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User Experience On Cisco Networking Academy E-Learning Platform: A Preliminary Study

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Abstract: E-learning platform is no longer a novelty in this era of globalization. E-learning is becoming more and more popular and can improve the existing learning system. By using the E-learning platform, students will have more options to participate in the courses that are best for them because of the E-learning's ability to accommodate large scale users. Cisco Networking Academy has been implemented in UMS since 2003. However, no preliminary study was conducted to evaluate the implementation in the aspect of user experiences. Therefore, this paper explores end-user experiences in using the platform. An online survey employing 31 participants was conducted to investigate the user experience on Cisco Networking Academy E-learning platform at Faculty of Computing and Informatics for Network Engineering program, Universiti Malaysia Sabah. A modular evaluation of key Components of User Experience (meCUE) used in the structure evaluation of the questionnaires, consists of four modules; Module 1: Product Perceptions, Module 2: User Emotions, Module 3: Consequences of Use, and Module 4: Overall Evaluation. Overall, the Cisco Networking Academy E-learning platform can be well considered. The results show that most students have a positive experience towards the platform in which 58.4% gave positive response of the excellence of the platform (answered Excellent to Very Excellent). Although the findings are in the early stages, it provides a valuable overview of the e-learning platform as one of Malaysia's most common educational platforms.

Keywords: Network Engineering, perceptions, user emotions, Cisco Networking Academy, e-learning.

1. INTRODUCTION

Most of us are used to the usual way used in university study sessions such as students paying attention to lecturers in the front of classes, and then lectures are delivered using slideshow through the transmitter. When PowerPoint presentations become a key ingredient in the teaching and learning process, students will be more likely to become passive during the course [1]. This is because students will be more focused on whether to listen, copy notes or both. This tradition is a common method used in higher education.

The rapid advances in technology today make it very difficult for students to be interested in the use of computers and mobile phones [2-4]. In this regard, the concept of e-learning is

implemented in the education system so that students' interest in the use of computers and mobile phones can be balanced with their education. According to [5], e-learning is a process of transforming conventional education into digital form. Author [6] explained that the world community is now receptive to e-learning. Therefore, e-learning is a creative and relevant method in today's educational institution.

E-learning can be described as another alternative learning process platform that uses Internet technology to communicate interactive and useful learning resources and programs to enhance the learning environment [7]. This learning system has been commonly used at all levels of education; it can mainly be seen in the higher education system [8] since it has been evolved around the 1960s. Some higher education institutions also use e-learning as their primary education and offer interactive degrees that are more convenient and profitable for individuals [9]. These benefits include saving money, reliability and the versatility provided to incorporate this method in most higher education institutions [10]. In general, e-learning can be used in several ways, such as television, radio, computer network, etc. The most widely used method of higher education learning will be web-based e-learning. Many higher education institutions, such as Universiti Malaysia Sabah (UMS), use the web-based e-learning framework as a medium to help students acquire more information and have a successful learning process [11].

The web-based e-learning that was used for this analysis is: Cisco Networking Academy (Cisco NetAcad) [31]. This e-learning platform offers networking courses and certification upon completion of the course. Cisco NetAcad has plain colors and basic icons. Cisco NetAcad provide plain colours and simple icons. The sign in method is limited only by using the student email because the courses provided in the system are only specific for students who are enrolled in the courses via their respective universities. Cisco NetAcad provides less navigation information, and the difficulty of navigation can be quite difficult since the user need to browse deep into each section.

To cope with the challenges of globalization, educators should customize their approach to teaching so that students can proactively adjust their learning and polish their internal learning [11, 12]. In addition, students should take a more innovative, realistic, and interactive learning approach to ensure that the knowledgeable community is reached.

The rest of this paper is designed as follows: Section 2 reviews the related study from past studies. Section 3 discusses the methodology based on an online survey that has been conducted on 31 students from Network Engineering program where meCUE's guideline is chosen to conduct the user experience assessment on e-learning. Section 4 discusses results and findings. Finally, Section 5 summarises the study and suggests future work in order to establish the need of improving the learning approach used in the e-learning platform.

