Asian Journal of Scientific Research

Country Pakistan - SIR Ranking of Pakistan

Subject Area and Category Multidisciplinary
Multidisciplinary

Publisher Asian Network for Scientific Information

Publication type Journals

ISSN 19921454

Coverage 2009-ongoing

Scope Asian Journal of Scientific Research is a peer-reviewed international journal dedicated to address the both applied and theoretical issues in the broad field of science and technology. Scope of the journal includes: Biology, chemistry, physics, zoology, medical studies, environmental sciences, mathematics, statistics, geology, engineering, computer science, social sciences, natural sciences, technological sciences, linguistics, medicine, industrial, and all other applied and theoretical sciences. Asian Journal of Scientific Research is a refereed journal.

12

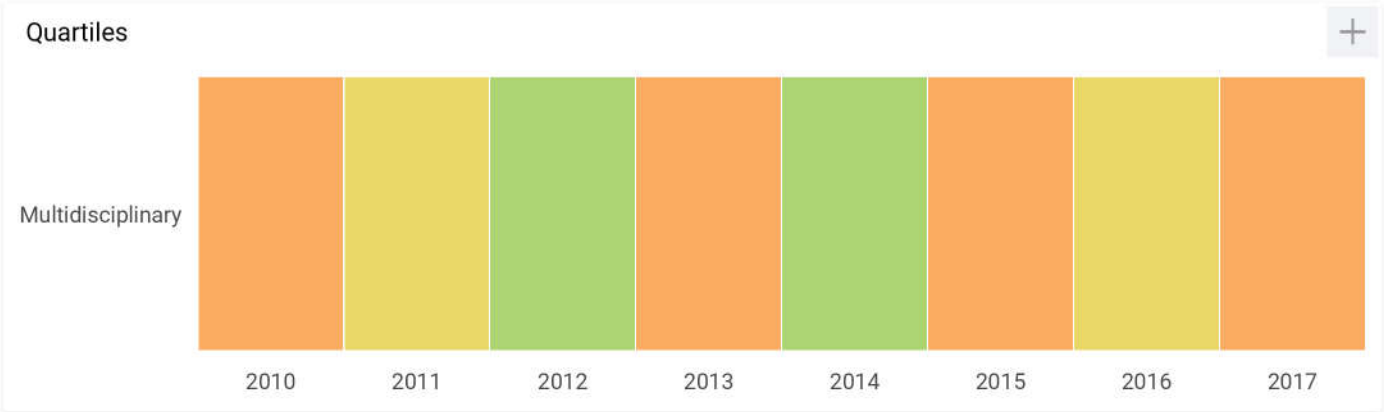
H Index

Homepage

How to publish in this journal

Contact

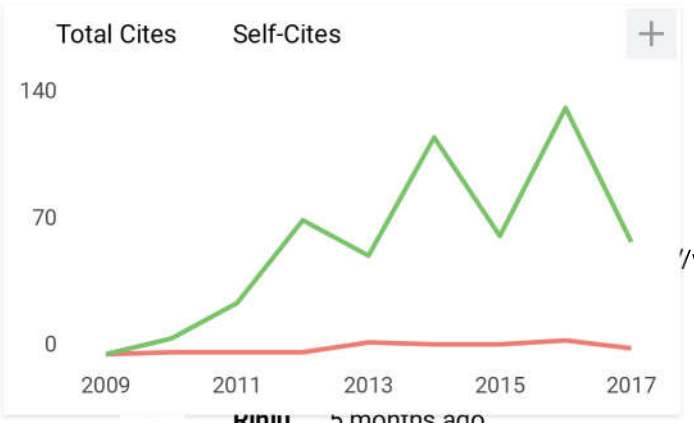
Join the conversation about this journal



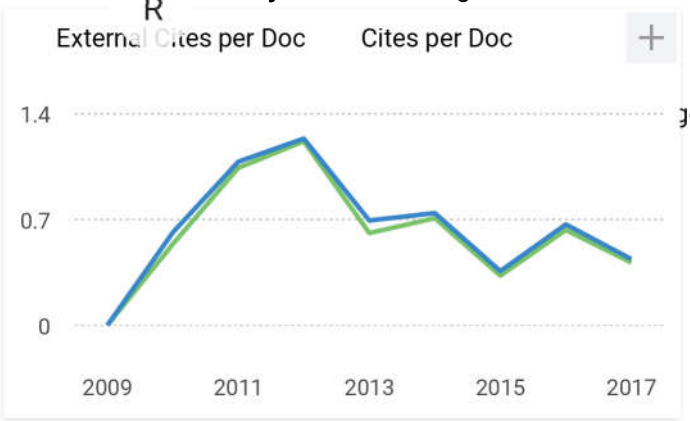
SJR

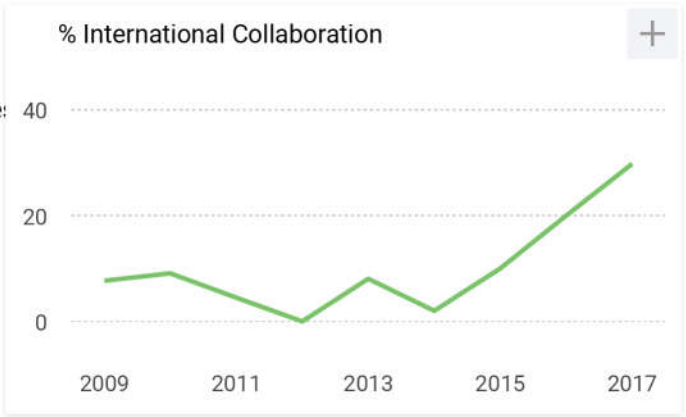
Citations per document

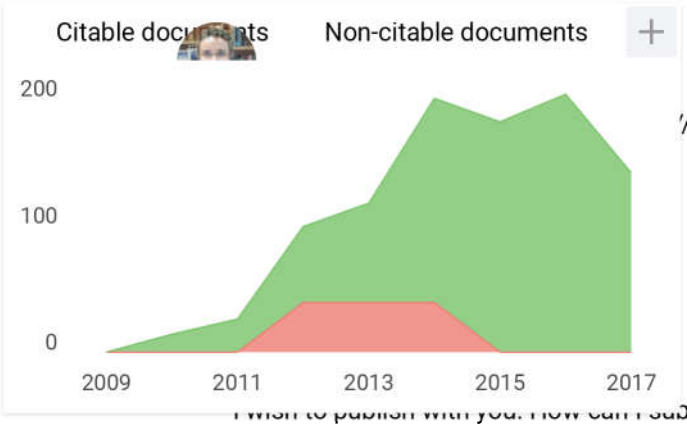
S

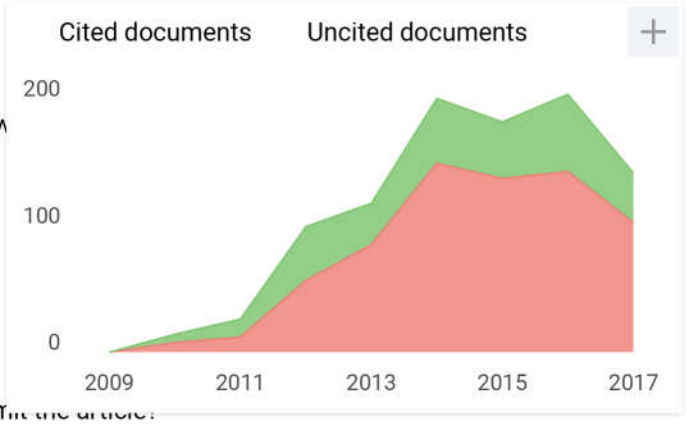


Rinju 5 months ago









Asian Journal of Scientific Research
Q3 Multidisciplinary

Show this widget in your own website

Just copy the code below and

Cornel.

reply

S **Sudarmo** 9 months ago

Dear Team,
Would you please inform me how to publish an article to index Scopus journal?.

