

The WYRED project: A Technological Platform for a generative research and dialogue about youth perspectives and interests in digital society

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Introduction

WYRED (netWorked Youth Research for Empowerment in the Digital society) (García-Peñalvo & Kearney, 2016) is a European H2020 Project that aims to provide a framework for research in which children and young people can express and explore their perspectives and interests in relation to digital society, but also a platform from which they can communicate their perspectives to other stakeholders effectively through innovative engagement processes. It will do this by implementing a generative research cycle involving networking, dialogue, participatory research and interpretation phases centered around and driven by children and young people, out of which a diverse range of outputs, critical perspectives and other insights will emerge to inform policy and decision-making in relation to children and young people's needs in relation to digital society.

To make possible this social dialogue, a technological ecosystem will be implemented (Dini et al., 2005; García-Holgado & García-Peñalvo, 2013, 2014, 2016; García-Peñalvo, 2016; García-Peñalvo et al., 2015) that supports the interaction platform and data analysis of the performed dialogue. The ecosystem must guarantee three main features in the project lifecycle.

First, it must be an interaction facilitator due to most of the discussions will be done inside the platform. Given the importance of mobile online spaces (Alonso de Castro, 2014; Sánchez Prieto, Olmos Migueláñez, & García-Peñalvo, 2014, 2016; Sánchez Prieto, Olmos-Migueláñez, & García-Peñalvo, 2016; Sánchez-Prieto, Olmos-Migueláñez, & García-Peñalvo, 2017), especially among children and young people, it is considered vital that the platform exist as a web-based platform and a mobile app with extensive integration with the social media in which the target groups are active. It will contain profiling functionalities, interaction spaces that facilitate and promote exchange of messages, videos

and other artefacts in different formats, a repository for the artefacts generated in the research process, and a range of analytics instruments for the processing of the dialogue that takes place between WYRED participants.

Secondly, it should be a data analysis system. The social dialogue and participatory research activities in the project will generate heterogeneous data including transcripts, analysis, hypotheses, artefacts, workflows, narratives, quantitative and qualitative data related to perceptions and understandings around social change. The storage of this data will be based upon recent developments in Open Source grid-based Citizen Science platforms (Blanke & Hedges, 2013; Florio, Reilly, Demchenko, Varga, & Harangi, 2012) like MyExperiment (<http://myexperiment.org>) and open data formats including the Research Object standard (<http://www.researchobject.org>) and Linked Data (<http://linkeddata.org>). WYRED will exploit these and other standards and tools to provide flexibility in the ways the data can be managed, organized and made available in different formats and contexts. WYRED will actively engage a wide range of stakeholders by making the project platform a space where all can access the data and artefacts generated, explore and interpret them. The process of interpretation which will be managed by the consortium but open to all is expected to generate elements for potential new models and strategies for transitioning towards these models. These will permit automatic processing and analysis of the raw data from conversations and its visualization so that the user can interact with the visualizations in order to extract new knowledge or select data to be qualitatively analyzed (García-Peñalvo, 2015; García-Peñalvo, Colomo-Palacios, & Hsu, 2013; González-Torres, García-Peñalvo, & Therón, 2013a, 2013b) (as in the Keim cycle (Keim et al., 2008; Keim, Mansmann, Schneidewind, & Ziegler, 2006) or VeLA model (Gómez-Aguilar, García-Peñalvo, & Therón, 2014)). These visualizations will include word-cloud-based visualizations and social graph based visualizations (Gómez-Aguilar, Hernández-García, García-Peñalvo, & Therón, 2015).

But, also the ecosystem must guarantee the security and privacy of the participants in the social dialogue. The WYRED platform represents a safe space in which children and experts will be able to express their views and reflections on the influence of technology in their lives. As technology affects transversally all social areas and involves people of different nationalities and beliefs, the platform must make a double effort to preserve the space in which they will express personal opinions and monitor that will not be any type of abusive situation / cyber bullying among participants.

The WYRED project will be a very interesting platform for the analysis of social data and its results and outcomes will be well-received in JITR the same that similar researching approaches.

Contents of the issue

Current JITR issue comprises five papers.

The first one, "Bridging the gap between LMS and Social Network Learning Analytics in online learning" (Hernández-García & Conde, 2016) presents a study that starts with the hypothesis that despite the great potential of social

network analysis (SNA) methods and visualizations for learning analytics in computer-supported collaborative learning (CSCL), these approaches have not been fully explored due to two important barriers: the scarcity and limited functionality of built-in tools in Learning Management Systems (LMS) (Conde et al., 2014), and the difficulty to import educational data from formal virtual learning environments into social network analysis programs (Fidalgo-Blanco, Sein-Echaluce, García-Peñalvo, & Conde, 2015). Thus this paper aims to cover that gap by introducing GraphFES, an application and web service for extraction of interaction data from Moodle message boards and generation of the corresponding social graphs for later analysis using Gephi, a general purpose SNA software.

