

Table of Contents

International Journal of Technology Diffusion

Volume 7 • Issue 4 • October-December-2016 • ISSN: 1947-9301 • eISSN: 1947-931X

An official publication of the Information Resources Management Association

Research Articles

- 1 **QR Codes and Mobile Technology Used in the Blended Learning Approach**
Ghizlene Soulimane, University of Oran 1 Ahmed Benbella , Oran, Algeria
Belkacem Kouninef, University of Oran 1 Ahmed Benbella , Oran, Algeria
Mohamed Senouci, University of Oran 1 Ahmed Benbella , Oran, Algeria
Mohamed Djelti, University of Oran 1 Ahmed Benbella , Oran, Algeria
- 14 **Design for Multimedia Art and Engineering Education: Problem Oriented Approach**
Joanna Krystyna Napieralska, Fryderyk Chopin University of Music, Warsaw, Poland
Wladyslaw Kazimierz Skarbek, Warsaw University of Technology, Warsaw, Poland
Jozef Wieslaw Modelski, Warsaw University of Technology, Warsaw, Poland
- 36 **Metadata as an Aggregation Final Model in Learning Environments: A New Perspective of Acquiring Knowledge in the New Millennium**
Jorge Manuel Pires, University of Vigo, Vigo, Spain
Manuel Pérez Cota, University of Vigo, Vigo, Spain
- 60 **A Contextualized Model for Virtual Learning in Higher Institutions**
Mmatshuene Anna Segooa, Tshwane University of Technology, Pretoria, South Africa
Billy Mathias Kalema, Tshwane University of Technology, Pretoria, South Africa
- 82 **Assessment of Students' Familiarity, Adoption, and Use of Social Media in Bahrain**
Vasileios Paliktzoglou, University of Eastern Finland, Joensuu, Finland
Charalampos Gioumpasoglou, University of West London, London, UK
Evangelia Marinakou, University of West London, London, UK

COPYRIGHT

The **International Journal of Technology Diffusion (IJTD)** (ISSN 1947-9301; eISSN 1947-931X), Copyright © 2016 IGI Global. All rights, including translation into other languages reserved by the publisher. No part of this journal may be reproduced or used in any form or by any means without written permission from the publisher, except for noncommercial, educational use including classroom teaching purposes. Product or company names used in this journal are for identification purposes only. Inclusion of the names of the products or companies does not indicate a claim of ownership by IGI Global of the trademark or registered trademark. The views expressed in this journal are those of the authors but not necessarily of IGI Global.

The *International Journal of Technology Diffusion* is indexed or listed in the following: ACM Digital Library; Bacon's Media Directory; Cabell's Directories; DBLP; Google Scholar; INSPEC; JournalTOCs; Library & Information Science Abstracts (LISA); MediaFinder; The Standard Periodical Directory; Ulrich's Periodicals Directory

Assessment of Students' Familiarity, Adoption, and Use of Social Media in Bahrain

Vasileios Paliktzoglou, University of Eastern Finland, Joensuu, Finland
Charalampos Giousmpasoglou, University of West London, London, UK
Evangelia Marinakou, University of West London, London, UK

ABSTRACT

Social media is used in many higher education institutions for educational purposes in numerous new and innovative ways. However, in Bahrain the number of higher education students who are aware of and use social media is not clear. It was therefore necessary to conduct an empirical study that would investigate the students' use of social media in higher education in Bahrain. Moreover, the actual adoption of social media in everyday learning situations still remain underexplored, especially in higher education settings. This paper describes a study conducted to investigate the influence of social media use by student in Bahrain. The aims of this study are to assess students' level of familiarity, engagement and frequency of use with social media. The data was collected using two questionnaires. The findings indicate that social media has introduced a new culture of learning among students. In addition, social media applications which are on the increase in usage by students for activities that include studying, access of education content, social communication.

