New Empirical Data Findings for Student Experiences of E-Learning analytics Recommender Systems and their Impact on System Adoption

Hadeel Alharbi, University of New England, Armidale, Australia
Kamaljeet Sandhu, University of New England, Armidale, Australia

ABSTRACT
This article examines Saudi Arabian students’ experiences of using an e-learning analytics recommender system during their study and the extent to which their experiences were predictors of their adoption and post-adoption of the system. A sample of 353 students from various universities in Saudi Arabia completed a survey questionnaire for data collection. Results showed that user experience is a significant predictors of student adoption and post-adoption of an e-learning recommender system. Based on these findings, this study concluded that universities must support students to develop their awareness of, and skills in using an e-learning recommender system to support students’ long-term acceptance and use of the system.

KEYWORDS
Adoption, Elearning Analytics Recommender System, TAM, Universities

1. INTRODUCTION
E-learning refers to the use of electronic information, multimedia, and communication technologies (ICT) in education. It is mostly inclusive of all education technology types related to training, learning, and teaching. The generally acknowledged advantages of e-learning include: the provision of flexible and convenient learning pathways, geographical reach, cost effectiveness in course delivery, and more effective management of learning spaces (Al-Gahtani, 2016). Within the suite of e-learning technologies is the e-learning analytics recommender systems (ERS). Broadly categorised as a collaborative, content-based, or hybrid system, an ERS primarily helps students who lack adequate personal experience or competency to evaluate and make better choices from the potentially overwhelming number of alternative items (Okechi and Kepeghom, 2013). This done by first predicting and then responding to the user’s areas of interest. Despite the rapid growth in the Saudi ICT market, adoption of ICT applications such as e-learning solutions remains limited (Alenezi et al., 2012; Al-Gahtani, 2016). As such, Saudi Arabia is regarded as a late adopter of e-learning technologies. Therefore, this study explores the user experience factors impacting the adoption of ERS by university students in Saudi Arabia. Understanding these factors is crucial to learning activities that aim foster the adoption of such technologies in Saudi Arabia the wider Arab region. Data analysis showed that students’ perception regarding the usefulness of the e-learning recommender system was a key determinant of system acceptance as it was seen as an educational tool to reduce task times and improve

DOI: 10.4018/IJIDE.2019040105
academic performance. The primary drivers for students to perceive the usefulness of the e-learning recommender system were the anticipated benefits of the system to access educational materials, the ability of the system to improve their academic performance, effectiveness, productivity and ability of the system to enable them to accomplish their educational tasks quickly. Data also showed that the perception that the e-learning recommender system was easy to use contributed to the use of the system. In other words, the easier the system was to use, the more likely the students would accept it. Perceived ease of use was measured in terms of system flexibility, system ease of use in terms of learning and understanding, and the ease of skills assessment of its users.

2. METHODOLOGY

Qualtrics survey software was used to develop a web-based survey divided into two sections. The first section captured the respondents’ profiles (i.e. demographics data) using multiple-choice questions. The second section included close-ended scale questions using a five-point Likert scale with end points of “strongly agree” and “strongly disagree” to measure the independent and dependent variables related to the research model.

The web-based questionnaire was distributed via email to 1000 students and was accessible to students from 5 February 2016 to 15 May 2016. Participation was completely voluntary. In addition, 550 questionnaires were randomly distributed by the researcher and three professional survey collectors recruited to distribute and collect the survey data from different locations. Of the 406 returned surveys, 53 were excluded from analysis either because the students indicated that they had not used an ERS or due to missing response items. The remaining 353 surveys were included in the analysis.

3. RESULTS

3.1. Sample Characteristics

Descriptive statistics showed 82.4% of the respondents were females and 17.6% were males. Most respondents (85.6%) were aged between 18 and 23 years, and most (81.3%) perceived their level of experience in using computers as intermediate. The majority of respondents (68.8%) indicated they used the Internet more than once a day, and 47.9% of respondents used computer-assisted instruction as their e-learning educational technology, compared to 41.6% who used e-learning systems, and 10.5% who used the World Wide Web as their educational technology (see Table 1 for full details of the sample characteristics).

3.2. Students’ Experience with e-Learning Recommender System

User experience data is important to IS/IT research to inform decision making around the system design and to strengthen the development process (Djamasb et al., 2016). The user experience is also important for understanding continuous usage as a determinant of IT success (Deng et al., 2010). User experience in this study was measured using a seven-item scale:

1. Students’ skills
2. Finding information on the ERS
3. Knowing how to use the ERS
4. Finding the ERS
5. Navigation within the ERS
6. Having enough awareness when interacting with the ERS
7. Confidence when using the ERS
Students’ Attitudes towards Library Facilities and Information Resources of University Libraries in Tamil Nadu: A Survey
www.igi-global.com/chapter/students-attitudes-towards-library-facilities/77968?camid=4v1a

New Empirical Data Findings for Student Experiences of E-Learning analytics Recommender Systems and their Impact on System Adoption
www.igi-global.com/article/new-empirical-data-findings-for-student-experiences-of-e-learning-analytics-recommender-systems-and-their-impact-on-system-adoption/223436?camid=4v1a
Gender Equality as a Development Factor in the Application of ICT for Agro-Forestry
Wapula Raditloaneng (2012). *Cases on Developing Countries and ICT Integration: Rural Community Development* (pp. 123-133).
[www.igi-global.com/chapter/gender-equality-development-factor-application/57991?camid=4v1a](www.igi-global.com/chapter/gender-equality-development-factor-application/57991?camid=4v1a)

Developing a Hierarchy Model for Selection of Social Media Manager
[www.igi-global.com/article/developing-a-hierarchy-model-for-selection-of-social-media-manager/129820?camid=4v1a](www.igi-global.com/article/developing-a-hierarchy-model-for-selection-of-social-media-manager/129820?camid=4v1a)