

EDITORIAL PREFACE

Massive Open Online Courses as Data Sources for Making Decisions in Learning Processes

*Francisco José García-Peñalvo, Computer Science Department, University of Salamanca,
Salamanca, Spain*

MOOC (Massive Open Online Course) (Kay, Reimann, Diebold, & Kummerfeld, 2013; Liyanagunawardena, Adams, & Williams, 2013; Martínez Abad, Rodríguez Conde, & García-Peñalvo, 2014) paradigm has opened new possibilities in eLearning (García-Peñalvo, 2008; García-Peñalvo & Seoane-Pardo, 2015) since Stephen Downes and George Siemens created the first MOOC back in 2008, breaking some traditional limits and establishing new ways of interaction with knowledge and people involved in learning processes.

MOOC courses offer new opportunities for learning, features like massiveness of participants, peer-to-peer interactions, free-of-charge, openness or scalability (Martínez Núñez, Borrás Gené, & Fidalgo Blanco, 2014). There are two main types of courses MOOC, the xMOOC with a behavioral approach (occurs in traditional online courses) and cMOOC with a connectivism and networking based approach (Fidalgo Blanco, García-Peñalvo, & Sein-Echaluze Lacleta, 2013). Taking advantage of features of both types of MOOC can apply the cooperative model (Fidalgo Blanco, Sein-Echaluze Lacleta, & García-Peñalvo, 2015).

The combination of MOOCs platforms and other systems used nowadays for enhance eLearning (for example social networks) allows enhancing the learning process, building up ubiquitous learning ecosystems (Laanpere, 2012; Llorens, Molina, Compañ, & Satorre, 2014) where the knowledge is available in a multi-context way (García-Peñalvo, 2015) for the students (García-Holgado, García-Peñalvo, Hernández-García, & Llorens-Largo, 2015; García-Peñalvo, Hernández-García, et al., 2015), which extend the traditional concept of learning platform or Learning Management System (LMS) (Casquero, Portillo, Ovelar, Benito, & Romo, 2010; Conde et al., 2014; García-Peñalvo, Conde, Alier, & Casany, 2011).

The analysis of interaction among users and systems provide great insights about how users use, understand and take advantage of tools and platforms they utilize to perform any kind of task. The fact of analyze the interaction and try to extract valuable knowledge from it, has real

application in many areas of knowledge and business, as in digital marketing or in education (Ferguson, 2012; Long & Siemens, 2011), etc.

Furthermore, MOOCs leverage other platforms (even those that are not purely intended to be applied in education) like the social networks and other online tools, applying by this way multi-platform and multi-context approaches that can improve and upgrade the learning experience (García-Peñalvo, Cruz-Benito, Borrás-Gené, & Fidalgo Blanco, 2015).

Thus, these insights retrieved from analyzing the interaction of the students with tools and knowledge can be used to improve MOOC platforms and fix certain flaws of this kind of systems like high dropout rates, etc., but it is especially interesting in the decision-making processes related to learning improvement (Conde-González & Hernández-García, 2013, 2015; Cruz-Benito, Therón, & García-Peñalvo, 2014; Cruz-Benito, Therón, García-Peñalvo, & Pizarro Lucas, 2015).

Journal of Information Technology Research (JITR) is interested in receiving contributions regarding the data gathering from MOOC platforms, its analysis and further decision-making actions.

Current JITR issue comprises four papers. The first one, “A Smart City System Architecture based on City-level Data Exchange Platform” (Chen, Su, Guo, Chen, & Chang, 2015), presents an implementation framework of smart city system based on city-level data exchange platform.

The paper by Briz-Ponce and Juanes-Méndez (2015) entitled “Mobile Devices and Apps, Characteristics and Current Potential on Learning” describes the main characteristics and the use of mobile technologies in this field. The mobile technology’s scope covers tablets and Smartphones. To achieve this goal, a survey was conducted in the University of Salamanca and the participants were undergraduate students of Medical Schools and medical professionals. Results reveal that the usage of mobile devices and apps are spread out among them.

The paper entitled “Influence of Personality on Programming Styles: An Empirical Study” by Karimi et al. (2015) presents the results of a survey study on 68 programmers in the University of Stuttgart that measures programming experience, attitude towards programming, five personality factors, and programming styles. Authors found that programming experience is the most influential factor in programming styles but personality is more evident in different programming styles. They conclude that programming styles are a matter of personal preferences and help reveal the influence of personality in programming.