KEYWORDS

Bahrain, E-Learning 2.0, Networked Learning, Social Media, Web 2.0

INTRODUCTION

Social media tools are used in many higher education institutions for educational purposes in numerous new and innovative ways (Conole & Alevizou, 2010). In order to investigate and gain additional insight into this situation, we carefully studied the experiences of students on Web Media degree at Bahrain Polytechnic. Several studies in other countries have found that social media are commonly used in higher education by students (Davis, Deil-Amen, Rios-Aguilar, & Gonzalez Canche, 2012). However, in Bahrain the number of higher education students who are aware of, and use social media is not clear. It was therefore imperative to conduct an empirical study that would investigate the students' use of social media in higher education in Bahrain. The aims of this study are to assess students' level of familiarity, engagement and frequency of use with social media. Based on the above stated aims, the following three research questions were formulated:

1. What is the students' level degree of *familiarity* in the use of social media?
2. What is the students' level degree of *engagement* in the use of social media?
3. What is the students' level degree of *frequency* in the use of social media?

In this study, the primary data were collected from a survey. The participants in this study were a cohort of Web Media students in Bahrain Polytechnic. The survey aimed in finding comparable numbers, evaluate the students' level of familiarity, engagement and frequency of use of social media and gain additional insights. The three identified objectives of the study had a common denominator a cohort of Web Media students at Bahrain Polytechnic. The first objective of the survey was aimed toward the level of familiarity with social media. The second objective was to investigate the level of engagement with social media. Finally, the third objective was to identify the context of use if social media. This research provides insights to educators seeking to integrate social media in undergraduate programs' curriculum, for increased inclusion of new technologies in higher education. Finally, we outline the potential implications and recommendations of this study for future implementations.

Background

The rapid growth of social media tools over recent years is a consequence of the integration of technology in the daily lives of millions of people around the world. Moreover, the phenomenon of social media is investigated by researchers around the world who wish to study the positive and negative aspects of using social media tools in various settings (Abu-Shanab & Frehat, 2015; Conole & Alevizou, 2010; Davis, Deil-Amen, Rios-Aguilar & Gonzalez-Canche, 2012; Paliktzoglou, Stylianou, & Suhonen, 2014; Paliktzoglou & Suhonen, 2014, 2015; Tomai, Rosa, Mebane, D'Acunti, Benedetti, & Francescato, 2010). The fundamental nature of social media supports new and different ways of how humans communicate, using computers and other mobile devices. It offers to users the option to communicate privately or in a more public way, by posting comments for public viewing. However, the central idea behind social media is not new. In the late 1990s several sites, had basic functions similar to today's social media. From the very beginning of the internet, the interaction and communication of users using interfaces such as chats, forums, message boards and blogs was introduced (Albion, 2008).

Social media offer new and multiple ways of using computers or mobile devices and support users gaining access to knowledge through different resources. In general, social media is an umbrella which covers a big range of online technologies (platforms and applications) that promote communication, collaboration, interaction and sharing data among the users. Boyd and Ellison (2010), define social media as social networking websites "that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system" (p.17). The purpose of the user following social media is mainly to interact with peers and others that on the social media various technologies. This involves the creation, sharing and distribution of ranges different information from news, reflections, opinions, research among others.

The integration of technology in the daily lives of millions of people around the world resulted to the rapid growth of social media tools over recent years. As such social media attracted researchers to study both positive and negative aspect of using social media tools in various settings. Social media tools offer new and multiple ways of communication using computers and other mobile devices. Users can communicate privately or in a more public way such as a comment posted for public viewing. However the fundamental idea behind social media is not new, since several sites with functions of today's social media tools appeared in the late 1990s. From the very beginning of internet, communicating with others through interfaces such as chat rooms, Internet forums, message boards, web communities and blogs were introduced (Albion, 2008; Edrees, 2013)). Similar to other communications tools, social media tools have rules, conventions and practices which users have to adhere to in order to be accepted as legitimate users in these online communities. As argued by

Jacobs (2008) social media tools also have some potential pitfalls to negotiate, such as the unintended consequences of publicly posting sensitive personal information, confusion over privacy settings, and contact with people one may not know.

