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Chapter 9

Student's Perception on Culture-Oriented e-Learning System: An Empirical Study

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Additional information is available at the end of the chapter

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Abstract

Electronic learning (e-learning) platform is fast growing in the Africa educational system and many students are busy enrolling and accepting it as a means for educational advancement and career achievement channel. An e-learning platform handles students across different cultural settings with various perceptions, learning needs and expectations. Nonetheless, incorporating cultural differences, expectations and perceptions as well as managing them, is challenging on the side of e-learning developers. The challenging aspect of the cultural management of e-learning can be attributed to the software crisis which has lasted for decades now with little or no solution to it. This study tries to understand and determine the perception of students on the development of a culture-oriented e-learning system that can allow them to be able to customise it to suit desired features in their home language at all times. The study also determines the factors and components that necessitate the implementation of the culture-oriented e-learning system. This study was carried out using quantitative research method among the students of North-West University, South Africa with a total number of 728 questionnaires collected and analysed. The perception of the involved students was mixed in the sense that some of them preferred to use English language as a medium of learning in e-learning while others would like the e-learning system platform to be designed and developed between their home language and English language. Again, their challenges range from lack of engagement to the inflexible e-learning system leading to the discovering of factors that facilitate culture-oriented e-learning system.

Keywords: E-learning systems, culture-oriented, students, South Africa, culture, perception, E-learning platform, learners

1. Introduction

The amount of value placed on the usage of e-learning platform is influenced by learners' culture. The understanding of the cultural differences and the perception of learners on

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e-learning systems is a vital step of departure in the development of e-learning systems. The execution of an e-learning system cannot be done without the understanding of the roles and importance of culture in the process [1]. Culture-oriented e-learning system is seen by researchers as the way forward in dealing with student cultural differences that exist among students using the e-learning system [1–4]. However, research indicates that e-learning systems across the globe have failed to recognise learners cultures [4–6].

E-learning platform is fast growing in the South African educational system and many students are busy enrolling and accepting it as a means for educational advancement and career achievement. An e-learning platform handles students across different cultural settings with various perceptions and learning needs and expectations. Incorporating these cultural differences, expectation and perceptions and managing them is challenging e-learning developers. The challenging aspect of the cultural management of e-learning can be attributed to the software crisis which has lasted for decades now with little or no solution to it. This study tries to understand and determine the perception of students on the development of a culture-oriented e-learning system that can allow them to be able to customise its features in their home language at all time. This study was carried out using quantitative research method among the students of North-West University. A total number of 728 questionnaires completed and analysed. The perception of the involved students was mixed in the sense that some of them preferred to use English language as a medium of learning in e-learning while others would like the e-learning system platform to be designed and developed between their home language and English language.

2. Background and context

The education climate in South Africa (SA) consists of students from different cultural environments, societies and nations [7] including North-West University (NWU) where this study was carried out. All these students use e-learning system called eFundi which assists them to engage in the learning process between themselves as student and lecturers. Moreover, eFundi is an e-learning platform used to aid teaching and learning across NWU campuses. South Africa's educational system embraces different populations and cultures from all divisions of the world. Then, post-apartheid education enrolment in SA has grown from 104,000 in 1990 to above 300,000 in 2008 as a result of the growth-boosting distance education. Distance education that involves e-learning accounts for about 38% of enrolment in the country and 85% of students registered at University of South Africa (Unisa) are on distance learning [8]. As a context, SA cultural environment impacts on the e-learning platform [1].

3. Literature review

The perception of students on culture-oriented e-learning system cannot be complete without understanding of the following keywords: An e-learning system, culture and learning culture and culture-oriented e-learning and what researchers are saying about them.

