Investigation of Security Awareness on e-Learning System Among Lecturers and Students in Higher Education Institution

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Abstract—The advancement of computer and Internet technologies have brought teaching and learning activities to a new dimension. Learners were virtually moved out from their classrooms to a new learning environment where learning contents and materials were delivered electronically. This new environment, which is called e-learning environment uses the web and other Internet technologies to enhance teaching and learning experience. The success and failure of any e-learning system fall on how secure the system is. Security of an e-learning system is very important so that the information contained in the system is not compromised. However no matter how secure an e-learning system is the security threats always fall on human factor. Human is identified as the weakest link in information security and lack of security awareness such as password sharing will compromise the security of e-learning system. This paper studies the awareness level in information security among e-learning users, particularly students at Higher Education Institution. The study focuses on evaluating awareness level, perception and behavior of e-learning users from International Islamic University Malaysia. Results of this study helps the university authority in preparing effective and specific awareness program in e-learning security for their students.

Keywords; e-learning; security; awareness; students ; threats; behaviors

I. INTRODUCTION

Information and Communication Technology (ICT) growth has given significant impact in human life. People rely on the ICT in doing things in their daily life. Businesses, educational sectors, governments, organizations and individuals claimed a lot of benefits from the ICT.

In educational sector, the advancement of Internet technology has changed the education environment itself. The education environment can be divided into two categories, which is traditional education environment and e-learning education environment [4].Traditional education environment is described as central physical teaching facility (institution) consists of lecturers, students and database. It is restricted to only one physical location. At the other hand, e-learning environment is a technology based learning where learning material is delivered electronically. E-learning has the advantages low campus maintenance cost, larger population served, up-to-date information and accessibility. Education sector has now moved from a traditional education environment to e-Learning environment [4].

In the context of Higher Education Institution in Malaysia, the implementation of e-learning was done since year 2000. A report produced by Ministry of Higher Education Malaysia (MOHE) pointed out eight key areas that provides comprehensive study on the status, trends and challenges of e-learning in Malaysia Higher Education Institutions. They are (i) Policy (ii) Governance (iii) Learning Management System (LMS) (iv) Training (v) e-Content Development (vi) Integration in Teaching & Learning (vii) Quality Assurance and (viii) Future Plans [5]. In the third area, which is the LMS raised issues of e-Learning effectiveness from user perspective. Result obtained from 26 e-learning administrators, 1,635 lecturers and 6,301 students shows that most of the features of LMS such as accessibility (61.5%), reliability (57.7%), user friendliness (57.7%), security (57.7%), flexibility (53.8%), and scalability (53.8%) are performing well. However, even security is performing well, there is a security trade-off that will cost money, time, convenience, capabilities, and liberties [6]. The awareness level of e-learning users varies according several categories. The categories can be based on age, gender and academic rank [7] of the users. Different level of security awareness among e-learning users will lead to security issues such as a students could intercept another student's work and resubmit as her/his work, a student could obtain unauthorized access to the examination database and change his/her marks or the marks of any other students and a student could receive assistance while writing the examination [4].

International Islamic University Malaysia (IIUM) is one of the institutions that implemented e-learning in their teaching and learning environment. The use of an e-learning system called iTa'leem (Innovative Teaching and Learning Environment System) has significantly improve the quality of teaching and learning at the university. Lecture notes, teaching videos, audios, test and course enrollment were made available in iTa'leem for easy access to lecturers and students. According to the university' authority, several attacks and attempts to breach iTa'leem security were found every semester especially during the course enrollment period. The attacks, which came from internal network of the university