According to Safran, Guetl, & Helic (2007), social media tools are part of wider online phenomena also in the field of education and learning, enabling self-expression, communication and more versatile user interaction online. Additionally, Chatti, Jarke, & Frosch-Wilke, (2007) outline that in the era of culture centralized collaboration, one-size-fits-all, top-down, static and knowledge push models of traditional learning initiatives need to be changed with a more open, dynamic, emergent, social, personalized and knowledge pull model for learning. In recent research it was argued that social media concepts open new windows for more efficient learning and have the potential to overcome many of the drawbacks of traditional learning model (Chatti et al., 2007; Maloney, 2007). Moreover, Ozkan & McKenzie (2008) argue that in the 21st century approach to teaching there is the necessity of educators engaging with students through social media technologies. Finally, it is noteworthy to point out that social media tools have potential to foster the adoption of new learning models based on networking, collaboration, intelligent search and social knowledge creation (Greenhow, Robelia, & Hughes, 2009; Fouda, 2016).

Social media include web services that can be easily accessed by users, where the user can read, create, share and recommend information for online recreational purposes. Social media, are similar to other communication tools have rules, and have conventions and practices which users have to adhere to in order to be accepted as legitimate users in these online communities. Social media technology (SMT) as are defined by Davis et al. (2012) as “web-based and mobile applications that allow individuals and organizations to create, engage, and share new user-generated or existing content, in digital environments through multi-way communication. Typical example of social media commonly found on the web and mobile application include Twitter, Instagram, Edmodo, YouTube and Wordpress. In addition, according to Jacobs (2008), it can be argued that social media tools also have some potential drawbacks or negative aspects with regards to privacy in terms of meeting people you do not know, but also in terms of using social media application, the apps itself. Moreover, the wider online phenomena that are closely related to social media, have the potential to promote self-expression, communication and flexible user interaction in teaching and learning (Safran, Guetl, & Helic, 2007).

Recent research suggests that more efficient learning is possible by using social media concepts; the introduction of social media in higher education open new frontiers and can possibly prevail over the pitfall of the traditional learning models (Chatti et al., 2007; Maloney, 2007; Pike, Kuh, & McCormick, 2011; Tomai et al., 2010). As such, it can be argued that the 21st century approach to education should stem from the teacher –student necessity and engagement using social media (Ozkan & McKenzie, 2008). This is evident from the fact that the adoption of new learning models based on networking, collaboration, intelligent search and social knowledge creation are fostered using social media (Greenhow, Robelia, & Hughes, 2009). The fact that the social media are assembled on the ideological and technological foundation of Web 2.0 that allows the creation and data sharing among users is based on the reason of the radical transformation of the Web by the social media, as argued by Kaplan & Haenlein (2010). According to Sun, Tsai, Finger, Chen, & Yeh, (2008), there are six dimensions that affect the social media performance: student, teacher, course, technology, system design, and the environmental dimension. Finally, it can be argued that social media have the potential as an educational tools to enable collaboration, real-time dialogue and promote knowledge (Marinakou & Giousmpasoglou, 2015).

RESEARCH DESIGN

The survey was designed for the students of three different batches in the Web Media programme at Bahrain Polytechnic. The research data were collected from a survey released at the beginning

of the semester. At the end of the survey there was a comprehensive justification about the nature of the research; in addition the participants were asked to sign a consent form, with the assurance that all data would be treated confidentially. The survey was used to explore students' familiarity, engagement and context of use with social media tools. The students took an average of seven to ten minutes to complete the survey questionnaire. The survey was split into two parts: the introductory part related to the demographic information of the participants (name, age, level of studies) and the main body sought to assess the students' level of familiarity and engagement as well as the frequency with which they made use of social media. The questions' design was based on the Likert scale, where the students could rate each item on a 1 to 5 response scale, but also with the option of "Yes" or "No." The survey was piloted to three undergraduate students in order to increase validity and to ensure that the questionnaire itself is as clearly presented and as easy to complete as possible.

Upon completion of the survey, students had the opportunity to comment on the precision of survey items, the competence of answer choices and the appropriateness of the scales used. The feedback from the students highlighted that the survey was understandable and could be given to the participants after the revision of the wording on a few questions. Moreover, the collected reflections were incorporated on the survey in order to determine the validity of the survey.

Demographic Data

The dataset, n=46, 34 female (74%) and 12 male (26%), consisted of undergraduate Bahraini students studying in the Web Media degree at Bahrain Polytechnic. The majority of the students (30) were aged between 20 and 30, none over 30 and 16 under 20.