Thank and regards,
Sudarmo

reply

Elena Corera 9 months ago

Dear Sudarmo, You must publish your article in any journal indexed in Scopus. Best Regards, SCImago Team

Leave a comment

Name

Email
(will not be published)

The users of Scimago Journal & Country Rank have the possibility to dialogue through comments linked to a specific journal. The purpose is to have a forum in which general doubts about the processes of publication in the journal, experiences and other issues derived from the publication of papers are resolved. For topics on particular articles, maintain the dialogue through the usual channels with your editor.

Asian Journal of Scientific Research

Publisher: Asian Network for Scientific Information

Asian Journal of Scientific Research is a peer-reviewed international journal dedicated to address the both applied and theoretical issues in the broad field of science and technology. Scope of the journal includes: Biology, chemistry, physics, zoology, medical studies, environmental sciences, mathematics, statistics, geology, engineering, computer science, social sciences, natural sciences, technological sciences, linguistics, medicine, industrial, and all other applied and theoretical sciences. Asian Journal of Scientific Research now accepting new submissions. Submit your next paper via online submission system.

eISSN: 2077-2076
pISSN: 1992-1454

Editor-in-Chief: Kaiser Jamil

Subscription 2019

Volume	Total Issues	Personal (Print+Online)	Institutional (Print+Online)	Place Order
12	4	600 USD	1200 USD	Via Online Via email (Download Form)

Most Recent Articles

- Understanding and Localization of Partial Discharge by Numerical Analysis of Acoustic Emission
  [Abstract] [Fulltext PDF] [References]
- Quality Function Deployment Method under Interval Neutrosophic Environment for Sustainable Supplier Selection
  [Abstract] [Fulltext PDF] [References]
- Automatic Segmentation of Retinal Blood Vessels of Diabetic Retinopathy Patients using Dempster-shafer Edge Based Detector
  [Abstract] [Fulltext PDF] [References]
- Reviewing the Role of Stakeholders in Requirement Engineering: A Stakeholder's Theory Perspective
  [Abstract] [Fulltext PDF] [References]
- Defending against Medium Access Control and Network Layer Misbehavior Attacks by Monitoring Nodes in MANET
  [Abstract] [Fulltext PDF] [References]

COPE COMMITTEE ON PUBLICATION ETHICS

This journal is a member of and subscribes to the principles of the Committee on Publication Ethics.

Navigation

- Online First
- Current Issue
- Previous Issues
- Editorial Board
- Submit a Manuscript
- Guide to Authors
- Article Processing Charges
- Subscribe to E-alerts

Asian Journal of Scientific Research
Q3 Multidisciplinary
best quartile
SJR 2017
0.15
powered by scimagojr.com

Google Scholar

Indexed In

- ASCI-Database
- Chemical Abstract Services
- Google Scholar
- ISI Web of Knowledge
- SCIMAGO
- SCOPUS

Search SciAlert website

Asian Journal of Scientific Research

Publisher: Asian Network for Scientific Information

Asian Journal of Scientific Research is a peer-reviewed international journal dedicated to address the both applied and theoretical issues in the broad field of science and technology. Scope of the journal includes: Biology, chemistry, physics, zoology, medical studies, environmental sciences, mathematics, statistics, geology, engineering, computer science, social sciences, natural sciences, technological sciences, linguistics, medicine, industrial, and all other applied and theoretical sciences. Asian Journal of Scientific Research now accepting new submissions. Submit your next paper via online submission system.

eISSN: 2077-2076
pISSN: 1992-1454

Editor-in-Chief: Kaiser Jamil

Editor-in-Chief

Kaiser Jamil
Jawaharlal Nehru Institute of Advanced Studies, India

REGIONAL EDITORS

Saeed Olyaee
Shahid Rajaee Teacher Training University, Iran

Md. Rabiul Islam
University of Utara Malaysia, Malaysia

V.K. Rahmathulla
Central Silk Board, India

M. Ali Akbar
University of Rajshahi, Bangladesh

B. Muralidharan
Birla Institute of Technology and Science, Dubai

Arvind Singh Tomar
Govind Ballabh Pant University of Agriculture and Technology, India

Anoop Singh
University of Denmark, UK

J. Jeyakodi Moses
PSG College of Technology, India

Dr. Nour-Eddine Es-Safi
Mohammed V University, Morocco

Navigation

- Online First
- Current Issue
- Previous Issues
- Editorial Board
- Submit a Manuscript
- Guide to Authors
- Article Processing Charges
- Subscribe to E-alerts

Google Scholar

Indexed In

- ASCI-Database
- Chemical Abstract Services
- Google Scholar
- ISI Web of Knowledge
- SCIMAGO
- SCOPUS

Cesar G. Demayo
Mindanao State University, Philippines

Mueen Uddin
Universiti Teknologi Malaysia, Malaysia

Aws Alaa Zaidan
University Pendidikan Sultan Idris, Malaysia

Tarek Abdel-Aziz Ahmed Mohammed
National Institute of Oceanography and Fisheries, Egypt

Oday Ibraheem Abdullah
University of Baghdad, Iraq

ASSOCIATE EDITORS

Abdel-Tawab Halim Mossa
National Research Centre, Egypt

Seifedine Kadry
Beirut Arab University, Lebanon

Essam Roshdy El-Zahar
Salman Bin Abdulaziz University, Saudi Arabia

Seweta Srivastava
Lovely Professional University, India

Gaurav Mahesh Doshi
Vivekanand Education Society's College of Pharmacy, India

Rowaida Salah Saleh Ahmed
University of British Columbia, Canada

Wan Muhamad Amir Bin W Ahmad
Universiti Malaysia Terengganu, Malaysia

Mervat Ibrahim Foda
National Research Center, Egypt

Rajeev Kumar Singla
Netaji Subhas Institute of Technology, India

Kerong Zhang
Fuyang Normal College, China

Elsayed Mahmoud Bayoumy
National Research Center, Egypt

Robert Jankowski
Gdansk University of Technology, Poland

Muhammad Sabbir Rahman
International Islamic University Malaysia, Malaysia

P. S. Joanna
Hindustan Institute of Technology and Science, India

Hossam El Din Mohammad Sallam
Jazan University, Saudi Arabia

TECHNICAL EDITORS

Arvind Chel
Centre for Energy Studies, India

Srinivasan Alavandar
Ck College Of Engineering And Technology, India

Abdul Salam Ansari
University of Rajasthan, India

Amjad Daifalla Al-Nasser
Yarmouk University, Jordan

Subramanian Karthikeyan
College of Applied Sciences, Oman

Rocco Furferi
University of Florence, Italy

Omar Mohammad Atrooz
Mutah University, Jordan

Ahmed Abduljabbar Jaloob Aljanaby
University of Kufa, Iraq

T. Ratha Jeyalakshmi
Einstein College of Engineering, India

Kean Ong Low
Multimedia University, Malaysia

Oludotun Adebayo Phillips
Kuwait University, Kuwait

Medhat Moustafa El-Sayed
Nuclear Research Center, Egypt

Patrick Akata Nwofe
Ebonyi State University, Nigeria

Mohammad Abul Hossain
University of Dhaka, Bangladesh

Deniz Aydemir
Bartin University, Turkey

Siva Nagi Reddy
Sridevi Women`s Engineering College, India

Kameswaran Ravichandran
University of Colorado Boulder, USA

Nasina Jigeesh
Universiti Teknikal Malaysia, Malaysia

Chee Kong Yap
Universiti Putra Malaysia, Malaysia

Shamsul Bin Muhamad
Universiti Malaysia Kelantan, Malaysia

Soleiman Mohamamdi Limaei
University of Guilan, Iran

Asian Journal of Scientific Research

Publisher: Asian Network for Scientific Information

Asian Journal of Scientific Research is a peer-reviewed international journal dedicated to address the both applied and theoretical issues in the broad field of science and technology. Scope of the journal includes: Biology, chemistry, physics, zoology, medical studies, environmental sciences, mathematics, statistics, geology, engineering, computer science, social sciences, natural sciences, technological sciences, linguistics, medicine, industrial, and all other applied and theoretical sciences. Asian Journal of Scientific Research now accepting new submissions. Submit your next paper via online submission system.