2. RELATED WORK

Today, there is a growing trend towards a sustainable innovation that adapting the technology-assisted learning which commonly known as e-learning [13-14]). E-learning has been used to assist teaching and learning activity since 1999. It bridges the gap between a teacher with the students in different locations. Interactive teaching and learning have taking the advantages of the advancement in fast and reliable network connection and multimedia technology [15], not only to disseminate information in multimedia form but also real-time communication. Some tertiary institutions have used e-learning as a fully online course or as an alternative to face-to-face learning in blended learning to address conventional learning constraints [16].

In this segment, we highlight some of the recent reviews that have been conducted and are

relevant to the current study. E-learning is interchangeably referred to web-based learning, computer-based learning, distance learning, virtual education and digital collaboration [17-18]). Consequently, the implementation of online learning courses by the higher learning institution has increased significantly, as well as the number of student's involvement [19-20]).

"Online learning" refers to e-learning through the use of a web-based system such as a massive open online learning system (MOOCs) and a learning management system (LMS) to promote teaching and learning activities by enabling students to access learning materials and information, interact and receive help from the teacher [21] and online discussion with the other students. LMS can act as a repository of learning content in which anyone with authority will be able to access the online learning resources anywhere, anytime [7].

One of the main factors why most of the higher education institution adopting LMS is the ability for the institution to track the student's learning activities as well as the alternative way for learning assessment. Besides, LMSs have provided essential information from course enrollment to student performance [22].

Based on previous research, there are several factors that influence the student's satisfaction with LMS [23]. These factors include the course content [24], computer literacy [25], perceived usefulness [26], communication quality and knowledge transmission [27], individual behavioral expectation [23], self-efficacy and face value, time management [28].

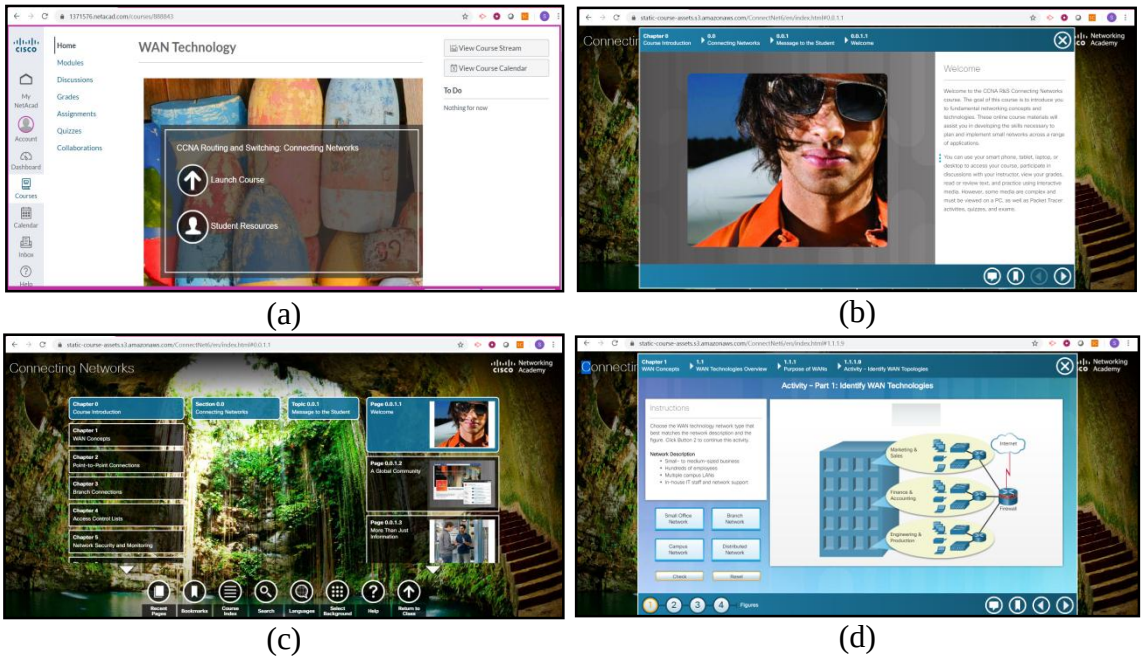
Irrespective of the benefits of online learning, previous research identifies problems that need to be resolved. The first is the challenge of providing assistance and feedback to learners pursuing online learning [29-30]. Next, providing personalized assistance and feedback cannot easily be done due to the vast number of students enrolling in e-learning.

