

# Editorial Preface

## Digital Humanities Data Processing

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### INTRODUCTION

Digital humanities is the research area at the intersection between computing and the broad variety of humanities disciplines. There is not a unique definition of what digital humanities is. Kathie Gosset defines digital humanities as “an umbrella term that covers a wide variety of digital work in the humanities: development of multimedia pedagogies and scholarship, designing and building tools, human computer interaction, designing and building archives, and so on. DH is interdisciplinary; by necessity it breaks down boundaries between disciplines at the local (e.g., English and history) and global (e.g., humanities and computer sciences) levels”, while Mark Tebeau defines it as “a collaborative, open, and emerging field of inquiry. A state of mind, a methodology, and theoretical approach to knowledge, it forces us to reconceive our practice. In my own work, I embrace curation as a means of reweaving and reintegrating theory and practice in history. I seek to interpret space, place, and identity in a multi-sensory way. I fail more often than not. But the digital humanities is like jazz in that it is about process, as well as outcome” (Gold, 2012).

Data intensive computing is considered the fourth paradigm of Science (Hey, Tansley, & Tolle, 2009) and the one of the main aims of the Journal of Information Technology Research (García-Peñalvo, 2015a). This fact also for humanists, text in a book or a manuscript, or the visual elements making up a painting, are data already. However, there exist a special perspective, these are analog, non-discrete data, which cannot be analyzed or transformed computationally; and second, language, texts, paintings, and music are semiotic systems that have dimensions beyond the physically measurable, dimensions which depend on semantics and pragmatics, that is on meaning in context, thus speaking of “data” in the humanities is problematic and has been challenged (Schöch, 2013). Humanities researchers can treat data as different kinds of things: first, as constructed things, data are a species of artifact; second, as authored objects created for particular audiences, data can be interpreted as texts; and third, as computer-processable information, data can be computed in a whole host of ways to generate novel artifacts and texts which are then open to subsequent interpretation and analysis. Data is not in and of itself a kind of evidence but a multifaceted object which can be mobilized as evidence in support of an argument (Owens, 2011).

Usually, the digital humanities resources related with human heritage have a very related association with open knowledge issues (Burgos Aguilar & Ramírez Montoya, 2013; García-Peñalvo, García de Figuerola, & Merlo-Vega, 2010).

Thus, digital humanities involves both digitized and born-digital objects and combines methodologies from humanities disciplines and social sciences, with digital publishing tools and computer science processing methods such as data visualization (Keim, Mansmann, Schneidewind, & Ziegler, 2006), visual analytics (García-Peñalvo, 2015b; Gómez-Aguilar, García-Peñalvo, &

Therón, 2014; Gómez-Aguilar, Hernández-García, García-Peñalvo, & Therón, 2015), information retrieval (Baeza-Yates & Ribeiro-Neto, 1999), data mining (Han, Kamber, & Pei, 2012), text mining (Cohen & Hunter, 2008), etc. These components for processing data are combined forming digital ecosystems (Chang & West, 2006; García-Holgado & García-Peñalvo, 2014; García-Peñalvo et al., 2015) based on complex flows of data (Cruz-Benito, García-Peñalvo, & Therón, 2014; Cruz-Benito, Therón, García-Peñalvo, & Pizarro Lucas, 2015; García-Holgado, García-Peñalvo, Hernández-García, & Llorens-Largo, 2015).

For the reasons above Journal of Information Technology Research is interested in receiving contributions regarding digital humanities processing data.

## **CONTENTS OF THE ISSUE**

Current JITR issue comprises five papers.

The first one, “Information Technology As a Way To Support Collaborative Learning: What In-service Teachers Think, Know and Do” (García-Valcárcel Muñoz-Repiso & Mena Marcos, 2016), presents a study that aims at determining what in-service teachers think (teachers’ opinion), know (technical knowledge) and do (tactical use) about ICT (Information and Communication Technologies) to promote collaborative learning. Authors have used a questionnaire and a semi-structured interview to collect data. A mixed method approach has been conducted and reliability scores calculated. Main results indicate that teachers think that ICT generally facilitate collaborative work but their ICT knowledge is moderate and their actual use limited.

The paper by Ramírez-Montoya and Ramírez-Hernández (2016) entitled “Inverted Learning Environments with Technology, Innovation and Flexibility: Student experiences and meanings” tries to answer the following research question “What are students’ meanings and experiences in inverted learning environments?”. The results have indicated that university students of flexible environments modified their schedules and learning locations; active learning is related to students’ meanings; and inverted learning experiences confirm that they find a source of learning not only in the teacher figure but also in their peers.

The paper entitled “Latin American and Caribbean literature transposed into digital” by Adrián Vila (2016) studies the action performed by the publishing industry in the context of the transposition into digital format of printed books comprising a Latin American and Caribbean literary corpus. The designed corpus includes works and authors labelled as a Latin American segment of the Western Canon, in addition to those segments provided by feminist, queer, postcolonial, and/or decolonization critical theories. It is described/defined the digital ecosystem to which the corpus is transposed as well as some of the strategies implemented by the major e-book trade platforms and the main digital libraries to offer Latin American and Caribbean literature transposed into digital format.

Rodríguez-de-Dios and Igartua (2016) tackle disadvantages and dangers of new technologies into the lives of children, so every day they spend more and more time using them. They conduct a study devoted to identify the skills that compound digital literacy: technological or instrumental, communication, information, critical, and security. Finally, they propose the implementation of a literacy intervention with the aim of providing the children with these skills.

In the last paper Radant et al. (2016) propose factors for different layers of a framework to manage scarce resources in IT-departments. These layers aim for different relevant dimensions of employee satisfaction like wages, psychological development of employees and work life balance. Authors present a structured literature review to screen relevant publications on the topic.