eISSN: 2077-2076
pISSN: 1992-1454

Editor-in-Chief: Kaiser Jamil

Volume 10, Number 4, 2017

Light Weight Metallic Coating over Carbon Nano Tubes Polymer Composite Shielding for Electromagnetic Radiation

Vijaya Saradhi Dommeti and Dharma Raj Cheruku

Asian Journal of Scientific Research Volume 10, Number 4, 259-270, 2017

[Abstract] [Fulltext PDF] [Fulltext HTML] [XML: Abstract + References] [References]

Social Critical Factors Affecting Intentions and Behaviours to Use E-Learning: An Empirical Investigation Using Technology Acceptance Model

Djoko Budiyanto Setyohadi, Michael Aristian, Benyamin Langgu Sinaga and Nor Aziati Abdul Hamid

Asian Journal of Scientific Research Volume 10, Number 4, 271-280, 2017

[Abstract] [Fulltext PDF] [Fulltext HTML] [XML: Abstract + References] [References]

Production of Juice from Zaghloul Date at Khalal Stage

Abdelaziz Nadir, Nahed Mohamed Abdelmagauid, Ibrahim Mohamed Foaud Helmy and Ali Ragab Shalaby

Asian Journal of Scientific Research Volume 10, Number 4, 281-289, 2017

[Abstract] [Fulltext PDF] [Fulltext HTML] [XML: Abstract + References] [References]

Effect of Different Concentration Techniques on Some Properties of Fresh and Stored Pomegranate Juice

Marwa Hanafy Mahmoud, Faten Lotfi Seleet and Mervat Ibrahim Foda

Asian Journal of Scientific Research Volume 10, Number 4, 290-298, 2017

[Abstract] [Fulltext PDF] [Fulltext HTML] [XML: Abstract + References] [References]

Upsurge in *Curvularia* Infections and Global Emerging Antifungal Drug Resistance

Louis Bengyella, Laban E. Yekwa, Sayanika D. Waikhom, Kiran Nawaz, Sehrish Iftikhar, Teboho S. Motloi, Ernest Tambo and Pranab Roy

Asian Journal of Scientific Research Volume 10, Number 4, 299-307, 2017

[Abstract] [Fulltext PDF] [Fulltext HTML] [XML: Abstract + References] [References]

Physio-chemical and Quality Characteristics for Date Juice at Khalal Stage

Abdelaziz Nadir, Nahed Mohamed Abdelmagauid, Ibrahim Mohamed Foaud Helmy and Robiel Kamel Moawad

Asian Journal of Scientific Research Volume 10, Number 4, 308-315, 2017

[Abstract] [Fulltext PDF] [Fulltext HTML] [XML: Abstract + References] [References]

Assessing the Mercury Hazard Risks among Communities and Gold Miners in Artisanal Buladu Gold Mine, Indonesia

Anwar Mallongi, Irwan and A.L. Rantetampang

Asian Journal of Scientific Research Volume 10, Number 4, 316-322, 2017

[Abstract] [Fulltext PDF] [Fulltext HTML] [XML: Abstract + References] [References]

Adoption of Research Based Practices in Business Institutions: A Cluster Analysis

Nazish Baladi, Arabella Bhutto, Pir Roshan Shah Rashdi and Qazi Muhammad Moinuddin Abro

Asian Journal of Scientific Research Volume 10, Number 4, 323-335, 2017

[Abstract] [Fulltext PDF] [Fulltext HTML] [XML: Abstract + References] [References]

External Shocks and the Macroeconomic Response of Small Open Economy: A Structural-VAR Approach for

Navigation

Online First
Current Issue
Previous Issues
Editorial Board
Submit a Manuscript
Guide to Authors
Article Processing Charges
Subscribe to E-alerts

Indexed In

ASCI-Database
Chemical Abstract Services
Google Scholar
ISI Web of Knowledge
SCIMAGO
SCOPUS

Pakistan

Abdul Rahman Nizamani, Muhammad Akram Gilal, Ali Gul Khushik, Syed Munawar Shah and Abidullah Abid

Asian Journal of Scientific Research Volume 10, Number 4, 336-344, 2017

[Abstract] [Fulltext PDF] [Fulltext HTML] [XML: Abstract + References] [References]

Fiscal Solvency of Asian Developing Countries Using Ad Hoc and Model-based Sustainability Tests

Syed Munawar Shah, Syed Haider Shah, Anowar Zahid and Abdul Rahman Nizamani

Asian Journal of Scientific Research Volume 10, Number 4, 345-353, 2017

[Abstract] [Fulltext PDF] [Fulltext HTML] [XML: Abstract + References] [References]

Assessment of Academic Knowledge Transfer Practices in Field of Environment

Jagul Huma Lashari, Arabella Bhutto, Pir Roshan Shah Rashdi and Qazi Muhammad Moinuddin Abro

Asian Journal of Scientific Research Volume 10, Number 4, 354-362, 2017

[Abstract] [Fulltext PDF] [Fulltext HTML] [XML: Abstract + References] [References]

Talent Management at Service Sector: Linking Organizational Based Self-esteem to Servant Leadership, Interactional Justice and Job Dedication

Azril Firal Ahmad Farok and Siti Rohaida Mohamed Zainal

Asian Journal of Scientific Research Volume 10, Number 4, 363-371, 2017

[Abstract] [Fulltext PDF] [Fulltext HTML] [XML: Abstract + References] [References]

Authentic Leadership in the Context of Organizational Change, Insights from Pakistani Health Sector Organizations

Haroon Bakari, Ahmed Imran Hunjra, Saman Attiq, Rashid Ali Khuhro, Abdul Saboor Khan and Rukhsana Kouser

Asian Journal of Scientific Research Volume 10, Number 4, 372-379, 2017

[Abstract] [Fulltext PDF] [Fulltext HTML] [XML: Abstract + References] [References]

New Analytical Approach for Finding the Gyroscope Forces and its Properties

Ryspek Usubamatov

Asian Journal of Scientific Research Volume 10, Number 4, 380-386, 2017

[Abstract] [Fulltext PDF] [Fulltext HTML] [XML: Abstract + References] [References]

Measuring the Interest Level and Reasons of Post Graduate Students and Faculty Members in Pursuing PhD in ICT Disciplines in Public Sector Universities/institutes of Sindh

Saima Fazlani, Arbella Bhutto and Erum Shah

Asian Journal of Scientific Research Volume 10, Number 4, 387-393, 2017

[Abstract] [Fulltext PDF] [Fulltext HTML] [XML: Abstract + References] [References]