3.1. An e-learning system

The growth rate of e-learning has reached 35.6%, but challenges occur [9]. Example, according to [10], Asia shows the highest regional growth rate on e-learning with the market value of 17.3%, and amounting billions of dollars. Africa is sitting at 15.2% on annual growth rate. Middle East have annual growth rate of 8.2%, Latin America grows 14.6% annually while Western grow at 5.8% annually and many more. The finding shows that e-learning is penetrating fast in many regions of the world. E-Learning is teaching and learning via the Internet; it is an increasing process these days in education systems [11]. Higher bandwidth, lower internet tariff and computer cost and an increase in computer literacy make access to learning materials easy and more accessible. E-learning has a positive, new and easy accessibility to information anytime, anywhere allowing learners from all continents of the world to learn and share information synchronously [11]. It shows globally that learners can access same learning material and content systematically. E-learning cannot operate without an educational platform and Internet network. Traditional (classroom) learning is subject to boundaries, but e-learning is borderless [4]. Knowledge and ideas can be shared and disseminated globally and easily as a result of e-learning in conjunction with the Internet [4]. However, e-learning has a negative and challenging end, the implementation comprising hardware and software and training cost can be high and inclusion of learner's culture. Copyright infringement increases and gives room to a virus and other security threats [12]. Again, according to [13], it limits "barriers to access" because only limited students can use the resources online; it also lacks customization and motivation. Sometimes, the communication medium may not suit students' needs, like the video/ audiotape sounds not clear enough and many more. Nonetheless, e-learning aims at supporting and representing classroom-based teaching and learning online (Internet), but nowadays, it tries to establish virtual classrooms [14].

Internet transformation is increasing e-learning space day-by-day [15]. While e-learning is a transforming agent in a society bridging rural–urban divide [16]. In the learning environment, the definition of e-learning is based on expectation and outcome and this can be related to distance and online learning [17]. In accordance with [16, 17], e-learning has different definition and terminologies and researchers have not agreed upon a single definition. Some higher education systems do not deliver distance education through cutting-edge technology media while also on e-learning. The term e-learning and distance education do not correspond with each other [18].

3.2. Culture and learning culture

A culture can be seen as shared values, ambition, motives, emotions, identities, beliefs, meanings and interpretation of importance from similar knowledge with a collective membership and can be transferred to generations [19]. The study of information technologies (IT) goes with an understanding of culture at different levels involving organisational and national groups. These levels can impact the success and failure of any implementation [20]. Directly or indirectly, culture impacts managerial decision, however, culture is complex because of the "multiple divergent definitions and measures of culture" [20]. In [16], they suggests that

culture influences how people use e-learning and the outcome in their lives and education. This means that e-learning usage and outcome is embedded on learners' culture.

Culture is an indicator of people's behaviour and norms in a diver's environment even in learning [11]. Culture is the people's way of life, thinking, religion, food, clothing, belief and many more. Culture can influence how learners (people) react, act and behave in certain situations, people's interaction with the environment, colleagues and how they give meaning to symbols and concepts. In accordance with [21], the definition of culture has no double meaning. Some researchers define culture as "production and reproduction" of ideas in a certain way [11]. Others, as a system of knowledge sharing, the origin of symbols, meaning that, it gives structure to existence, and can be exported to influence others. To this study, culture is a shared value, attitude, attributes and concerns among a group of people in a confirmed environment. Then, it important to understand cultural aspects of learners in the development of e-learning in order for effective learning to take place and achieved. Culture in e-learning means the integration of social, national and cultural heritage of the learners in the curricula development [4]. Achieving this implies that learners' traditional values, symbols, attributes and many more must be enshrined in the system. [4] further states that e-learning implementation cannot succeed without cultural identification in the system.

Culture influences people (learners) and their emotions positively or negatively. However, in e-learning, emotions are an important area of concern [22]. For example, students from western countries have positive emotions while those from eastern countries have negative emotions [23]. In the determination of positive and negative emotion, students from western countries see pride as positive emotion which is considered as negative in eastern countries [24].

Culture can also affect learners' preference individually or collectively [11], concern [25], allocation of reward [26] and many more. So, culture and learning culture consideration is important for e-learning development because it's the way of people's behaviour. The avoidance of cultural content risks learners from a different background [11]. The culture on e-learning is the inherited attitude or behaviour of people toward e-learning. Learning culture demands understanding of how learners assimilate skills and knowledge in their learning environment, react to change, objective-oriented, the innovative mind-set and change retainment. However, learning cultures are those attributes that encourage learners to develop a good attitude, goal, values, practice in the learning process [27]. Learning culture attributes are: 'Personal mastery' or self (personal) command (encouragement of creating goal-minded, social, organisational team effort to succeed), 'Mental model' or state (the force that changes learner's mind, behaviour and attitude), 'Shared vision' or shared visual sense (commitment to others), Team (group) learning (corporate thinking patterns to excel more than individual thinking skills), 'System thinking' or patterns of thinking (ability to think different from others) [27], Objective-oriented (ability to foresee the future).