In the last paper Bani-Mohammad et al. (2015) suggest a new non-contiguous processor allocation strategy, referred to as Compacting Non-Contiguous Processor Allocation Strategy for the 2D mesh multicomputers. In their proposal a job is compacted into free locations. The selection of the free locations has for goal leaving large free sub-meshes in the system.

REFERENCES

- Bani-Mohammad, S., Ababneh, I., & Yassen, M. (2015). A New Compacting Non-Contiguous Processor Allocation Algorithm for 2D Mesh Multicomputers. *Journal of Information Technology Research*, 8(4).
- Blanco, Á., F., , García-Peñalvo, F. J., & Sein-Echaluce, M. (2013). A methodology proposal for developing adaptive cMOOC. In F. J. García-Peñalvo (Ed.), *Proceedings of the First International Conference on Technological Ecosystems for Enhancing Multiculturality (TEEM'13)* (pp. 553-558). New York, NY, USA: ACM. doi:10.1145/2536536.2536621
- Briz-Ponce, L., & Juanes-Méndez, J. A. (2015). Mobile Devices and Apps, Characteristics and Current Potential on Learning. *Journal of Information Technology Research*, 8(4).
- Casquero, O., Portillo, J., Ovelar, R., Benito, M., & Romo, J. (2010). iPLE Network: An integrated eLearning 2.0 architecture from University's perspective. *Interactive Learning Environments*, 18(3), 293–308. doi:10.1080/10494820.2010.500553
- Chen, J., Su, C., Guo, Y., Chen, J., & Chang, S. (2015). A Smart City System Architecture based on City-level Data Exchange Platform. *Journal of Information Technology Research*, 8(4).
- Conde, M. Á., García-Peñalvo, F. J., Rodríguez-Conde, M. J., Alier, M., Casany, M. J., & Piguillem, J. (2014). An evolving Learning Management System for new educational environments using 2.0 tools. *Interactive Learning Environments*, 22(2), 188–204. doi:10.1080/10494820.2012.745433
- Conde, M. Á., & Hernández-García, Á. (2013). A promised land for educational decision-making?: Present and future of learning analytics. In F. J. García-Peñalvo (Ed.), *Proceedings of the First International Conference on Technological Ecosystem for Enhancing Multiculturality* (pp. 239-243). New York, NY, USA: ACM. doi:10.1145/2536536.2536573
- Conde, M. Á., & Hernández-García, Á. (2015). Learning analytics for educational decision making. *Computers in Human Behavior*, 47, 1–3. doi:10.1016/j.chb.2014.12.034
- Cruz-Benito, J., Therón, R., & García-Peñalvo, F. J. (2014). Analytics of information flows and decision making in heterogeneous learning ecosystems. In F. J. García-Peñalvo (Ed.), *Proceedings of the Second International Conference on Technological Ecosystems for Enhancing Multiculturality (TEEM'14)* (pp. 703-707). New York, USA: ACM. doi:10.1145/2669711.2669977
- Cruz-Benito, J., Therón, R., García-Peñalvo, F. J., & Pizarro Lucas, E. (2015). Discovering usage behaviors and engagement in an Educational Virtual World. *Computers in Human Behavior*, 47, 18–25. doi:10.1016/j.chb.2014.11.028
- Ferguson, R. (2012). Learning analytics: Drivers, developments and challenges. *International Journal of Technology Enhanced Learning*, 4(5/6), 304–317. doi:
- Fidalgo Blanco, Á., Sein-Echaluce Lacleta, M. L., & García-Peñalvo, F. J. (2015). Methodological Approach and Technological Framework to break the current limitations of MOOC model. *Journal of Universal Computer Science*, 21(5), 712–734.
- García-Holgado, A., García-Peñalvo, F. J., Hernández-García, Á., & Llorens-Largo, F. (2015, July 14-16). Analysis and Improvement of Knowledge Management Processes in Organizations Using the Business Process Model Notation. In D. Palacios-Marqués, D. Ribeiro Soriano, & K. H. Huanrg (Eds.), *New Information and Communication Technologies for Knowledge Management in Organizations. Proceedings of the 5th Global Innovation and Knowledge Academy Conference GIKA '15*, Valencia, Spain (pp. 93-101). Switzerland: Springer International Publishing. doi:10.1007/978-3-319-22204-2_9
- García-Peñalvo, F. J. (2008). *Advances in E-Learning: Experiences and Methodologies*. Hershey, PA, USA: IGI Global. doi:10.4018/978-1-59904-756-0
- García-Peñalvo, F. J. (2015). Entrepreneurial and problem solving skills in software engineers. *Journal of Information Technology Research*, 8(3), iv–vi.