Cost Effective Factor of a Midimew Connected Mesh Network

M.M. HafizurRahman, Rizal Mohd. Nor, M.A.H. Akhand and Tengku Mohd Tengku Sembok

Asian Journal of Scientific Research Volume 10, Number 4, 394-399, 2017

[Abstract] [Fulltext PDF] [Fulltext HTML] [XML: Abstract + References] [References]

A New Conceptual Model for BYOD Organizational Adoption

Zainab Alansari, Safeeullah Soomro, Mohammad Riyaz Belgaum and Shahaboddin Shamshirb

Asian Journal of Scientific Research Volume 10, Number 4, 400-405, 2017

[Abstract] [Fulltext PDF] [Fulltext HTML] [XML: Abstract + References] [References]

Control and Data Flow Execution of Java Program

Safeeullah Soomro, Zainab Alansari and Mohammad Riyaz Belgaum

Asian Journal of Scientific Research Volume 10, Number 4, 406-410, 2017

[Abstract] [Fulltext PDF] [Fulltext HTML] [XML: Abstract + References] [References]

Asian Journal of Scientific Research

ISSN 1992-1454

science alert
http://www.scialert.net

ANSInet
an open access publisher
http://ansinet.com

OPEN ACCESS Asian Journal of Scientific Research

ISSN 1992-1454
DOI: 10.3923/ajsr.2017.271.280

Research Article
Social Critical Factors Affecting Intentions and Behaviours to Use E-Learning: An Empirical Investigation Using Technology Acceptance Model

[1]Djoko Budiyanto Setyohadi, [1]Michael Aristian, [2]Benyamin Langgu Sinaga and [3]Nor Aziati Abdul Hamid

[1]Magister Teknik Informatika, Universitas Atma Jaya Yogyakarta, Yogyakarta, Indonesia
[2]Teknik Informatika, Universitas Atma Jaya Yogyakarta, Yogyakarta, Indonesia
[3]Faculty Technology Management and Business, Univ Tun Hussein Onn, Batupahat Malaysia

Abstract

Background and Objective: Currently many universities implement e-learning to support information technology based on learning (e-learning). However, there are still a limited number of students who are willing to make use of e-learning. The aim of this research was to investigate the factors reducing problems in the implementation of e-learning and the variables significantly influencing e-learning system. A model was examined to analyse the main factors of e-learning implementation problem. **Methodology:** The study employed used online and self-administered paper based on survey using Slovin equation. From the equation, a total of 157 online respondents were selected while 136 respondents for paper based survey. Respondents are among the students who have experienced using e-learning. Stratified sampling method was used to select the respondents from each department. The level of importance of each factor was represented by its validity coefficient. Confirmatory factor modelling approach was used to assess the criticality of factors included in the model. **Results:** This result revealed the critical factors that exert a significant influence on acceptance level of e-learning among the respondents that can be beneficial for improving the understanding about behaviour related in using the computer in an educational institution. The results show that social factors which support the student in using e-learning are more important than perceived usefulness. Furthermore, the roles of lecturers also determine the success of e-learning implementation. **Conclusion:** This study showed that social factors are more important than perceived usefulness and perceived ease of use. Furthermore, the social factors which influence the student comes from both senior and instructor and it should be considered when e-learning is designed.

Key words: E-Learning, social factors, technology acceptance model, perceived usefulness

Received: May 10, 2017 Accepted: August 02, 2017 Published: September 15, 2017

Citation: Djoko Budiyanto Setyohadi, Michael Aristian, Benyamin Langgu Sinaga and Nor Aziati Abdul Hamid, 2017. Social critical factors affecting intentions and behaviours to use e-learning-an empirical investigation using technology acceptance model. Asian J. Sci. Res., 10: 271-280.

Corresponding Author: Djoko Budiyanto Setyohadi, Magister Teknik Informatika, Universitas Atma Jaya Yogyakarta, 55281 Yogyakarta, Indonesia

Competing Interest: The authors have declared that no competing interest exists.

Data Availability: All relevant data are within the paper and its supporting information files.

INTRODUCTION

Identifying factors that affect the acceptance of e-learning among students is fundamental in ensuring the successful implementation of e-learning in higher education institutions. Being cognizant of these factors becomes critical in that there has been a massive usage of e-learning and the emergence of e-learning that has changed the view of learning process. Face-to-face meeting has no longer been a must in learning activities in tertiary education. The development of the Information Technology (IT) that has been accelerated as well as the decreasing prices of technology will generate new inventions both in theories and e-learning technology[1].

E-learning is defined as a method of using information technology in education. One of the excellences of e-learning compared to conventional teaching is that it enables students to access the learning contents, both the present and the past ones, given by their lecturers. Hence, it increases the efficiency in terms of time and place[1,2]. There are some factors influencing the acceptance and success of e-learning such as: The characteristics of users and media, learning context, interaction and personalization[1].

The Indonesian government has supported e-learning implementation in educational institutions as stated in the Ministry of Education and Culture regulation No. 109/2013 about the implementation of distance learning in University level as well as the decree of National Deliberation of Department of National Education in 2008 declaring the use of information technology as a medium in enriching learning process[3]. As a higher education institution, the Atma Jaya Yogyakarta University intends to take full advantage of the information technology development[4]. This plan was clearly formulated as strategic objective in university strategic planning 2004/2009, which has been implemented by the development of information technology capacity to support information technology based learning (e-learning)[5]. The Atma Jaya Yogyakarta University considers that e-learning is one of the facilities that give its students and teaching-staff an easy method to carry out the teaching and learning activities. In 2007, the University started to use e-learning[6]. It is applied as a voluntary web service for students. In addition, it is served as a complementary facility to face-to-face learning process (blended learning). The number of students using the e-learning in the second semester of 2014/2015 was only 35% of the total number of the students of the University[6].

The low number of students using e-learning has been caused by the unwillingness factor that it needs an evaluation. The University had considered developing e-learning in order to be able to provide an efficient learning process. The cause of low number of students using e-learning needs to be evaluated and considered in improving the most effective e-learning[7,8]. Considering that the rapid development of the information technology was one of the factors affecting the acceptance and the use of e-learning by the students, it is necessary to identify matters that had caused the low acceptance by the students[9]. This research was intended to measure and evaluate the factors that affected the will of using e-learning at the Atma Jaya Yogyakarta University by using TAM.

This research has successfully identified aspects that affected the rate of the acceptance of e-learning of the students. It is expected that the aspects can be used to improve people's understanding about behaviour related factors to the use of computer and also be able to widely reach out stakeholders in the field of education. The Office of Information System and the Atma Jaya Yogyakarta University as the stakeholders of the e-learning, could take the advantage of the provided recommendations when they consider the aspects to use in designing and improving e-learning system.

The TAM as seen in Fig. 1, was first proposed by Davis[10]. It was developed from two psychological theories about one's attitude and behaviour. The two theories are Theory of Reasoned Action (TRA) and Theory of Planned Behaviour (TPB). The objective of TAM is to provide explanation towards the determinants of the technology acceptance. In accordance with its main objective, TAM has proved to be a helpful theoretical model to understand and explain the attitude of users in implementing of the information system. TAM had been tested in a number of empirical researches and tools and it was proven to be qualified and reliable because it provided the basis to trace the influence of external variables on internal beliefs, attitude and intention to use[11-13]. Internal belief is a factor that will directly influence users.

Internal belief consists of two important factors that influence the use of e-learning, namely Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). Perceived Usefulness is defined as how much the use of an application will improve work performance in an organizational context. Perceived Ease of Use is defined as how many users believe that using a system will not put additional load.