3.3. Culture-oriented e-learning

Culture-oriented e-learning is the centre or focus point of culture. In the study, it symbolises the necessity of culture on e-learning system development, because learning occurs in an environment where culture exists. For an effective usage of e-learning tools and software, culture must be widely considered in the development process, meaning that culture should be embedded in

e-learning. The embedment of culture on learning will allow easy flow of e-learning software [2]. But, currently, most of e-learning contents are written in English [4].

E-learning remote resources allocation should consider things like the cultural setting of learners, their experience, technology and many more and the consideration of the following culture-oriented learning systems [3]. To the study, culture-oriented e-learning symbolises the necessity of culture on the e-learning system development process. But, there is no place for learners' culture in the development [28, 29]. [4] believes that lack of culture causes challenges in the development of e-learning. [30] suggest that these challenges must be resolved for e-learning to effectively deliver the needed service to learners. These challenges and issues can be resolved through the concept of culture-oriented e-learning system framework factors [1, 11–31]. Well executed e-learning system lie in a framework [32].

The factors are cultural, community, administrative, content, activity/exercise factor (AEF), and learning style. The cultural factor cover aspects of learners' attitude, honour, respect, obedience, friendship, mutual bond and regard for authority [8]. The community factor facilitates active collaboration, communication, dissemination of information between learners and the lecturers using discussion forum, blog, newsroom, chat-rooms and many more [9–31]. An administrative factor uses statistical tools to facilitate lecturers' learning process [31]. Factor constitutes on important part of development and usage of the e-learning educational platform [33]. Students use e-learning systems in advancing knowledge [34] and they are the final users of e-learning platform [35].

Content factor also ensures that the learning material is designed properly in engaging with learners (students) [9, 35]. This factor is received based on the mode and style of the learners as covered by the learning style. According to [19], learning style explains learners' learning modes [1]. The availability and preparation of all learning contents and support are teachers' obligation [1, 34]. Lecturers are intermediate people between the administrators and the e-learning system. The activity/exercise factor (AEF) is the task engaged in by learners to effectively use the learning system as the mandate of e-learning is accomplished [1]. AEF facilitates all academic-related work of the lecturers [31]. At this point, culture e-learning system is a system that integrate and recognised different learners' cultural attributes as shown in this study. According to [36], culture e-learning system or culture-oriented e-learning system is a system that considers and represent learners (users) culture. Reason being that e-learning systems operates in an environment controlled or influenced by social, group, or national culture. Then, [4]: 4) who states that realising e-learning objectives demands that attention be given to "cultural learning needs" of the learners and house them in the system as to promote and provide learners outcome basic education. Culture on e-learning system bridge cultural divide among students [1].

3.4. Technology acceptance model (TAM)

TAM was derived from the theory of reasoned action (TRA) [37]. The theory determines user's perceptions in relations to usefulness and ease to use. While [38] suggests that TAM is used to predict individuals (students) acceptance to new technology invention, concepts or application/s. Culture-oriented e-learning initiative can be regarded as a new concept. According to the TAM theory, individuals (students) acceptance of any new technological tools are basically influenced

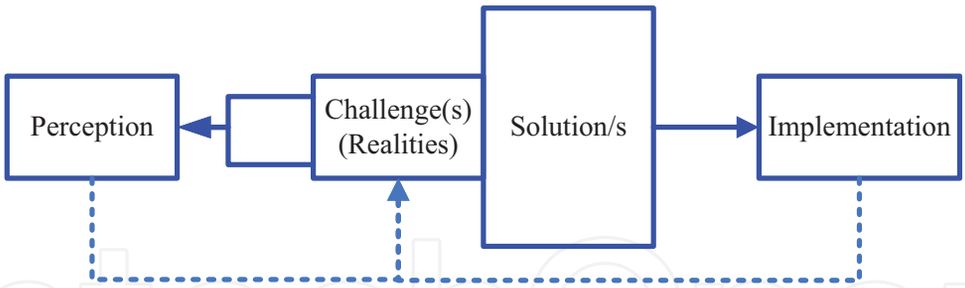


Figure 1. Culture-oriented e-learning system perception principle.