Social Media Familiarity, Engagement and Context of Use

The main body of the survey questionnaire explored three areas based on the research questions presented earlier in this paper. The first area of enquiry investigated the familiarity of students with various social media tools such as: Blogs, Wikis, Podcasts (Audio & Video), Tag cloud, Social Bookmarking, Social Networks, Chat, Micro-blogging, Media sharing, Virtual worlds, Mashups, and m-Learning. The second area of enquiry explored how frequently these tools were being used by students. The results for familiarity and frequency respectively are provided in Figures 1 and 2. From all the tools, students were most familiar with Chat, social networks and microblogging as they used these most frequently. They were less familiar (but aware of the application) with mashups, social bookmarking and tag cloud technologies.

The third area of enquiry explored whether the students had used social media tools for individual and/or group learning and studying, as part of course work or for personal use. In addition, regarding the intensity of use related questions, the same tools as in the previous area were assessed. The results are presented in Figure 3. The highest frequencies were encountered for Wiki and media sharing as a tool for studying and learning, while social networks, chats and media sharing were most frequently used for personal purposes. The students reported that they did not have much experience in the use of social tools as part of course work. The tools most frequently used in course work were blogs and wikis.

DISCUSSION AND CONCLUSION

This study examined the students' use of social media in higher education in Bahrain. Furthermore, from findings drawn from students' perceptions, engagement and experiences it is evident that the students are highly aware of social media with most of them being active and frequent users of social media. Students consider social media as established part of their daily lives. It is argued that despite the fact that most students are frequent users of social media for personal purposes, this does not automatically leads to the acceptance of social media as teaching and learning tools in higher education settings. It is evident however, that this occurs due to the fact that most of the student are not familiar or lack of experience in using social media in their course work. The familiarity of the