A number of researches had used TAM to explain the behaviour of using and adopting e-learning[14-17]. Park had conducted a research on the will of students in South Korea of using e-learning. Park modified the original TAM in the variables related to intention-to-use variables in e-learning which cover self-efficacy, subjective norm and system accessibility organizational factors[18]. The research concluded

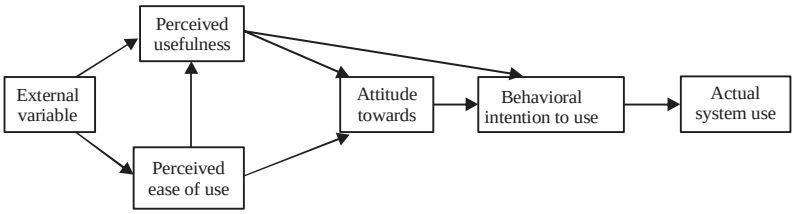


Fig. 1: Original TAM Model[13]

that TAM was a theoretical model that could be used to understand and explain the will of e-learning users. The research resulted three findings, namely (1) Self-efficacy (SE) and subjective norm (SN) hold a significant role in influencing attitude, (2) Subjective norm is the second largest codification that influences the will and attitude of users towards e-learning and (3) Although Perceived Usefulness and Perceived Ease of Use do not directly influence the will of users, this codification component correlates with the attitude towards e-learning.

Park *et al.*[19] had used TAM to research the will of using mobile learning among students in South Korea. They used Park model as the baseline by adding Major Relevance (MR) component[18]. The outcome of this research had proved that MR influenced attitude and Perceived Usefulness. It also used SE which had proved to influence PU, PE and AT. Park concluded that the influence of MR and SE was an intrinsic motivational factor. According to social motivational theory, the high level of SE leads to a more active learning process[20]. Cheung and Vogel[21] used TAM to research the behaviour of students towards e-learning[21]. The e-learning enabled them to collaborate online to complete their projects. That research also concluded that SN has the significant impacts on the influence among them.

Bachtiar *et al.*[22] conducted a research on students at Brawijaya University in using Moodle based LMS. In the research, SE had proved to have correlation with PEOU and did not really influence PU. It was because the respondents of the research were students of the Information Technology Department who possessed high self confidence in the use of technologies, and, therefore, the use of e-learning tended not to bring any effects to them. The research also proved that the system functionality correlated with PU and PEOU as resulted by previous researches[23].

There are four constructs in TAM, which are Behavioural Intention, Attitude, Perceived Usefulness and Perceived Ease of Use. In addition, TAM provides a wide range of flexibilities in adding external variables that will influence the acceptance of a technology. External variables can be categorized into three (3), which are system characteristics, individual characteristics and social characteristics. Individual characteristics were reflected by SE, social characters by SN and system characteristics by SF and SR.

This study measured the use of system based on desire of using technology (Behavioural Intention) through 3 major constructs: Attitude, Perceived Use and Perceived Ease of Use. These three major constructs had been proved theoretically and empirically and were proposed to predict and explain users' acceptance of information system, particularly e-learning[18,19,21,22,24].

In this study, self-efficacy was defined as a self assurance of capability possessed by Park to perform an action needed in e-learning. As seen in Fig. 2, this study added self efficacy based on the research conducted by Park *et al.* as Self-Efficacy had resulted on action management to achieve the objectives[19]. According to previous researches, a person's self confidence would affect her or his Perceived Ease of Use and Perceived Use[18,19,22].

One of the factors that influence human behaviour is social factor. Humans usually prefer doing something when other people or people they trust more tell them to do particular things regardless of their feeling of dislike or distrust about the things they are told to do[25]. In previous researches, SN factor had proved to significantly become a factor that influenced one's will of using a system[18,19,24].

This study defines subjective norm as a social influence from both the lecturers and students to apply e-learning. Previous researches concluded that subjective norm might both influence one's will in using a system directly and indirectly through the Perceived Ease of Use and Perceived Use of the desire to use a technology[18,19,22,26].

The last factor that affects the use of a system is the system characteristics. System characteristics that should be carefully looked at in e-learning will be influenced by functionality, interactivity and accessibility[23]. Functionality is defined as capability of e-learning to provide a flexible access to learning media and assessment. Interactivity is defined as capability of e-learning to serve as a means of interaction between lecturers and students as well as among the students. Accessibility is defined as something that is

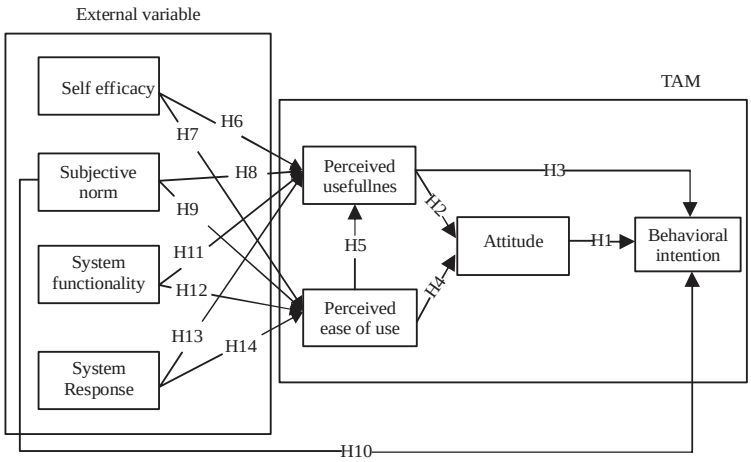


Fig. 2: Proposed research model[19]

perceived, in which students consider that the response of e-learning is fast, consistent and it makes sense. Taking a look at e-learning at the Atma Jaya Yogyakarta University, which lacked of interactivity implementation in its websites containing subjects, this research only focused on the influence of functionality and accessibility.

MATERIALS AND METHODS

Atma Jaya Yogyakarta University campus was chosen as the population since (1) This campus has already implemented e-learning system as an alternative of the learning process and (2) There were approximately 10,000 active students. Considering those condition, the number of sampling respondents was set by using Slovin equation. A random stratified sampling method was applied to choose e-learning users, so that it would be divided proportionally within six available schools. A questionnaire, an instrument assessment, was developed based on the previous studies and selected from the available options: Park[18], Cheung and Vogel[21] or Park *et al.*[19]. Each respondent was asked to fill out a questionnaire. Their opinions, regarding the agreement or disagreement for each statement, were noted on a 5-point Likert-type scale.

The method was performed online (157 respondents) and offline (136 respondents) in which the composition was distributed proportionally according to the number of students in each school. It was also noted that almost the entire respondents (about 290 respondents or 99%) were familiar with the use of the internet. Furthermore, it showed that the number of respondents who used the internet more than 6 h a week was 131 or 44.7%, while respondent who used the internet less than 2 h a week was only 12 or 4.1%. The detailed of summary of the background of respondents of this research is shown in Table 1.

After data collection was finished, the reliability test was done by using Cronbach alpha. This analysis was aimed to ensure that each variable was valid and consistent. The criteria of reliability was performed by using criteria set by Hair which describes that if the Cronbach alpha is more than 0.7 that it represents homogeneous of the measuring items[27]. Table 2 shows that the entire variable is reliable except for the System Response factor because the value is <0.7. The detailed of reliability test can be seen in Table 2. It shows that the System Response factor has the lowest rate and falls under a category of <0.7.

