) further states that in this type of organization "any change is an undesirable phenomenon." This type of culture is also described as formal and have a structured work environment which is common in schools. Following Lewin's change management process, this type of organizational culture could generate a lot of unfreezing time. Teachers should be reminded the organization has to accept the challenges of change brought about by technology. Most importantly, it should be communicated to the teachers that management support and training for the various e-learning applications will be available.

Further, according to Cameron and Quinn (2006), there are many dimensions that could define organizational culture. However, in the study, the dimensions of organizational leadership, management of employees, organization glue and criteria of success in the hierarchical and market cultures are dominant in infusion of technology. This means that faculty members perceive that they are led by educational administrators that are good at organizing, controlling, monitoring, administering, coordinating, and maintaining efficiency. Administrators are also perceived to promote highest level of quality in the educational process and systematic problem solving. Having a market culture as the second dominant culture also means that faculty also sees that administrators likewise regard customer preferences, improvement of productivity and competitiveness. These perspectives absolutely match what naturally occurs in an educational setting where organizational hierarchy exists. At the same time, educational services are constantly undergoing reengineering process to improve quality, productivity and competitiveness. Cameron and Quinn (2006) also mentioned that it is possible that organizational culture may shift focus depending on the reorientation of the members of the organization. Hence, the role that educational leaders is crucial in the change process or to be more specific – in the infusion of technology. While monitoring and controlling is needed to implement the infusion of technology, it should likewise be achieved by emphasizing that the infusion of technology will not only increase the competitiveness of the school but at the same time increase the competency of the faculty. Teachers should not be merely regarded as employees but as partners in the educational process.

4.2 H2: High technology acceptance leads to high adoption of technology

Table 4.

Mean scores on Adoption of Technology and Technology Acceptance

Variables	Mean	S.D.
Adoption of Technology	3.22667	0.440491
Perceived Usefulness	3.47338	0.485512
Perceived Ease of Use	3.36134	0.479402

Results in Table 2 reveals the mean and standard deviation of the variables on adoption of technology and technology acceptance. In the study adoption of technology means the application of e-learning in teaching-learning activities such as: use of interactive CD, use of yahoo, FB groups or email to communicate and disseminate lectures or notes, posting of lectures online for example through slideshare and incorporation of various online activities to enhance learning using a learning management system such as Blackboard, Moodle, Edmodo and other similar platforms. The study excludes the mere use of computer applications as usage of technology. Use of technology in teaching and learning is at its highest in group messaging, use of email for communication and for providing weblinks for research and information gathering; while application of e-learning is low in terms of doing video conference, posting lectures in youtube or other internet-based applications and asking students to post their projects or output online.

Using the constructs of the Technology Acceptance Model, results show that for perceived usefulness of technology, respondents mostly believed that using e-learning makes their job easier and enhance their effectiveness as a teacher. Respondents also perceive that learning new technologies is easy for them and that it makes them more of a skillful teacher.

Table 5.

Linear Regression of Technology Acceptance Variables and Adoption of Technology

Technology Acceptance Variables	Standardized Coefficients	p-value
Perceived Usefulness	.529	0.000*
Perceived Ease of Use	.409	0.000*

*significant

Data in Table 4 shows the linear regression of the variables technology acceptance (TAM) to the adoption of technology. Data confirms the positive high correlation of the variables of TAM such as perceived usefulness ($r = .529$, $p < 0.000$) and perceived ease of use to infusion of technology. Linear regression analysis shows that both variables have a positive and direct influence to infusion of technology. This result highly validates the Technology Acceptance Model (TAM) as one of the most accepted theories for explaining adoption of technology. Thus, the following sub hypotheses can are hereby supported: 1. *High perceived usefulness lead to high adoption of technology* and 2. *High perceived ease of use lead to high adoption of technology*

This reveals that the degree to which a faculty member perceives that technology enhance his or her performance as a teacher (perceived usefulness), as well as a perception that the technology is free of physical and mental effort (perceived ease of use), are influencing factors for teachers to adopt the technology. Thus, this result adds to the growing literature using the Technology Acceptance Model.

4.3 H3: : An individual's attitude and behavior has an effect on adoption of technology

Table 6.

Mean scores on Adoption of Technology and Attitude and Bahavior

Variables	Mean	S.D.
Adoption of Technology	3.22667	0.440491
Attitude	3.35247	0.479011
Behavior	3.54575	0.448783

Tables 5 shows the descriptive data of the variables in terms of mean scores. In terms of attitude towards use of technology, respondents rated the highest that their *find enjoyment and relevance in using technology*; however, respondents believe that *use of technology in teaching should not be compulsory*. On behavior, respondents expressed their intention to *continuously use e-learning applications now and even in the future*.