Figure 1. Familiarity with social media tools

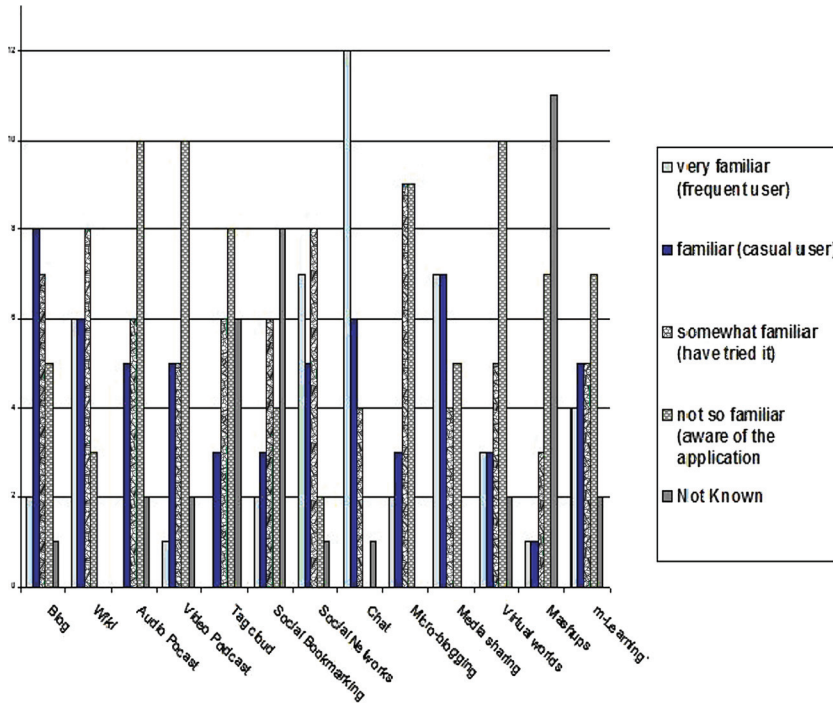


Figure 2. Frequency of use of social media tools

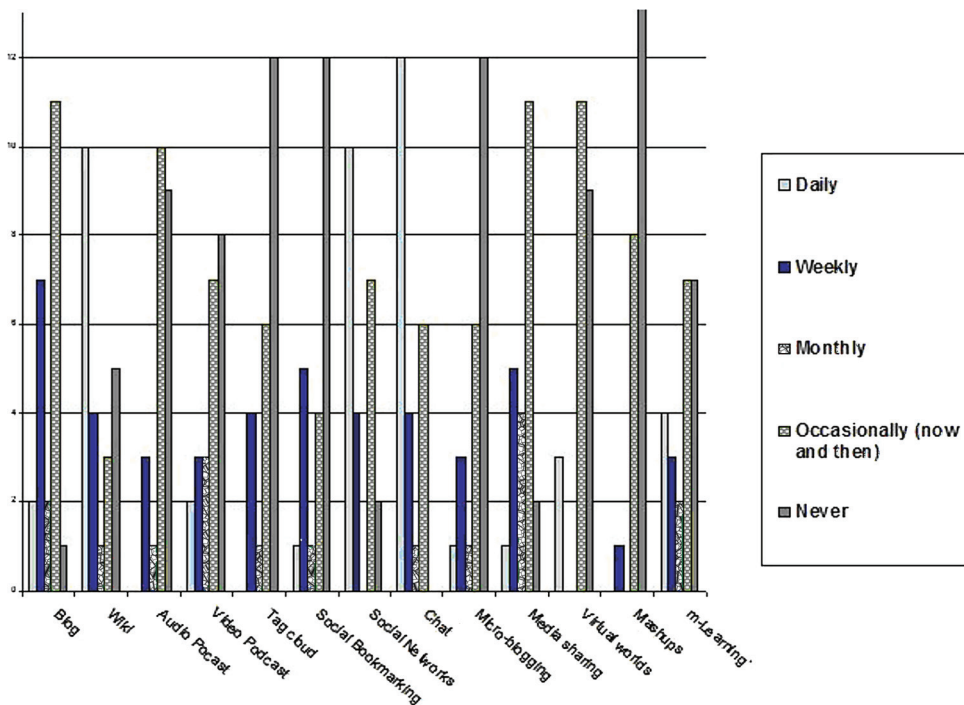
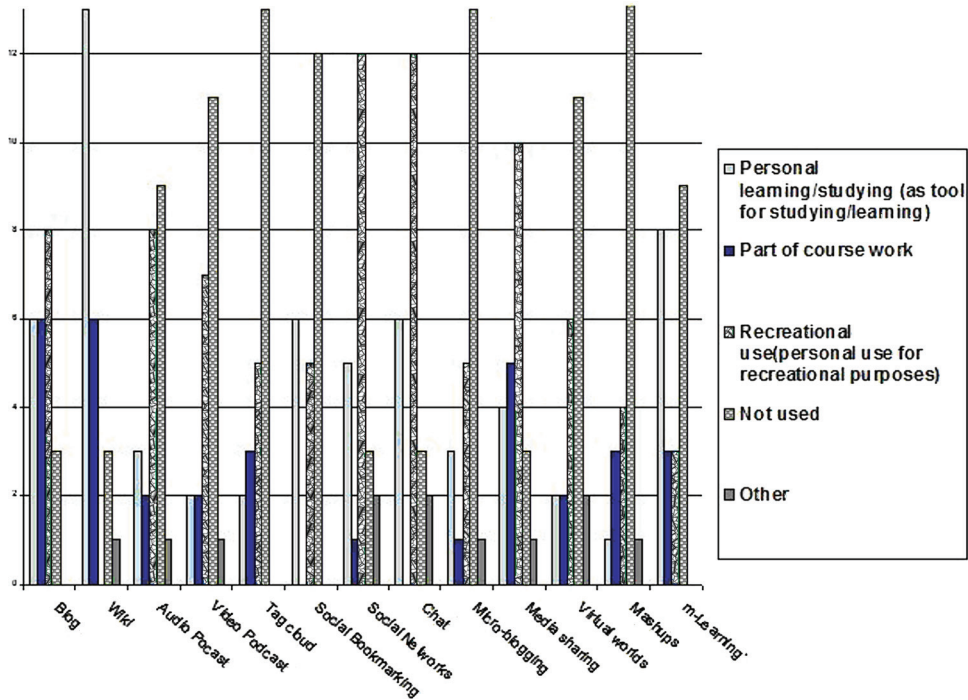