Measuring model analysis: Measurement model was first checked by employing factor confirmation analysis. This analysis would, then, check the validity discriminant, convergence validity and composite reliability of the measuring model. The preliminary outcome of this analysis had showed problems of discriminant validity in PU, SF, SR and SR reliability which was <0.7. SR reliability that had not yet fulfilled the requirement occurred because the question formulated was considered lacking of capability of reflecting the system response factor. SF and SR factors had a high correlation rate, which was 0.79, since both factors were measured as a system factor at the same time. The solution taken to resolve the problem was joining SF and SR factors to form a new factor called system factor or Sys. This situation was performed due to the lack of internetworking system and the lecturer's characteristic. Originally, in the previous studies, there were three factors which influenced e-learning namely: Functionality, Intractability and Accessibility[23]. As to lecturers, important agents of e-learning system, who lived in

Table 1: Summary of background of respondents research

	No.	Percentage
Data collection method		
Online	157	53.6
Manual	136	46.4
Study programs of respondents		
Architecture engineering	22	7.5
Civil engineering	25	8.5
Management	15	5.1
Accounting	32	10.9
Law	15	5.1
Industrial engineering	46	15.7
Informatics engineering	46	15.7
Biology	19	6.5
Communication science	50	17.1
Sociology	6	2.0
Development economics	3	1.0
International management	3	1.0
International civil engineering	3	1.0
International industrial engineering	6	2.0
International accounting	2	0.7
No. of respondents which are familiar with internet use		
Yes	290	99.0
No	3	1.0
No. of respondents which use internet last semester		
0	0	0.0
1	59	20.1
2	51	17.4
3	31	10.6
4	24	8.2
>4	128	43.7
No. of respondents which use internet this semester		
0	36	12.3
1	72	24.6
2	34	11.6
3	28	9.6
4	13	4.4
>4	110	37.5
Duration of internet use of respondents		
<2	12	4.1
2-4	76	25.9
4-6	74	25.3
>6	131	44.7

Table 2: Results of Preliminary reliability test of the research model

	Cornbach's alpha	No. of Items
Intention to use	0.874	2
Attitude	0.856	2
Perceived ease of use	0.934	8
Perceived usefulness	0.896	7
Self efficacy	0.920	2
Subjective Norm	0.736	2
System Functionality	0.785	3
System Response	0.628	2

rural areas where there was no good internet connection, we reduced the factors and defined as a System Response. Furthermore, this condition was not properly described. Therefore we combined both factors as one single factor. The joint of the two factors had caused changes in the model of research proposed to be revised research model as seen in Fig. 3.

After implementing the changes, a test against CFA was redone. The outcome showed that discriminant validity and reliability of SF and SR were resolved but problems of convergence validity of System factor occurred (AVE <0.5). The problems occurred because SR2 had very low rate of loading capacity, which was 0.4. It was probably caused by inaccuracy or inconsistency of the questionnaire used to assess the SR rate. Statistically, this problem was resolved by omitting the questions related to SR2 from the list of questions in order to increase the AVE into 0.550. Another problem occurred in PU

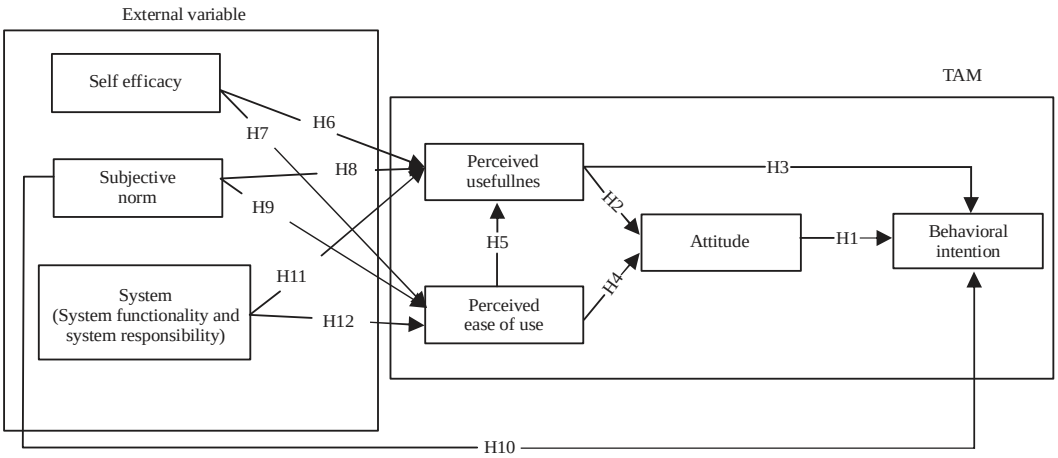


Fig. 3: Joining two factors as a system response in the research model

Table 3: Means, standard deviations, construct loading and reliabilities of the revised model

Factors	Loading	Mean	Stf-Dev	CR	AVE	Reliability (α)
I				0.874	0.766	0.874
I1	0.863	3.87	0.857			
I2	0.899	3.70	0.880			
A				0.854	0.745	0.854
A1	0.868	4.10	0.828			
A2	0.858	4.13	0.840			
PU				0.894	0.548	0.895
PU1	0.745	3.91	0.970			
PU2	0.732	3.95	0.994			
PU3	0.816	4.01	0.951			
PU4	0.795	4.06	0.922			
PU5	0.647	3.48	0.916			
PU6	0.716	4.02	0.864			
PU7	0.717	4.01	0.872			
PE				0.936	0.648	0.933
PE1	0.842	3.84	0.872			
PE2	0.892	3.88	0.789			
PE3	0.915	3.89	0.784			
PE4	0.904	3.88	0.776			
PE5	0.680	3.74	0.870			
PE6	0.743	3.97	0.885			
PE7	0.700	3.86	0.891			
PE8	0.721	3.68	0.844			
Sys				0.828	0.55	0.808
SF1	0.598	3.30	0.906			
SF2	0.844	3.56	0.845			
SF3	0.818	3.712	0.810			
SR1	0.679	3.26	0.938			
SR2	-	-	-			
SN				0.733	0.597	0.733
SN1	0.756	3.63	0.845			
SN2	0.766	3.51	0.855			
SE				0.921	0.854	0.92
SE1	0.895	4.00	0.884			
SE2	0.952	4.056	0.8823			

and A, which had correlation of 0.79. However, CR and AVE of both factors had exceeded the threshold. This problem, therefore, was left unresolved. Statistically, the threshold value of composite reliability used in this model is 0.70. Meanwhile, the variance of extracted value should exceed 0.50 for a construct. Table 3 presents the results of some descriptive statistics such as loading, mean and standard deviation.

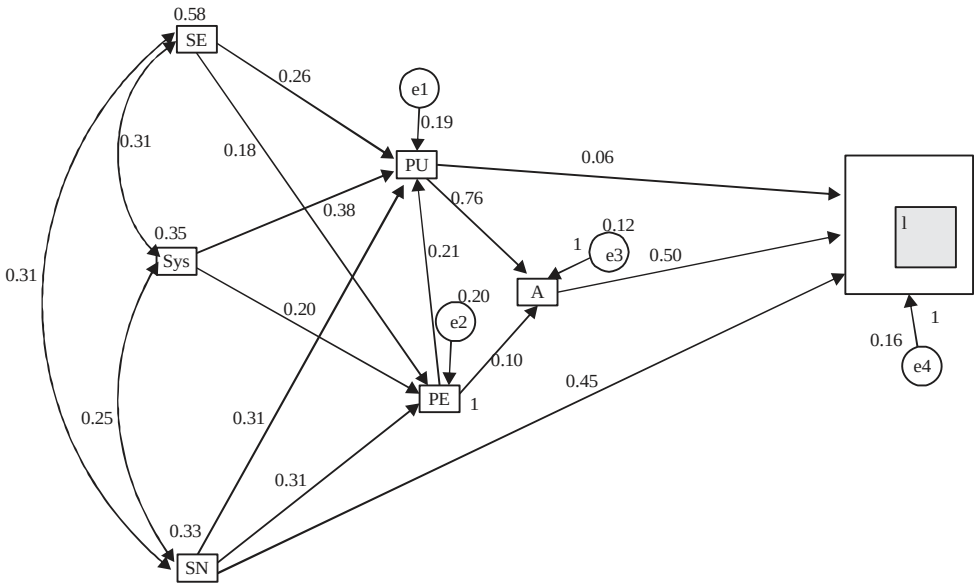


Fig. 4: Parameters on a structural model

Table 4: Goodness of fit for structural equation modelling

Fit measures	Values	Recommended value (p)
Chi Square	17.001 (p = 0.000)	>0.05
RMSEA	0.790	<0.10
RMR	0.009	<0.08
GFI	0.984	>0.90
AGFI	0.926	>0.90
NFI	0.990	>0.90