The paper "The eAssessment of key competences and their relationship with academic performance" (Martínez-Abad, Torrijos-Fincias, & Rodríguez-Conde, 2016) intends to facilitate the teachers' job to teach and evaluate information skills, and also to establish their impact and relationship with the students' academic performance, understood mainly as the performance in language and mathematics. The sample of the study was composed of 258 secondary education students from Spain, who completed a validated questionnaire that evaluated information skills. The results show a significant positive relationship between information skills and academic performance.

The paper entitled "Critical Factors Influencing E-Government Adoption in India - An Investigation of the Citizens' Perspectives" (Gupta, Bhaskar, & Singh, 2016) presents an integrated model based on Unified Theory of Acceptance and Use of Technology (UTAUT), trust and citizen satisfaction, to explore the factors which influence the adoption of e-government services in Delhi (India). The findings indicate that effort expectancy, performance expectancy, and trust in technology followed by trust in government, citizen satisfaction, and facilitating conditions are significant predictors of citizen adoption of e-government. The findings also reveal that facilitating conditions can be divided into two factors: 'Available Facilitating Conditions' (AFC) which are concerned with the facilitating conditions available at the user's end and 'Provided Facilitating Conditions' (PFC) which refer to the facilitating conditions provided by the government. According to the findings of the study, AFC has a greater impact on e-government adoption, as compared to PFC.

Srivastava and Kumar (2016) evaluate by simulation and analytical validation an approach based on fuzzy logic to ascertain the decision of load balancing at the Internet gateway for MANET-Internet integration. MANET is an autonomous collection of independent nodes cooperating together to form an infrastructure less network spontaneously.

In the last paper Pardede et al. (2016) propose a novel mathematical model of logical relationship among glyphs belong to the same grapheme. The proposed grapheme model is presented in four logical layers from bottom to up namely as Topology, Visual Identity, Phonetic, and Semantic Layer. In the Topology Layer, a unique glyph is defined by a set of topological properties. When trying to describe the logical relation of various glyphs, their topological properties must be examined in a higher layer framework so called Visual Identity Layer. In that

layer, the glyphs of a single grapheme share some topological attributes in common. These common topological attributes form a main identity of a grapheme, which is called Common Identity template that is obtained by means of Supervised Learning method. The Phonetic Layer gives the sound values associated to the grapheme, and the Semantic Layer describes the usage of the grapheme in texts. Some potential implementations of the grapheme model are also presented.

References

- Alonso de Castro, M. G. (2014). Educational projects based on mobile learning. *Education in the Knowledge Society, 15*(1), 10-19.
- Blanke, T., & Hedges, M. (2013). Scholarly primitives: Building institutional infrastructure for humanities e-Science. *Future Generation Computer Systems, 29*(2), 654-661.
doi:<http://dx.doi.org/10.1016/j.future.2011.06.006>
- 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
- Dini, P., Darking, M., Rathbone, N., Vidal, M., Hernández, P., Ferronato, P., . . . Hendryx, S. (2005). *The digital ecosystems research vision: 2010 and beyond*. Retrieved from http://www.digital-ecosystems.org/events/2005.05/de_position_paper_vf.pdf
- Fidalgo-Blanco, Á., Sein-Echaluce, M. L., García-Peñalvo, F. J., & Conde, M. Á. (2015). Using Learning Analytics to improve teamwork assessment. *Computers in Human Behavior, 47*, 149-156.
doi:<http://dx.doi.org/10.1016/j.chb.2014.11.050>
- Florio, L., Reilly, S., Demchenko, Y., Varga, T., & Harangi, G. (2012). *Advancing technologies and federating communities: a study on authentication and authorisation platforms for scientific resources in Europe*. Retrieved from Brussels, Belgium:
<http://hdl.handle.net/11245/1.379440>
- García-Holgado, A., & García-Peñalvo, F. J. (2013). The evolution of the technological ecosystems: An architectural proposal to enhancing learning processes. In F. J. García-Peñalvo (Ed.), *Proceedings of the First International Conference on Technological Ecosystems for Enhancing Multiculturality (TEEM'13) (Salamanca, Spain, November 14-15, 2013)* (pp. 565-571). New York, NY, USA: ACM.
- García-Holgado, A., & García-Peñalvo, F. J. (2014). Architectural pattern for the definition of eLearning ecosystems based on Open Source developments. In J. L. Sierra-Rodríguez, J. M. Dodero-Beardo, & D. Burgos (Eds.), *Proceedings of 2014 International Symposium on Computers in Education (SIIE), Logrono, La Rioja, Spain, 12-14 Nov. 2014* (pp. 93-98). USA: Institute of Electrical and Electronics Engineers.
- García-Holgado, A., & García-Peñalvo, F. J. (2016). Architectural pattern to improve the definition and implementation of eLearning ecosystems. *Science of Computer Programming, 129*, 20-34.
doi:<http://dx.doi.org/10.1016/j.scico.2016.03.010>