Figure 3. Context of use of social media tool



net generation with social media definitely stipulates that educators can easier adopt social media as learning tools in higher education and improve student’s learning experiences and thus engage students and possibly enhance their learning (Giousmpasoglou & Marinakou, 2013). Another factor that should be considered when adopting social media in higher education is the ubiquitous nature of social media that it is not sufficient reason for integration of social media into higher education. It is noteworthy that differences in subject-matter or learning goals appear when adopting social media for teaching and learning purposes. Additionally, this should be acknowledged in order to be able to compare the gained benefits of social media as new technologies across disciplines.

The findings of this study are consistent with the findings of previous studies in other countries indicating students are regular users of social media (Paliktzoglou, & Suhonen, 2014). This study also revealed that that students who had accounts on social media frequently used it for a number of reasons such as to connect with old friends and family members, find new friends, obtain or share learning materials, receive update of events, post information, while away time among others. This is consistent with the findings of other research conducted in higher education context (i.e. Alexakis, Paliktzoglou, & Jarkko, 2012; Arnold, Ducate, & Kost, 2012; Tomai et al., 2010) which indicated the students’ use of social media for varied reasons which include communication with family and friends, entertainment, release boredom, planning activities and companionship.

The findings of this research indicate that undergraduate students are keen using new technologies in teaching and learning. It is evident from the student feedback provided that they welcome new learning experiences; it is thus argued that these experiences could facilitate different types of learning styles and add value their existing learning practice in order to improve their learning process. Moreover, students would adopt social media integrated into higher education only if they perceive that social media can enhance their learning. The results of the study also indicated that students had positive views about the academic use of social media. Students also claimed that it would be fun for their lecturers to use social media, their grades would be better if they could contact lecturers through

social media and lecturers should hold lecture hours on social media. The above findings are aligned with various studies which indicate that students find it appropriate for lecturers to use social media for educational purposes (Alexakis, Paliktzoglou, & Jarkko, 2012; Paliktzoglou & Suhonen, 2012; Alexakis, Paliktzoglou, & Jarkko, 2015) The present study has shown that higher education students in Bahrain use social media for various reasons. However higher education students have a positive view about the use of social media for academic purposes. It is therefore recommended that policy makers in higher education institutions in Bahrain may consider creative ways of restructuring the methods of content delivery and learning activities in order to incorporate the use of social media to extend lecturer-student contact hours.

It is noteworthy to mention that this study has two main limitations. Firstly the survey was conducted with an only survey tool. Secondly the participants were limited to the specific setting of Bahrain Polytechnic. Similar studies with a broader set of participants would be advisable in order to compare them to this setting. In addition, we suggest that similar studies should be conducted in a broader set of participants from different higher education institutes in order to allow further comparisons; in this way the validity and reliability of collected data will be significantly enhanced. Our results indicate that social media have the potential to be adopted in higher education. However, further research is needed in order to address the undergraduates' use of social media for learning in the context of their socio-economic status as well as authentic higher education learning settings. Finally, due to the continuing growth in the use of social media tools in higher education, it is hoped that this study will motivate further controlled studies in order to evaluate how emerging technologies can be more efficiently utilized and adopted in higher education. Surveys in the coming years with the same cohort of students are also to provide more insights in the long-term development of social media use as educational tools.