The study of Jan et al., (2012) mentioned that "individuals mostly perceive technology from a vantage point of their own internal cognitive process and develop beliefs about them" (p. 328). Further, since teachers are altogether part of an organization, there are some social factors that

surround the individual. This could mean that some of their perceptions are actually shared beliefs, attitudes and behaviors towards e-learning. This kind of social contagion can be beneficial to the proliferation of change needed in an organization. This means that the adoption and infusion of e-learning can be influenced by the people within the organization either through awareness of its presence, communicating its benefits or ultimately by providing collegial or technical support. However, it should be noted that respondents dislike the idea of employing e-learning as compulsory in teaching. This is also the result of the study of Jan et al., (2012) where coercive forces had no significant impact on attitude. Forcing e-learning as part of work will not produce a direct adjustment, rather, infusion of technology should operate on the teacher's attitude to participate actively in an organizational advocacy. By doing this, teachers make a commitment to practice e-learning and find enjoyment in what they are doing rather than just being mere compliant and pressured by administrators.

Table 7.

Linear Regression of Attitude and Behavior and Adoption of Technology

Technology Acceptance Variables	Standardized Coefficients	p-value
Attitude	.315	0.000*
Behavior	.346	0.000*

*significant

Using linear regression, results in table 6 showed a very strong relationship attitude ($r = .315$, $p = .000$) and behavioral intention ($r = .346$, $p = .000$) to the use of technology. Thus, the data supports the following sub hypotheses: 1. *Attitude has an effect on adoption of technology*; and 2. *Behavior has an effect on adoption of technology*.

This reveals that a teacher's personal desirability of using the technology without unnecessary force (attitude) and a specified behavior also predict the actual usage or adoption of technology in schools. In a study by Sun (2003), comparative analysis of results of technology adoption revealed that the relationship between attitude and behavior was only statistically significant forty three (43) percent of the times it had been studied. Thus, the result can add to literatures of the strong participation of attitude and behavior to actual adoption of technology. This also confirms the Theory of Reasoned Action wherein a person's intentions are themselves guided by two things: the person's attitude towards the behavior and the subjective norm or the social factors. Similarly, Rossiter's (2007) e-learning embedding framework is confirmed – that the driving force of producing an innovative product lies in the enthusiasm of an individual or professional focus and disciplines of teams.

5. Conclusion and recommendation

Twenty-first century learning environments entail integration of technology into educational settings. Technology has been making rampant waves of change in organizations and schools are not spared from it. Organizational change is challenging in schools being a highly dynamic organization which means any change would have an impact in the curriculum, learning styles, pedagogy, instructional resources, infrastructure, organizational structure and even stakeholder's preferences. But inevitably, technology infusion in education is no longer an option but an existence that must be confronted.

Organizational culture plays a major role in the infusion of technology. Culture change in stable, controlled and matured organizations such as schools occur in a conservative manner and are generally managed consciously. Schools are highly hierarchical in culture and as such are very controlled and process-oriented. But a shifting culture pointing towards the direction of a market culture certainly attest that schools are becoming competitive, strategic and inclusive. Amidst these changes is an indication of a changing climate in schools where from formal control, schools are becoming now customer-oriented – which in turn can also be seen in the shift the curriculum – where the student-centered curriculum is what is now being implemented in relation to outcomes-based education.

Result of the study also implicitly shows the apparent distinction between private and public schools where infusion of technology is more felt in private universities. A glaring reason is the lack of funds to improve infrastructure that would support infusion of technology in terms of computers,

software, server and learning management system. Leadership and management roles certainly plays a major contribution if organizations are keen on taking a leap into technology infusion.

But the key players in this endeavor are the teachers – the instructional designers of this learning environment. The importance of teacher motivation and commitment to the quality and continued growth on a personal and professional level should be considered in the implementation of any program. Empowerment and transformation of teachers involves much support to gain the power of knowledge and competence. Teachers must know their worth and the value of their work in this endeavor.

While there are several influencing factors revealed in the infusion of technology, results suggest the following: 1. management of organization's acculturation through empowerment and active involvement of the people in the educational setting; 2. proper control and monitoring of processes and structures needed in technology infusion; 3. expectations and performance indicators should be well communicated; 4. appropriate coordination systems within the organization should be in place; and lastly, and if necessary, 5. benefits and rewards system should be considered.

Changing an organization's culture is a difficult undertaking, however, securing the commitment is a much easier task in an educational organization. Teachers have innate passion for personal development. Teachers should come to realize that they are both producers and consumers of knowledge. It is their task, therefore, to take the opportunity to enhance themselves, embark on new knowledge, make it their own and personalize it.

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