by two factors: "perceived usefulness" (the extent an individual believes a new tools or technology will impact toward his or her performance) and 'perceived ease to use' (the extent an individual (students) believes that new concept will be effort-less to use) [38, 39]. Student's adoption of culture-oriented e-learning system can take a long time toward decolonisation of education system in the developing countries, but it's achievable. However, according to [40], technology adoption requires mental reengineering over some period of time. TAM supports user's perception/s on technology tools or invention/s, and challenges (realities) defines perception. While solution(s) determines implementation (see **Figure 1**).

Perception/s and implementation/s resolves around challenges (dotted line) (see **Figure 1**). **Figure 1** guided this study in general.

Based on this theory in the chapter, the student's acceptance of culture-oriented e-learning system depends on their perception on the usefulness to academic advancement or performance and ease to use. In order to determine the students perception/s, the researchers tries to understand the challenges the current e-learning is facing. Through the understanding of the challenges, then effective implementation of e-learning system can be done.

4. The research questions

What are the students' perceptions of culture-oriented e-learning system? (this question aimed to understand how student feel on culture-oriented e-learning system)

What are the challenges facing the current e-learning system? (the design, implementation and usage of e-learning are confronted with different kinds of challenges, perceptions and issues which result in an ineffective optimization of e-learning potential benefits. This question seeks to understand the real challenges students face in using the e-learning system)

How can culture-orientated e-learning system be implemented to serve learners? (the alignment of e-learning with culture remains challenging. This question seeks to understand from learners how their cultures can be represented in the e-learning)

5. The research objectives

This study is centred on investigation of student's perceptions of culture-oriented e-learning system because learners' cultural environment impacts on their e-learning values, perception and

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usage. The implementation of an e-learning system that is culturally oriented can be regarded as a benefit to students. This study seeks to determine: students' perceptions of culture-oriented e-learning system, the challenges facing current e-learning systems and how to implement culture-orientated e-learning systems.

6. Research methodology

Research design covers the procedures and processes to carry out research with focus on collecting relevant data to answer research questions [41]. According to [42], methodology is the plan, layout and strategy that connects research methods. Research methodology is divided into parts, quantitative, qualitative and mixed methods [43, 44]. A quantitative research deals with numeric data, qualitative research focuses on tests, audios and videos, while mixed research is the combination of both into one study [44, 36]. A mixed research method is used when data from a single method is insufficient in the study and to ensure quality study [44]. The selection of any methodology purely depends on the researcher's knowledge, the kind of the study under investigation, the population sample and others. As a matter of fact, this study deployed quantitative method because numeric data involving questionnaire were used in the study.

In order to accomplish the research objectives and answer the questions, steps were taken beginning with the determination of the population sample of North-West University students. Through the sampling, the actual participants were determined and selected. Sampling influences any research outcome [45]. The population sample of this study comprises students at the North-West University, South Africa, who use e-learning platform (eFundi) in their daily studies in all academic related work. The University have a population of 73,414 students in 2016 academic year. According to [46], a population sample of n = 75, 0000 is equivalent to 382 sample size. Nonetheless, this study exceed the sample size that resulted to 728 participants, because a printed and online questionnaire were circulated and participants participated in their numbers willingly. The institution was also selected based on the cultural and societal background of the students across the university, who use eFundi as a learning portal.

As earlier noted, the researcher collected 728 completed questionnaires using online survey platform (surveymonkey.com) and printed copies (soft-copy) to gather their insight into culture-oriented e-learning system. At the end, Statistical Analysis System (SAS version 9.3) and Statistical Package for the Social Science (SPSS) were used to analyse the collected data into meaningful information.

7. Presentation of results and discussion

The results are presented in three sections and each presentation is followed by discussion.

7.1. Students' perceptions of culture-oriented e-learning system

In this section, learners were asked whether they preferred e-learning system designed in home language and 27.88% preferred e-learning system designed in their home language; 58.38% indicated English language while 13.74% were not sure of the preferred language of design. The

finding is supported by [4] who states that most of the contents of e-learning are written in English indicating that most of the contents of e-learning system are written in English to push learners to use such system because they have no alternative system to use.