The parameters on the statistics related to structural model were examined, such as: the root mean squared error of approximation (RMSEA),the root mean squared residual (RMR), adjusted goodness-of-fit index (AGFI), goodness-of-fit index (GFI) and normal fit index (NFI). The value in this survey was suitable and therefore, the analysis could be performed. The details of goodness fit are listed on Table 4.

Furthermore, the relations between the constructs and observed indicators are described on the Fig. 4. Figure 4 shows that SE -> PU (0.26) and SE -> PE (0.18). This condition means that SE is more influencing PU than SE. In the other path, the model presents that Sys is more influencing on PU. Furthermore, the value SN -> PU (0.31) is similar with SN -> PE (0.31). This condition informs that the impact of SN into PU and PE is equal. After all path is analyzed and find that there are three variable which influencing the Behavioral Intention i.e.,: PU, A and SN as shown in Fig. 4. Probably the interesting path is SN -> BI. The path value is 0.45, which means that SN has capability to influenced BI directly as 45%. This value is interesting since it is significantly bigger than value on the path PU -> BI (0.06).

In this study, a significant correlation was found in the scale of <0.05 and <0.001. A and SN had proved to have significant correlation with I but PU and PE had significant correlation with A and PE had significant correlation with PU. The exogenous variables SN, SE and Sys had significant correlation with PU and PE. It indicated that the model proposed was likely suitable with the reality. The conclusion was drawn from the fact that from the twelve hypotheses there was only one that was not proved. The complete estimate of the hypothesis tracks can be seen in Table 5.

RESULTS AND DISCUSSION

The result of this study is in line with those of previous studies available, which stated that TAM was a theoretical model that was useful to explain one's will in using e-learning[18,19,23]. In addition, the findings of this research are also consistent with the results of previous studies which asserted that the endogen factor of Attitude (A) proved to have significant influence on Behavioural Intention (I), Perceived Usefulness (PU) and that Perceived Ease of Use (PE) had significant influence on Attitude (A)[13,18,19,21]. In regard to exogenous factors, the outcome of this research is supported by research conducted by Park[18] that concluded that Subjective Norm and Self-Efficacy influenced both PU and PE. System factor (Sys), which was a combination of System Functionality (SF) factor and System Response (SR) factor, also significantly influenced PU and PE[23].

Table 5: Hypotheses Evaluation For E-Learning Adoption Model

Relation	Estimate	p-value	Hypothesis	Proof
I<--A	0.509	0.0000	H_1	Proved
I<---PU	0.124	0.0890	H_3	Unproved
I<---SN	0.446	0.0000	H_{10}	Proved
A<---PU	0.785	0.0000	H_2	Proved
A<---PE	-0.024	0.0070	H_4	Proved
PU<---PE	0.207	0.0000	H_5	Proved
PU<---SN	0.252	0.0000	H_8	Proved
PU<---SE	0.281	0.0000	H_6	Proved
PU<---SyS	0.150	0.0110	H_{11}	Proved
PE<---SN	0.259	0.0000	H_9	Proved
PE<---SE	0.421	0.0000	H_7	Proved
PE<---SyS	0.170	0.0040	H_{12}	Proved

All the hypotheses are proven except for one stating that Perceived Usefulness (PU) has no relation with Intention (I). However if we relate the unproven hypothesis to path analysis, it is inline with Smith *et al.*[28], since the intension of the students are more influenced by peers rather than usefulness. It represents accordingly with phenomena that students tend not to concern with the quality of information[29]. This exception is also in line with the finding of Chung[30] which stated that special attention from instructor is more influencing rather than the usefulness. This exception was considered a new finding which is inline with the nature relationship between personal norms and social norms[31,32]. A social norm performs as a normative triggers and it will significantly influence their personal norms and intentions to use[31]. Intension is not influenced directly from PU since it is formed by SN. Therefore in this research, SN took the second position as a factor that influenced I, but it was less significant when mediated by PU or PE. Regarding the students' perception, this finding suggests that social factors are more influential than perceived use factors when the students are using the subject website. In fact, this condition is the same as the social factors existing in Indonesian culture, particularly factors pertaining to social relationship between the senior and junior[33].

In this study, social factors studied were those of fellow students and lecturers. From the students' side, the influence of stimuli from friends who had used and enjoyed the benefit of the subjects website provided would influence other students to use the website. From the lecturers' side, a number of lecturers have required their students to upload their assignments or download reading materials in order that it could become such a social drive for the students to use the subjects' website. Moreover, in learning activities in Indonesia, lecturers have higher hierarchy than the students, which make the students obey them for the sake of avoiding any academic risks or expecting feedbacks[34]. Based on these findings, in the future lecturers would need to provide more assistance to support and encourage the increasing use of the subject's website.

The PU as a factor that influenced Attitude (A) most indicated that the PE factor did not play any significant roles in determining one's will in using the subjects website. It was supported by SE factor that took the highest position at the influence of PU and PE. One of the possible explanations was that the students considered the internet and interface web as something easy as they had got used to using both of them[19]. Such common practice made the students possess high self confidence, easily adjust to the existing systems and explore the functions available in the subject's website.

The most important finding is that for the students' social factor support was more important than perceived usefulness. This fact is not only consistent with Cheung and Vogel[21], but also refines the previous study that PU is one of an important factor for I[19,22] as seen in mediated phenomenon of PU on SN. Their friends who had applied it and proved that the system was beneficial for them would usually, motivate the students who had not practiced e-learning system. Thus, the experience of students who had used e-learning system influencing those who had not[28,30]. Encouragement from the instructor in the use of e-learning could be given easily to the students, such as by strictly using e-learning system in distributing learning resources. This way, it could become motivation or drive for the students to use the system[30]. In light of these findings, it is concluded that improvement of the use of e-learning system requires greater encouragement from the instructor. Furthermore, it should be critical factors that exert a significant influence on acceptance level of e-learning among the students that can be beneficial for improving the understanding about attitude related to the use of computer in education institution particularly the use of e-learning.

Shortly, this study will help the researcher to uncover the critical areas of social influence in information technology acceptance that many researchers were not able to explore.

Based on findings of this study, it is recommended that further research be undertaken to study instructors' intention to use the subjects' website, considering the indication that social drive, particularly from the lecturers, had considerably influenced the use of subjects' website. In addition, factors related to system also need to be further studied since this research revealed that the construct of SF and SR did not significantly reflect the system factors.

CONCLUSION

This study attempts to discover the aspects that relevant to the University students' behaviour when they are using e-learning as learning tools. By integrating social normative as a construct, our study found that, with regard to the intention to use e-learning among the students, social factors were more influential than perceived usefulness and perceived ease of use. Although finding that instructors as the main social factors need a further investigation, this finding seems to be important as one consideration in designing e-learning primarily as a new learning tools.