3. METHODOLOGY

An online survey was conducted to collect input from end-users to determine the degree of usability satisfaction with the use of Cisco Networking Academy E-Learning. The questionnaire consists of five separately validated modules and consists of 34 questions. The questionnaires were adapted from meCUE, a modular assessment of the main components of user experience. The structure of the questionnaires was based on the analytical Component model of User Experience by Thuering and Mahlke (2007)[32]. They were divided into four modules: Module 1 - Product Perceptions, Module 2 - User Emotions, Module 3- Consequences of Use, and Module 4 - Overall Evaluation.

A. Participants

There are 31 participants, who randomly selected from fourth year students of Network Engineering Program from Faculty of Computing and Informatics, Universiti Malaysia Sabah UMS). These students have been exposed to the Cisco Networking Academy E-Learning platform since year two. It short, this is the fourth and the last module in Academy. The course/module that was used for evaluation is KP44903 WAN Technology in which the name in CCNA module is Connecting Networks. This module is CCNA version 6. The module is shown in Figure 1 (a) to (d).



(a) (b)

(c) (d)

Figure 1: (a) The Front Page, (b) the Welcome Page, (c) The Content Page, and (d) One of the Chapters

B. Hardware Component

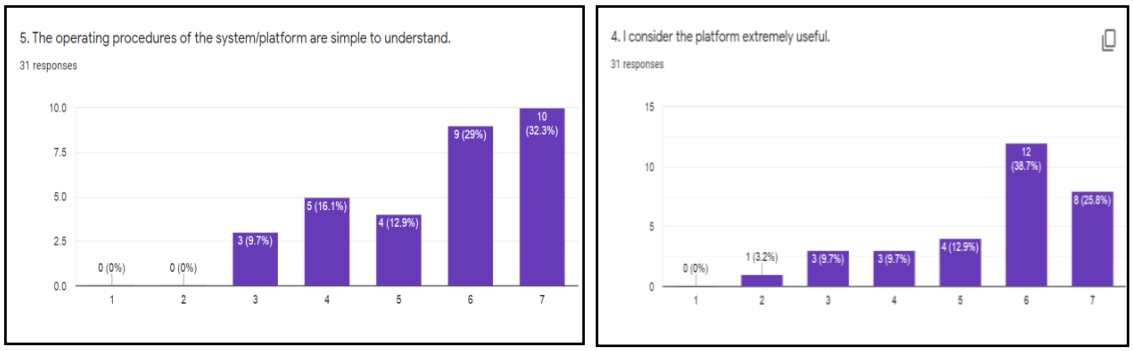
The participants are required to answer the online questionnaire through Google Form during the time given and an analysis was carried out based on their responses. There are 30 questions, which are divided into 6 Sections based on meCue.

4. RESULTS AND FINDINGS

Now we present the analysis of our findings regarding product perception, user emotions, consequences of use and overall evaluation.

A. Product Perceptions

In order to evaluate the UX of Cisco Networking Academy platform, the respondents have been asked to rate the usefulness and level of easiness to understand of the current platform.



(a) (b)

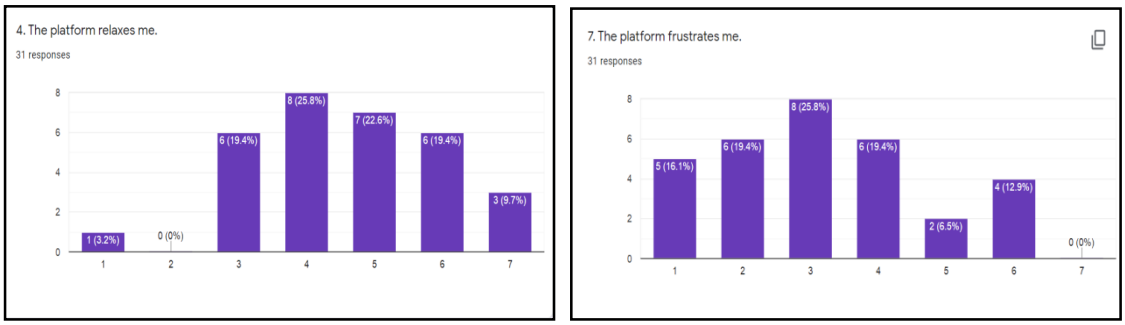
Figure 2: (a) Usefulness, (b) Easy to understand

In Figure 2 (a), the majority rate the current platform is good (rate 5 to 7), 9.7% with neutral and 25.8% with excellent rate. Only 12.9% respondents rate the platform not as useful

as they perceived. When asked about whether the platform is easy to understand (Figure 2(b)), most of the respondents (74.2%) answered towards strongly agree, 16.1% answered neural and the rest did not find it easy to understand.