REFERENCES

- Abu-Shanab, E., & Frehat, M. (2015). The Role of Social Networking in the Social Reform of Young Society. *International Journal of Technology Diffusion*, 6(1), 61–75. doi:10.4018/IJTD.2015010104
- Albion, P. R. (2008). Web 2.0 in Teacher Education: Two Imperatives for Action. *Computers in the Schools*, 25(3-4), 181–198. doi:10.1080/07380560802368173
- Albion, P. R. (2008). Web 2.0 in Teacher Education: Two Imperatives for Action. *Computers in the Schools*, 25(3-4), 181–198. doi:10.1080/07380560802368173
- Alexakis, C., Paliktzoglou, V., & Jarkko, S. (2012). Assessment of the familiarity, adoption and use of educational technology by higher education students in Cyprus. In C. Vrasidas & P. Panou (Eds.), *Design Thinking in Education, Media + Society* (pp. 154–163). Nicosia: CARDET.
- Arnold, N., Ducate, L., & Kost, C. (2012). Collaboration or cooperation? Analyzing group dynamics and revision processes in wikis. *CALICO Journal*, 29(3), 431–448. doi:10.11139/cj.29.3.431-448
- Boyd, D. M., & Ellison, N. B. (2010). Social network sites: Definition, history, and scholarship. *Engineering Management Review*, 38(3), 16–31. doi:10.1109/EMR.2010.5559139
- Chatti, M. A., Jarke, M., & Frosch-Wilke, D. (2007). The future of e-learning: A shift to knowledge networking and social software. *International Journal of Knowledge and Learning*, 3(4), 404–420. doi:10.1504/IJKL.2007.016702
- Conole, G., & Alevizou, P. (2010). A literature review of the use of Web 2.0 tools in Higher Education. A Report Commissioned by the Higher Education Academy, Milton Keynes: HEA. Retrieved from http://www.jisctechdis.ac.uk/assets/EvidenceNet/Conole_Alevizou_2010.pdf
- Davis, C. H., III, Deil-Amen, R., Rios-Aguilar, C., & Gonzalez Canche, M. S. (2012). Social Media in Higher Education: A literature review and research directions. Retrieved from <http://works.bepress.com/hfdavis/2/>
- Edrees, M. E. (2013). Assessing eLearning Systems Success: An Educators Perspective. *International Journal of Technology Diffusion*, 4(1), 56–67. doi:10.4018/jtd.2013010104
- Fouda, F. A. E. (2016). The Potential of Collaborative E-Portfolios for Enhancing the Creative Teaching Skills of Pre-Service Business Education Teachers. *International Journal of Technology Diffusion*, 7(1), 1–19. doi:10.4018/IJTD.2016010101
- Giousmpasoglou, C., & Marinakou, E. (2013). The future is here: M-Learning in Higher Education. *Computer Technology and Application*, 4(6), 317–322.
- Greenhow, C., Robelia, B., & Hughes, J. E. (2009). Response to comments: Research on learning and teaching with Web 2.0: Bridging conversations. *Educational Researcher*, 38(4), 280–283. doi:10.3102/0013189X09336675
- Jacobs, S. (2008). The Facebook Classroom: 25 Facebook Apps That Are Perfect for Online Education. *College Degree.com*. Retrieved from <http://www.collegedegree.com>
- Kaplan, A. M., & Haenlein, M. (2010). Users of the world, unite! The challenges and opportunities of Social Media. *Business Horizons*, 53(1), 59–68. doi:10.1016/j.bushor.2009.09.003
- Maloney, E. (2007). What Web 2.0 can teach us about learning? *The Chronicle of Higher Education*, 25(18), B26.
- Marinakou, E., & Giousmpasoglou, C. (2015). M-learning in the Middle East: The case of Bahrain. In P. Ordóñez de Pablos, R. D. Tennyson, & M. D. Lytras (Eds.), *Assessing the Role of Mobile Technologies and Distance Learning in Higher Education* (pp. 176–199). Hershey: IGI Global.
- Ozkan, B., & McKenzie, B. (2008). Social networking tools for teacher education. *Proceedings of the Society for Information Technology & Teacher Education International Conference* (pp. 2772–2776). Chesapeake, VA: AACE.
- Paliktzoglou, V., Stylianou, T., & Suhonen, J. (2014). Google Educational Apps as a Collaborative Learning Tool among Computer Science Learners. In P. Ordóñez de Pablos, R. D. Tennyson, & M. D. Lytras (Eds.), *Assessing the Role of Mobile Technologies and Distance Learning in Higher Education* (pp. 272–296). Hershey, PA, USA: IGI Global.