SIGNIFICANCE STATEMENTS

This study discovered the social factors, which significantly influence on the use of e-learning among the students that can be helpful to both researchers and practitioners regarding the students' behaviour in using a computer in educational institution. This study will help them to deal with the low number of e-learning users due to the critical social factor particularly in Indonesian Universities. Therefore, a new theory on these various combination social factors and possibly other factors identified may be arrived at.

ACKNOWLEDGMENT

I would like to thank Universitas Atma Jaya Yogyakarta, Yogyakarta Indonesia for the financial support for my research project (Grant No: 005/SP-LIT/IV/2016).

REFERENCES

1. Zhang, D., J.L. Zhao, L. Zhou and J.F. Nunamaker Jr., 2004. Can e-learning replace classroom learning? Commun. ACM., 47: 75-79.
2. Edmunds, R., M. Thorpe and G. Conole, 2012. Student attitudes towards and use of ICT in course study, work and social activity: A technology acceptance model approach. Br. J. Educ. Technol., 43: 71-84.
3. Ministry of Education and Culture, 2012. Regulation of distance learning in higher education No. 24. http://kelembagaan.ristekdikti.go.id/wp-content/uploads/2016/11/permen24tahun2012.pdf.
4. Sinaga, B.L., I.W. Badra and Cahyadi, 2012. Master plan of information technology strategic planning. Universitas Atma Jaya Yogyakarta, Yogyakarta, Indonesia, pp: 12-20.
5. Atma Jaya Yogyakarta University, 2004. Strategic plan for Atma Jaya Yogyakarta University fiscal year 2004-2009. Universitas Atma Jaya Yogyakarta, Yogyakarta, Indonesia.
6. Sinaga, B.L., 2015. Annual report of center of information system fiscal year 2015. Universitas Atma Jaya Yogyakarta, Yogyakarta, Indonesia.
7. Lee, B.C., J.O. Yoon and I. Lee, 2009. Learner's acceptance of e-learning in South Korea: Theories and results. Comput. Educ., 53: 1320-1329.
8. Teo, T., 2010. Development and validation of the E-learning Acceptance Measure (ElAM). Internet Higher Educ., 13: 148-152.
9. Van Raaij, E.M. and J.J.L. Schepers, 2008. The acceptance and use of a virtual learning environment in China. Comput. Educ., 50: 838-852.
10. Davis, F.D., 1986. A technology acceptance model for empirically testing new end-user information systems: Theory and results. Ph.D. Thesis, Sloan School of Management, Massachusetts Institute of Technology, Cambridge, MA., USA.
11. Legris, P., J. Ingham and P. Collerette, 2003. Why do people use information technology? A critical review of the technology acceptance model. Inform. Manage., 40: 191-204.
12. Suryanto, T.L.M., D.B. Setyohadi and A. Faroqi, 2016. Analysis of the effect of information system quality to intention to reuse of employee management information system (Simpeg) based on information systems success model. MATEC Web Conf., Vol. 58. 10.1051/matec 5 conf/2016 80 3001.
13. Davis, F.D., 1989. Perceived usefulness, perceived ease of use and user acceptance of information technology. MIS Quart., 13: 319-340.
14. Dzikria, I., R.C. Tzou and H.P. Lu, 2014. Youtube-like E-learning system: The study of peers influence and enjoyment. Proceedings of the WEI International Academic Conference, May 18-21, 2014, Bali, Indonesia, pp: 149-161.
15. Abdullah, F. and R. Ward, 2016. Developing a General Extended Technology Acceptance Model for E-Learning (GETAMEL) by analysing commonly used external factors. Comput. Hum. Behav., 56: 238-256.
16. Hsu, L., 2016. An empirical examination of EFL learner's perceptual learning styles and acceptance of ASR-based computer-assisted pronunciation training. Comput. Assisted Language Learning, 29: 881-900.

17. Cote, T. and B. Milliner, 2015. Training ELF Teachers to Create a Blended Learning Environment: Encouraging CMS Adoption and Implementation. In: Critical CALL: Proceedings of the 2015 EUROCALL Conference, Padova, Italy, Helm, F., L. Bradley, M. Guarda and S. Thouesny (Eds.). Research-Publishing.Net, France, ISBN-13: 978-1908416285, pp: 158-163.
18. Park, S.Y., 2009. An analysis of the technology acceptance model in understanding university student's behavioral intention to use E-learning. Educ. Technol. Soc., 12: 150-162.
19. Park, S.Y., M.W. Nam and S.B. Cha, 2012. University student's behavioral intention to use mobile learning: Evaluating the technology acceptance model. Br. J. Educ. Technol., 43: 592-605.
20. Bandura, A., 1982. Self-efficacy mechanism in human agency. Am. Psychol., 37: 122-147.
21. Cheung, R. and D. Vogel, 2013. Predicting user acceptance of collaborative technologies: An extension of the technology acceptance model for e-learning. Comput. Educ., 63: 160-175.
22. Bachtiar, F.A., A. Rachmadi and F. Pradana, 2014. Acceptance in the deployment of blended learning as a learning resource in information technology and computer science program, Brawijaya University. Proceedings of the Asia-Pacific Conference on Computer Aided System Engineering, February 10-12, 2014, South Kuta, Indonesia, pp: 131-135.
23. Liaw, S.S. and H.M. Huang, 2013. Perceived satisfaction, perceived usefulness and interactive learning environments as predictors to self-regulation in e-learning environments. Comput. Educ., 60: 14-24.
24. Roca, J.C., C.M. Chiu and F.J. Martinez, 2006. Understanding e-learning continuance intention: An extension of the technology acceptance model. Int. J. Hum. Comput. Stud., 64: 683-696.
25. Schepers, J. and M. Wetzels, 2007. A meta-analysis of the technology acceptance model: Investigating subjective norm and moderation effects. Inform. Manage., 44: 90-103.
26. Venkatesh, V. and F.D. Davis, 2000. A theoretical extension of the technology acceptance model: Four longitudinal field studies. Manage. Sci., 46: 186-204.
27. Hair, J.F., R.L. Tatham, R.E. Anderson and W.C. Black, 1998. Multivariate Data Analysis. 5th Edn., Prentice Hall Inc., New Jersey, USA., ISBN-13: 9780138948580, pp: 207-219.
28. Smith, A.R., J. Chein and L. Steinberg, 2014. Peers increase adolescent risk taking even when the probabilities of negative outcomes are known. Dev. Psychol., 50: 1564-1568.
29. Metzger, M.J., A.J. Flanagin and L. Zwarun, 2003. College student web use, perceptions of information credibility and verification behavior. Comput. Educ., 41: 271-290.
30. Chung, S., 2012. Cognitive and social factors affecting the use of Wikipedia and information seeking. Can. J. Learn. Technol., 38: 1-20.
31. Doran, R. and S. Larsen, 2016. The relative importance of social and personal norms in explaining intentions to choose eco-friendly travel options. Int. J. Tourism Res., 18: 159-166.
32. Han, H., 2014. The norm activation model and theory-broadening: Individual's decision-making on environmentally-responsible convention attendance. J. Environ. Psychol., 40: 462-471.
33. Van Klinken, G., 2008. The limits of ethnic clientelism in Indonesia. Rev. Indonesian Malaysian Affairs, 42: 35-65.
34. The Hofstede Centre, 2015. What about Indonesia? https://geert-hofstede.com/indonesia.html.