B. User Emotions

In this section, the users have been asked to rate their emotions in using this platform.



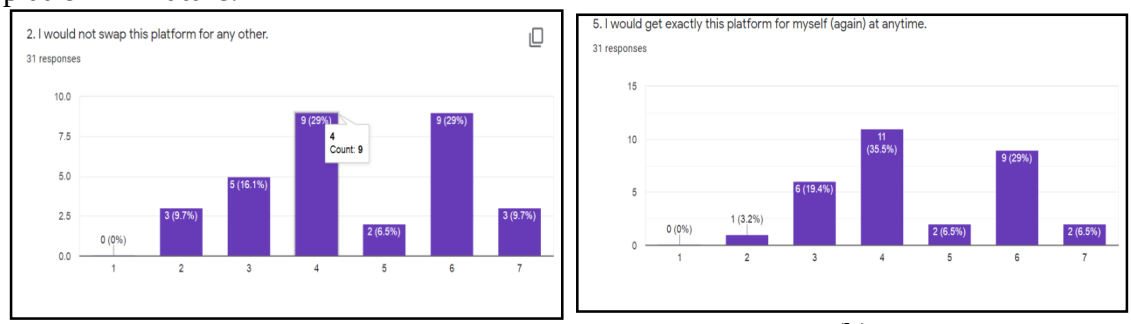
(a) (b)

Figure 3: (a) Feeling relax, (b) Feeling frustrated

Figure 3 shows that the majority of the respondents gave somewhat neural feeling between relax or not 25.8%. About 23% of them feel that the platform relaxes them. It depicts the same trend for the opposite questions in Figure 3(b).

C. Consequence of Use

In this section, the respondents were asked about their opinion on willingness to use this platform in future.



(a) (b)

Figure 4: (a) Stick to this platform, (b) Willing to use the platform again

When they were asked if they will swap the platform with another one, majority is neutral (29%) and at the same time there are group that will not swap with other platform (29%). This is a very interesting finding in which some feel the platform is very good and at the same time somewhat indecisive.

D. Overall Evaluations

Finally, the respondents were asked to give an overall evaluation about the Cisco NetAcad Platform.

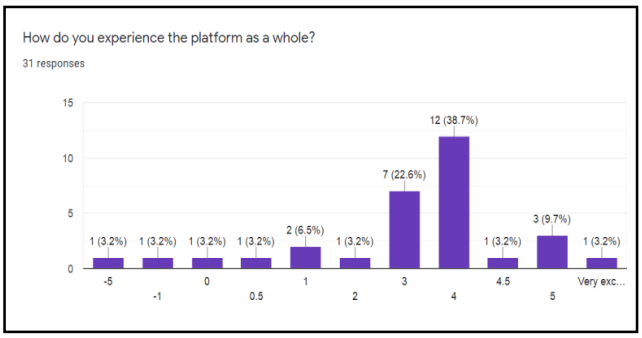


Figure 5: Overall experiences

Based on the overall results depicted in Figure 5, the overall performance is convincing and positive where it scored 54.8% of the respondent gave positive response of the excellence of the platform (answered Excellent to Very Excellent).

5. CONCLUSIONS

The results from the survey and assessment give some significant input regarding the user experience on utilizing Cisco NetAcad E-learning platforms in UMS. From the survey, related issues regarding E-learning are identified and achieved as a preliminary study. In term of product usefulness, the respondents agree that Cisco NetAcad is useful and easy to understand. In terms of user emotions, the respondents feel somewhat equals between relaxes and frustration. However, in terms of their willingness to use the platform in future, they feel good with the platform but some of them feel indecisive. In short, these study shows that Cisco Networking Academy e-learning platform satisfies more than 50% of the students in terms of user experience in which makes us understand their feedback regarding the usage of e-learning platform.

Future works may investigate user experience and its relationship with the students' grade. Another further study could also be conducted such as comparison between Cisco NetAcad and Smartv3 which is the official e-learning platform in UMS.

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