Again, participants were also asked for their preferred language of e-learning and 60.44% preferred English while 31.18% of the respondents indicated both English and Home language. The indication from this finding shows a high percentage of participants' willingness and eagerness to learn through a customizable e-learning system as well as preference of conventional systems designed in English language. In an attempt to determine the perception of the participants regarding e-learning system over classroom teaching, the outcome was that 25.27% were not sure of the preferred platform while 53.43% did not prefer e-learning platform over the classroom. Participants' preference of classroom over e-learning is regarded as a challenge because of different kinds of lack on e-learning system. However, [14] believes that e-learning system supports classrooms but the opposite was the perception and belief of the participants.

Research suggests that there is no place for learners' culture in the system development [28, 29]. [4] believes that lack of culture causes challenges in the development of e-learning. To verify the suggestions from the literature, the researchers asked a question to determine if learners were able to customise e-learning to home language and the result showed that 44.09% responded that they cannot customise e-learning features to their home language, 35.03% were not sure but 20.88% could customise to their home language. The input from the participants supports the literature. Despite lack of customization of e-learning systems, participants still believed that the current e-learning platform is effective as shown by 81.87% (B14) of the participants who regarded the current e-learning system effective while 10.71% saw it as problematic/difficult.

In determining the part of the cultural element that influences their usage of e-learning systems, 81.87% of the respondents are influenced by single element (religion, values and attributes, language, law and politics and many more) while 18.13% by multiple elements. The finding indicates that there are different kinds of elements that participants identify that impact the execution of culture-oriented e-learning systems. For an effective execution, these elements must be considered by the developers because of the impact of culture on e-learning. According to [1], the cultural environment impacts the e-learning platform. At this level, the researcher went on to determine the cultural impact on e-learning, to which 44.64% of the respondents believed that culture would impact and improve their level of understanding of the content, 43.13% of the respondent felt no influence while 5.22% believed that cultural elements would help them to think well (**see Appendix A**).

7.2. The challenges facing the current e-learning system

With reference to the challenges facing the current e-learning system, the participants were asked if they had attended classes purely based on e-learning system. The results should that 31.32% of the participants indicated yes, 51.51% responded no while 17.17% responded not sure. But, according to [35], many students may not have attended any educational institution had it not been for e-learning. Due to the different kinds of issues like outdated contents, unreliable network connection, and unfriendly user interface, many educational institutions have failed to implement learning systems where learning is purely done online. Again, the researcher aimed

to determine if learners were able to customise e-learning to home language and the result showed that 44.09% responded that they have not customise e-learning features to their home language, 35.03% were not sure but 20.88% could customise to their home language. Participants' high response rate shows that e-learning systems lack learners' culture [28, 29]; Ref. [4] believes that lack of culture causes challenges in the development and usage of e-learning.

The challenges also continue because of lack of consultation between developers of e-learning systems and the users (learners). When participants were asked to determine if they were consulted by e-learning developers during the development process, 80.91% of the respondents had not been consulted by developers and 13.46% were not sure if they had been consulted. [30] suggest that these challenges like lack of consultation must be resolved for e-learning to effectively deliver the needed service to learners. Participants still believed that their institutions encouraged them to use e-learning system with 86.26% of the respondent feeling the encouragement and 81.87% also believed that e-learning system is effective in their study. On e-learning challenges compared to the classroom 97.80% had mixed feeling (single issue) on the challenges compared to the classroom while only 2.20% responded multiple issues. Participant's responses are in accordance with [47], who regard Information and Communications Technology (ICT) as a promising mechanism to empower e-learning processes and dealing with teaching and learning challenges. The empowerment is impacted by the cultural elements in the usage of e-learning systems.