Paliktzoglou, V., & Suhonen, J. (2014). Microblogging in Higher Education. *Journal of Cases on Information Technology*, 16(2), 39–57. doi:10.4018/jcit.2014040104

Paliktzoglou, V., & Suhonen, J. (2015). Microblogging as an Assisted Learning Tool in Problem-Based Learning (PBL) in Bahrain: The Edmodo Case. In F. Cipolla-Ficarra (Ed.), *Handbook of Research on Interactive Information Quality in Expanding Social Network Communications* (pp. 184–201). Hershey, PA, USA: IGI Global. doi:10.4018/978-1-4666-7377-9.ch012

Pike, G. R., Kuh, G. D., & McCormick, A. C. (2011). An investigation of the contingent relationships between learning community participation and student engagement. *Research in Higher Education*, 52(3), 300–322. doi:10.1007/s11162-010-9192-1

Safran, C., Guetl, C., & Helic, D. (2007). The Impact of Web 2.0 on Learning at a Technical University-A usage survey. *Proceedings of the World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education* (pp. 436–443). Chesapeake, VA: Association for the Advancement of Computing in Education (AACE).

Sun, P.-C., Tsai, R. J., Finger, G., Chen, Y.-Y., & Yeh, D. (2008). What drives a successful e-Learning? An empirical investigation of the critical factors influencing learner satisfaction. *Computers & Education*, 50(4), 1183–1202. doi:10.1016/j.compedu.2006.11.007

Tomai, M., Rosa, V., Mebane, M. E., DAcunti, A., Benedetti, M., & Francescato, D. (2010). Virtual communities in schools as tools to promote social capital with high schools students. *Computers & Education*, 54(1), 265–274. doi:10.1016/j.compedu.2009.08.009

Vasileios Paliktzoglou has several years of experience in academia, having an active role as: Researcher, Tutor, Supervisor, Lecturer and Programme Manager. He is active in research with papers presented at international conferences, and published at academic journals. His research interests are in the fields of social computing, HCI, web 2.0, communities of practices, e-learning in which he is actively involved in several international research projects.

Call for Articles

International Journal of Technology Diffusion

Volume 7 • Issue 4 • October-December 2016 • ISSN: 1947-9301 • eISSN: 1947-931X

An official publication of the Information Resources Management Association

MISSION

The mission of the **International Journal of Technology Diffusion** is to be a leading journal in global innovation and systems management. The journal publishes articles related to the application of information systems, technology, and innovation acceptance. The interdisciplinary journal also encourages manuscripts on management information systems, decision support systems (DSS), managerial and organizational concerns, educational issues, and innovative applications related to global management innovation systems. The journal propagates knowledge to researchers, practitioners, academicians, and educators all over the world.

COVERAGE AND MAJOR TOPICS

The topics of interest in this journal include, but are not limited to:

Adoption of IS • Business data communications • Computer graphics • Diffusion of innovation models • Distributed databases and networks • DSS/EIS/ES in international settings • E-Commerce • E-government • E-Learning • Electronic commerce • Electronic data interchange • Embedded systems • ERP • E-Services • Evaluation of MIS • Frameworks and models for international management innovation systems (IMIS) system development • Fuzzy systems • Graphics and web design • Grid computing • High performance computing • Image processing • Information Resources Management • Information security • Internet of things • Internet related issues • IS applications and case studies • Issues in accounting information systems • IT and economic development • IT and human resource issues • IT diffusion in developing countries (eg Middle East, Southeast Asia, and Africa) • IT in developing countries • Management information systems • Mobile computing • Natural language processing • Network Security • Networking • Organizational and management system structures • Performance Analysis • System analysis • Technology acceptance • Telecommunications • Web technology • Wireless sensor networks

ALL INQUIRIES REGARDING IJTD SHOULD BE DIRECTED TO THE ATTENTION OF:

Ali Hussein Saleh Zolait, Editor-in-Chief • IJTD@igi-global.com

ALL MANUSCRIPT SUBMISSIONS TO IJTD SHOULD BE SENT THROUGH THE ONLINE SUBMISSION SYSTEM:

<http://www.igi-global.com/authorseditors/titlesubmission/newproject.aspx>

IDEAS FOR SPECIAL THEME ISSUES MAY BE SUBMITTED TO THE EDITOR(S)-IN-CHIEF

PLEASE RECOMMEND THIS PUBLICATION TO YOUR LIBRARIAN

For a convenient easy-to-use library recommendation form, please visit:

<http://www.igi-global.com/IJTD>