García-Peñalvo, F. J., Conde, M. A., Alier, M., & Casany, M. J. (2011). Opening Learning Management Systems to Personal Learning Environments. *Journal of Universal Computer Science*, 17(9), 1222–1240. doi:10.3217/jucs-017-09-1222

García-Peñalvo, F. J., Cruz-Benito, J., Borrás-Gené, O., & Fidalgo Blanco, Á. (2015). Evolution of the Conversation and Knowledge Acquisition in Social Networks related to a MOOC Course. In P. Zaphiris & I. Ioannou (Eds.), *Learning and Collaboration Technologies. Second International Conference, LCT 2015, Held as Part of HCI International 2015, Los Angeles, CA, USA, August 2-7, 2015, Proceedings* (pp. 470-481). Switzerland: Springer International Publishing.

García-Peñalvo, F. J., Hernández-García, Á., Conde, M. Á., Fidalgo-Blanco, Á., Sein-Echaluce Lacleta, M. L., Alier-Forment, M., & Iglesias-Pradas, S. et al. (2015, October 7-9). Learning services-based technological ecosystems. In G. R. Alves, & M. C. Felgueiras (Eds.), *Proceedings of the Third International Conference on Technological Ecosystems for Enhancing Multiculturality TEEM'15*, Porto, Portugal (pp. 467-472). New York, USA: ACM. doi:10.1145/2808580.2808650

García-Peñalvo, F. J., & Seoane-Pardo, A. M. (2015). Una revisión actualizada del concepto de eLearning. Décimo Aniversario. *Education in the Knowledge Society*, 16(1), 119–144. doi:10.14201/eks2015161119144

Karimi, Z., Baraani-Dastjerdi, A., Ghasem-Aghaee, N., & Wagner, S. (2015). Influence of Personality on Programming Styles: An Empirical Study. *Journal of Information Technology Research*, 8(4).

Kay, J., Reimann, P., Diebold, E., & Kummerfeld, B. (2013). MOOCs: So Many Learners, So Much Potential. *IEEE Intelligent Systems*, 28(3), 70–77. doi:10.1109/MIS.2013.66

Laanpere, M. (2012). Digital Learning ecosystems: rethinking virtual learning environments in the age of social media. *Paper presented at the IFIP-OST'12: Open and Social Technologies for Networked Learning*, Tallinn, Estonia.

Liyanagunawardena, T. R., Adams, A. A., & Williams, S. A. (2013). MOOCs: A Systematic Study of the Published Literature 2008-2012. *International Review of Research in Open and Distance Learning*, 14(3), 202–227.

Llorens, F., Molina, R., Compañ, P., & Satorre, R. (2014). Technological Ecosystem for Open Education. In R. Neves-Silva, G. A. Tsihrintzis, V. Uskov, R. J. Howlett, & L. C. Jain (Eds.), *Smart Digital Futures 2014* (Vol. 262, pp. 706–715). IOS Press.

Long, P. D., & Siemens, G. (2011). Penetrating the Fog: Analytics in Learning and Education. *EDUCAUSE Review*, 46(5), 30–32.

Martínez Abad, F., Rodríguez Conde, M. J., & García-Peñalvo, F. J. (2014). Evaluación del impacto del término “MOOC” vs “eLearning” en la literatura científica y de divulgación. *Profesorado. Revista de currículum y formación del profesorado*, 18(1), 185-201.

Martínez Núñez, M., Borrás Gené, O., & Fidalgo Blanco, Á. (2014). Social community in MOOCs: practical implications and outcomes. In F. J. García-Peñalvo (Ed.), *Proceedings of the Second International Conference on Technological Ecosystems for Enhancing Multiculturality TEEM'14* (pp. 147-154). New York, NY, USA: ACM.