In determining the part of the cultural element that influences their usage of e-learning system, 81.87% of the respondents are influenced by single element while 18.13% by multiple elements. Participants' responses concur with [19] who suggest that cultural differences and beliefs impact learners' learning style and process. They also impact the ways of thinking and adaptation into society [48]. At this level, the researcher went on to determine the cultural impacts e-learning, to which 44.64% of the respondents believed that culture would impact and improve their level of understanding of the content, 43.13% of the respondent felt no influence while 5.22% believed that cultural elements would help them to think well. The finding shows that the challenges encountered by the e-learning system at large are unable to prevent learners from using or understanding contents through e-learning systems. Learners are also challenged and 60.58% are experiencing technical problems, which agree with [30] that e-learning is confronted with issues which need to be resolved for the potential to explore. But 94.51% of the participants have different kinds of issues concerning e-learning systems showing that there are various kinds of challenges confronting users of e-learning (**see Appendix B**).

7.3. How to implement the culture-orientated e-learning system

The implementation of culture-oriented e-learning demands a couple of factors and processes as discussed here. With regard to implementing culture-oriented e-learning systems, the following factors and components provided here aid to facilitate the implementation process. However, the issues and challenges confronting e-learning system usage as seen from the precious sections of the study must be fully understood and resolved. The finding indicates that participants between the cultural factors include respect, authority, honour, regard, obedience, relationship, mutual bond and friendship. They all have impact on e-learning: the finding shows 32.55% of the population

said yes, 26.24% responded somewhat while 15.93% selected not at all. Then, according to [8], culture and its factors should be taken into consideration during the development phase. [5] suggest that a good learning approach can be attributed of effective cultural factors [8].

This culture can be executed through community factors which help shape the learning capacity of the learners and 65.11% of the population said yes, 22.94% chose somewhat while 5.49% selected not at all. Participants' views and ideas are supported by [31] who believe that community factors ensure effective use of different tools in communication during teaching and learning. Culture-oriented e-learning systems can also be implemented using administrative factors which 73.49% of the population believe in, while 80.22% believe in content factors and the following researchers, [9, 31–33] support this view of participants. On the question of learning style assisting students to focus on e-learning or learning process, 67.45% agreed on the learning style, 23.21% chose somewhat while 3.30% chose not at all. The high response rate is supported by [49] who believes that different learning styles of the learners should be recognised.

Nonetheless, [34] believe in the assistance of e-learning lecturers in the provision of learning materials and contents. This sentiment supported by learners who trust that lecturers assist them in how to use e-learning systems. About 43.96% of the respondents indicated partial assistance from the lecturers, 37.64% chose full assistance while 18.41% selected no assistance. With assistance from Activity/Exercise Factor (AEF) to stay focused on e-learning, 63.74% of the respondents selected yes, 27.06% chose somewhat while 3.71% chose not at all. The views and ideas of the participants agree with [31] who understand that AEF manages all academic-related work prepared by the lecturers. In totality, learners were later asked about their thoughts and views in regard to all these different factors and the importance to e-learning implementation and usage and the response indicated that 65.38% of the respondents would like e-learning systems developed and implemented using all the factors, 25.14% was somewhat not sure while 4.12% were totally not sure (**see Appendix C**).

8. Conclusion and recommendations

The impact of culture can be felt in how learners use and value e-learning media. The cultural differences and the perception of learners of the e-learning system should be a vital step of departure in the development of e-learning systems. The execution of e-learning systems cannot do without the understanding of the roles and importance of culture in the process [1]. The study has managed to achieve its objectives with the understanding of learners' perceptions of culture-oriented e-learning systems which can be coined as mixed perception but many of the learners stating that e-learning systems should develop only in the English language. Nonetheless, it was realised in the discussions above that e-learning system is confronted with a number of challenges and issues ranging from lack of consultation by developers, customisation, unfriendliness, outdated content, unreliable network/connection and many more. These challenges and issues can be fixed with the reflection and engagement from the developers, students and other stakeholders involved in the development of e-learning systems.

The study also discovered different factors and components which participants felt should be realised and used when implementing culture-oriented e-learning systems. All these findings

were arrived at using different kinds of statistical software as noted earlier. In summation, the perception of the participants was acknowledged, however, the same research can be conducted from the e-learning developers and administrative perceptive as to determine their views and ideas toward the implementation of culture-oriented e-learning systems that can accommodate learners from all walks of life. The following points are worth noting in this study:

1. Identifying the factors necessary in the design of e-Learning System (e-LS),
2. Understanding the challenges in managing cultural diversity,
3. Understanding the benefits attached to a culture-oriented e-learning system,
4. Understanding how cultural differences impact e-learning design and implementation of e-learning systems,
5. How to capture cultural deviation in society during e-learning system development phase,
6. Managing cultural differences while developing e-learning tools that are culturally focused and friendly at all levels.
7. Nonetheless, similar study can be conducted to determine the perception of the teachers/lecturers and e-learning developers on culture-oriented e-learning system.