- García-Peñalvo, F. J. (2016). The WYRED Project: A Technological Platform for a Generative Research and Dialogue about Youth Perspectives and Interests in Digital Society. *Journal of Information Technology Research*, 9(4), vi-x.
- García-Peñalvo, F. J. (2015). Issue on Visual Analytics. *Journal of Information Technology Research*, 8(2), iv-vi.
- García-Peñalvo, F. J. (2016). Technological Ecosystems. *IEEE Revista Iberoamericana de Tecnologías del Aprendizaje*, 11(1), 31-32.
doi:10.1109/RITA.2016.2518458
- García-Peñalvo, F. J., Colomo-Palacios, R., & Hsu, J. Y. J. (2013). Discovering Knowledge through Highly Interactive Information Based Systems Foreword. *Journal of Information Science and Engineering*, 29(1).
- 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. (2015). 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, October 7-9, 2015)* (pp. 467-472). New York, USA: ACM.
- García-Peñalvo, F. J., & Kearney, N. A. (2016). Networked youth research for empowerment in digital society. The WYRED project. In F. J. García-Peñalvo (Ed.), *Proceedings of the Fourth International Conference on Technological Ecosystems for Enhancing Multiculturality (TEEM'16) (Salamanca, Spain, November 2-4, 2016)*. New York, NY, USA: ACM.
- 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:<http://dx.doi.org/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:<http://dx.doi.org/10.1016/j.chb.2014.11.001>
- González-Torres, A., García-Peñalvo, F. J., & Therón, R. (2013a). How Evolutionary Visual Software Analytics Supports Knowledge Discovery. *Journal of Information Science and Engineering*, 29(1), 17-34.
- González-Torres, A., García-Peñalvo, F. J., & Therón, R. (2013b). Human-computer interaction in evolutionary visual software analytics. *Computers in Human Behavior*, 29(2), 486-495. doi:10.1016/j.chb.2012.01.013
- Gupta, K. P., Bhaskar, P., & Singh, S. (2016). Critical Factors Influencing E-Government Adoption in India - An Investigation of the Citizens' Perspectives. *Journal of Information Technology Research*, 9(4).
- Hernández-García, Á., & Conde, M. Á. (2016). Bridging the gap between LMS and Social Network Learning Analytics in online learning. *Journal of Information Technology Research*, 9(4).
- Keim, D. A., Andrienko, G., Fekete, J., Görg, C., Kohlhammer, J., & Melançon, G. (2008). Visual analytics: Definition, process, and challenges. In A. Kerren, J. Stasko, J. Fekete, & C. North (Eds.), *Information Visualization* (pp. 154-175). Berlin, Heidelberg: Springer.
- Keim, D. A., Mansmann, F., Schneidewind, J., & Ziegler, H. (2006). Challenges in Visual Data Analysis *Proceedings of the Tenth International Conference on Information Visualization, 2006. London, England. 5-7 July 2006* (pp. 9-16). USA: IEEE.
- Martínez-Abad, F., Torrijos-Fincias, P., & Rodríguez-Conde, M. J. (2016). The eAssessment of key competences and their relationship with academic performance. *Journal of Information Technology Research*, 9(4).

- García-Peñalvo, F. J. (2016). The WYRED Project: A Technological Platform for a Generative Research and Dialogue about Youth Perspectives and Interests in Digital Society. *Journal of Information Technology Research*, 9(4), vi-x.
- Pardede, R. E. I., Tóth, L. L., Jeney, G. A., Kovács, F., & Hosszú, G. (2016). Four-Layer Grapheme Model for Computational Paleography. *Journal of Information Technology Research*, 9(4).
- Sánchez Prieto, J. C., Olmos Migueláñez, S., & García-Peñalvo, F. J. (2014). Understanding mobile learning: devices, pedagogical implications and research lines. *Education in the Knowledge Society*, 15(1), 20-42.
- Sánchez Prieto, J. C., Olmos Migueláñez, S., & García-Peñalvo, F. J. (2016). ¿Utilizarán los futuros docentes las tecnologías móviles? Validación de una propuesta de modelo TAM extendido. *RED-Revista de Educación a Distancia*, 52, Artículo 5. doi:<http://dx.doi.org/10.6018/red/52/5>
- Sánchez Prieto, J. C., Olmos-Migueláñez, S., & García-Peñalvo, F. J. (2016). *A TAM based tool for the assessment of the acceptance of mobile technologies among teachers*. Retrieved from Salamanca, Spain: <http://hdl.handle.net/10366/127435>
- Sánchez-Prieto, J. C., Olmos-Migueláñez, S., & García-Peñalvo, F. J. (2017). MLearning and pre-service teachers: An assessment of the behavioral intention using an expanded TAM model. *Computers in Human Behavior*, In Press. doi:<http://dx.doi.org/10.1016/j.chb.2016.09.061>
- Srivastava, P., & Kumar, R. (2016). Critical Factors Influencing E-Government Adoption in India - An Investigation of the Citizens' Perspectives. *Journal of Information Technology Research*, 9(4).



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