## REFERENCES

- Baeza-Yates, R., & Ribeiro-Neto, B. (1999). *Modern Information Retrieval*. Essex, England: Addison-Wesley.
- Burgos Aguilar, J. V., & Ramírez Montoya, M. S. (2013). Academic Knowledge Mobilisation to Promote. In R. McGreal, W. Kinuthia, & S. Marshall (Eds.), *Open Educational Resources: Innovation, Research and Practice* (pp. 17-32). Vancouver, Canada: Commonwealth of Learning and Athabasca University.
- Chang, E., & West, M. (2006, December 4-6). Digital Ecosystems A Next Generation of the Collaborative Environment. In G. Kotsis, D. Taniar, E. Pardede, & I. K. Ibrahim (Eds.), *Proceedings of iiWAS'2006 - The Eighth International Conference on Information Integration and Web-based Applications Services*, Yogyakarta, Indonesia (pp. 3-24). Austrian Computer Society.
- Cohen, K. B., & Hunter, L. (2008). Getting Started in Text Mining. *PLoS Computational Biology*, 4(1), e20. doi:10.1371/journal.pcbi.0040020 PMID:18225946
- Cruz-Benito, J., García-Peñalvo, F. J., & Therón, R. (2014, July 7-10). Defining generic data collectors for Learning Analytics: Facing up the heterogeneous data from heterogeneous environments *Proceedings of 2014 IEEE 14th International Conference on Advanced Learning Technologies (ICALT)*, Athens, Greece (pp. 365-366). USA: IEEE.
- 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
- García-Holgado, A., & García-Peñalvo, F. J. (2014, November 12-14). Architectural pattern for the definition of eLearning ecosystems based on Open Source developments. In J. L. Sierra-Rodríguez, J. M. Dodero-Bearido, & D. Burgos (Eds.), *Proceedings of 2014 International Symposium on Computers in Education (SIIE), Logrono, La Rioja, Spain* (pp. 93-98). USA: Institute of Electrical and Electronics Engineers. doi:10.1109/SIIE.2014.7017711
- 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. Huarng (Eds.), *New Information and Communication Technologies for Knowledge Management in Organizations. Proceedings of the 5th Global Innovation and Knowledge Academy Conference, GIKA 2015, Valencia, Spain* (pp. 93-101). Springer International Publishing. doi:10.1007/978-3-319-22204-2\_9
- García-Peñalvo, F. J. (2015a). Information Technology Research. *Journal of Information Technology Research*, 8(1), iv–v.
- García-Peñalvo, F. J. (2015b). Issue on Visual Analytics. *Journal of Information Technology Research*, 8(2), iv–vi.
- García-Peñalvo, F. J., García de Figuerola, C., & Merlo-Vega, J. A. (2010). Open knowledge: Challenges and facts. *Online Information Review*, 34(4), 520–539. doi:10.1108/14684521011072963
- García-Peñalvo, F. J., Hernández-García, Á., Conde-González, 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-Valcárcel Muñoz-Repiso, A., & Mena Marcos, J. J. (2016). Information Technology as a Way to Support Collaborative Learning: What In-service Teachers Think, Know and Do. *Journal of Information Technology Research*, 9(1).
- Gold, M. K. (Ed.). (2012). *Debates in the Digital Humanities*. Minneapolis, USA: University of Minnesota Press. doi:10.5749/minnesota/9780816677948.001.0001
- Gómez-Aguilar, D. A., García-Peñalvo, F. J., & Therón, R. (2014). Analítica Visual en eLearning. *El Profesional de la Información*, 23(3), 236–245. doi:10.3145/epi.2014.may.03
- Gómez-Aguilar, D. A., Hernández-García, Á., García-Peñalvo, F. J., & Therón, R. (2015). Tap into visual analysis of customization of grouping of activities in eLearning. *Computers in Human Behavior*, 47, 60–67. doi:10.1016/j.chb.2014.11.001

- Han, J., Kamber, M., & Pei, J. (2012). *Data Mining Concepts and Techniques* (3rd ed.). Waltham, MA, USA: Morgan Kaufmann.
- Hey, T., Tansley, S., & Tolle, K. (Eds.). (2009). *The Fourth Paradigm. Data-Intensive Scientific Discovery*. USA: Microsoft Cooperation.
- Keim, D. A., Mansmann, F., Schneidewind, J., & Ziegler, H. (2006, July 5-7). Challenges in Visual Data Analysis *Proceedings of the Tenth International Conference on Information Visualization*, London, England (pp. 9-16). USA: IEEE.
- Owens, T. (2011). Defining Data for Humanists: Text, Artifact, Information or Evidence? *Journal of Digital Humanities*, 1(1).
- Radant, O., Colomo-Palacios, R., & Stantchev, V. (2016). Factors for the management of scarce human resources and highly skilled employees in IT-departments - a systematic review. *Journal of Information Technology Research*, 9(1).
- Ramírez-Montoya, M. S., & Ramírez-Hernández, D. C. (2016). Inverted Learning Environments with Technology, Innovation and Flexibility: Student experiences and meanings. *Journal of Information Technology Research*, 9(1).
- Rodríguez-de-Dios, I., & Igartua, J. J. (2016). Skills of Digital Literacy to Address the Risks of Interactive Communication. *Journal of Information Technology Research*, 9(1).
- Schöch, C. (2013). Big? Smart? Clean? Messy? Data in the Humanities. *Journal of Digital Humanities*, 2(3).
- Vila, A. (2016). Latin American and Caribbean literature transposed into digital. *Journal of Information Technology Research*, 9(1).