A. Appendix A: Students' perceptions of culture-oriented e-learning system

	Questions/Variables	Question scales (options)	Frequency	Percentage
B7	Prefer e-learning designed in home language	Yes	203	27.88
		No	425	58.38
		Not sure	100	13.74
B8	Preferred language for e-learning	English	440	60.44
		Home language	61	8.38
		Both	227	31.18
B9	Preferred e-learning over classroom	Yes	155	21.29
		No	389	53.43
		Not sure	184	25.27
B11	Able to customise e-learning to home language	Yes	152	20.88
		No	321	44.09
		Not sure	255	35.03
B14	Perception about state of e-learning	Effective	596	81.87
		Problematic/Difficult	78	10.71
		Ineffective	54	7.42

	Questions/Variables	Question scales (options)	Frequency	Percentage
B17	Elements of cultural influence on e-learning (religion, values and attributes, language, law and politics, beliefs, communication, symbols, power and customs and traditions)	Single element	596	81.87
		Multiple elements	132	18.13
B18	Cultural impacts on e-learning	To understand	325	44.64
		To think	51	7.01
		Answering questions	38	5.22
		None/No influence	314	43.13

B. Appendix B: The challenges facing the current e-learning system

	Questions/Variables	Question scales (options)	Frequency	Percentage
B4	Ever attended e-learning classes	Yes	627	31.32
		No	48	51.51
		Not sure	53	17.17
B11	Able to customise e-learning to home language	Yes	152	20.88
		No	321	44.09
		Not sure	255	35.03
B12	Ever consulted by e-learning developers	Yes	41	5.63
		No	589	80.91
		Not sure	98	13.46
B13	Institution encourages you to use e-learning	Yes	628	86.26
		No	31	4.26
		Not sure	69	9.48
B15	E-learning challenges compared to classroom (not user-friendly, outdated content, unreliable network/connection)	Single issue	712	97.80
		Multiple issues	12	2.20
B17	Elements of cultural influence on e-learning	Single element	596	81.87
		Multiple elements	132	18.13
B18	Cultural impacts on e-learning	To understand	325	44.64
		To think	51	7.01
		Answering questions	38	5.22
		None/No influence	314	43.13
C20	Have experienced technical problems using e-learning	Agree/Strongly agree	441	60.58
		Not sure	32	4.40
		Disagree/Strongly disagree	255	35.03
C25	Issues about e-learning	Single issue	688	94.51
		Multiple issues	40	5.49

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C. Appendix C: How to implement the culture-orientated e-learning system

	Questions/Variables	Question scales (options)	Frequency	Percentage
C27	Think cultural factors have impact on e-learning	Yes	237	32.55
		Somewhat	191	26.24
		Not sure	184	25.27
		Not at all	116	15.93
C28	Think community factors can help shape learning capacity	Yes	474	65.11
		Somewhat	167	22.94
		Not sure	47	6.46
		Not at all	40	5.49
C29	Think administrative factors be considered in e-learning design	Yes	535	73.49
		Somewhat	130	17.86
		Not sure	41	5.63
		Not at all	22	3.02
C30	Think content factors are important to students on e-learning	Yes	584	80.22
		Somewhat	103	14.15
		Not sure	21	2.88
		Not at all	20	2.75
C31	Does learning style assist students to focus	Yes	491	67.45
		Somewhat	169	23.21
		Not sure	44	6.04
		Not at all	24	3.30
C32	Do lecturers assist on how to use e-learning	Full assistance	274	37.64
		Partial assistance	320	43.96
		No assistance	134	18.41
C33	Does AEF assist you to stay focused on e-learning field	Yes	464	63.74
		Somewhat	197	27.06
		Not sure	40	5.49
		Not at all	27	3.71
C34	Think above-listed factors are important to e-learning system	Yes	476	65.38
		Somewhat	183	25.14
		Not sure	30	4.12
		Not at all	39	5.36

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