Guest Editorial: Technology Enhanced Contextual Game-Based Language Learning

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Introduction

The playing of games holds an important significance in the language development of human beings, regardless of learners' age. Game playing allows for effective learning in language classes as it facilitates students' exploration of alternative decisions and actions, without risking failure which might be experienced in the real world (Martinson & Chu, 2008). However, not all games contribute to language learning and in the case of this special issue, only those which involve language input and output at the three levels of *linguistic form*, *semantic meaning* and *pragmatic use*, were considered (Cook, 2000) for inclusion. It is widely believed that contextual learning provides second language (L2) learners with the opportunity to forge direct links between L2 forms and the underlying concept/s, thus facilitating L2 learning (Lan, Fang, Legault, & Li, 2015) and satisfying the already noted requirements for using games in language learning.

The concept of contextual learning is not new. Since John Dewey proposed the concepts of project-based learning and experiential education (Dewey, 1938), it has remained an important tenet in L2 learning (Ellis, 2008). Meaningful context-dependent social interactions in an authentic environment remain one of the key elements to second language acquisition as it provides L2 learners with essential scaffolding necessary to successfully integrate an L2 (Eun & Lim, 2009; Lan, Lyu, & Chin, in print; Lantolf & Thorne, 2006). Contexts can be viewed as all perceived phenomena, including the physical surroundings, in which language occurs (Prince, 1996). Language input from the environment, including contextual and non-linguistic cues, can easily be comprehended by the L2 learner as it occurs in a low stress environment (Ray, 2012).

In accordance with the belief that contextual learning of L2 is highly beneficial, the creation of authentic L2 learning contexts is strongly suggested by several commonly referred to foreign language teaching/learning guidelines including The Common European Framework of Reference for Languages (Council of Europe, 2001) and the proficiency guidelines developed by the American Council for the Teaching of Foreign Languages (American Council for the Teaching of Foreign Languages, 2012). Nowadays, through the support of advanced technology, the learning context for languages is no longer restricted to that of the conventional L2 classroom. In fact, omni-environments (either real or virtual) can be accessed by the learner as an authentic learning context. For example: (1) computer mediated communication (CMC) enables learners to join virtual communities to explore foreign cultures and learn an L2 (e.g., Pasfield-Neofitou, 2011; Stickler & Emke, 2011); (2) mobile devices seamlessly present real world situations as learning contexts for a target language (e.g., Lan & Lin, 2016); (3) augmented reality devices remove the barriers between the real and virtual world (Godwin-Jones, 2016; Ozcelik & Acarturk, 2011; Yuen, Yaoyuneyong, & Johnson, 2013); and (4) 3D created environments facilitate the L2 learner's immersion in a brand-new world (e.g., Lan, 2014; Lan, 2015; Lan, Kan, Sung, & Chang, 2016; Scholz, 2017; Yeh & Lan, 2018).

To this end, this special issue aims to provide a platform where researchers can present their research efforts offering insights into: (1) the approaches governing the application of technology to enhance L2 game-based learning in context; (2) the evaluation of game-based language learning in different contexts, such as the real world, conventional classroom and the virtual world, with technological support; (3) the comparison of game-based learning outcomes obtained through the use of different technologies in conventional L2 classroom contexts and; (4) the impact of technology enhanced contextual game-based language learning on the transference of knowledge between formal L2 learning and real life application. The process remains open to further research and exploration and the publication of this special issue can facilitate additional understanding as to the potential of contextual games in TELL. After a rigorous review process, ten significant, noteworthy research papers were accepted for inclusion in this special issue. These papers clearly explain *how* a technology-rich contextual game can be adopted in TELL, thus providing learners, educators and researchers with valuable insights into this domain, from different perspectives.

The first paper documents how Rusman, Ternier and Specht developed a mobile game called "*ELENA goes shopping*" to help familiarise children with language/s spoken in neighbouring countries/areas. A design research approach was adopted in this three cycled study. Both the children, and adults, involved in this research used and evaluated the mobile game. Multiple data, including responses from questionnaires, semi-structured interviews as well as a language learning outcome test, were collected during the study. The results confirmed that the "ELENA goes shopping" mobile game does indeed aid children in gaining knowledge of another language.

The second paper, entitled "*Application of a gamified interactive response system to enhance the intrinsic and extrinsic motivation, student engagement, and attention of English learners*" was written by Sun and Hsieh. This work introduced a gamified interactive response system (IRS) for English learning by Taiwanese junior high school students. A total of 144 grade seven students were divided into three classes, through the use of different pooling tools in English classes. Both qualitative and quantitative data, regarding intrinsic and extrinsic motivation, student engagement and attention span were collected and, subsequently, analysed. Based on the results obtained from the analysed data, the authors confirmed the benefits of using the proposed gamified IRS in the English language learning of junior school students.

In the third study Lin, Hwang, Fu and Chen examined how *flipped contextual game-based learning* enhanced the English business writing skills of students who studied English as a foreign language. A mixed methods approach was adopted in this study which had a total of 68 participants. Thirty-five participants made up the experimental group which used the flipped contextual game-based learning approach and 33 participants resorted under the control group which used the conventional contextual game-based approach. Both quantitative and qualitative data, including students' writing performance, writing errors and reflections on the learning approach, were collected and analyzed. The results obtained from this study confirmed that the proposed approach yielded better writing performances, increased motivation and reduced writing errors.

The fourth paper, entitled "*Chinese character composition game with the augment paper*," presents Wen's documentation of the design and evaluation of a digital Chinese character composition game with a paper-interface (Augmented Reality-based Chinese Characters, ARC). The ARC game aims to enhance the study of Chinese characters by Chinese second language (CSL) beginner earners in Singapore. Both Chinese character knowledge and cooperative learning were evaluated in this study. The results suggested that the ARC system benefited CSL beginners' natural interactions during the learning process and thus ameliorated their Chinese character learning.

The fifth paper by Wei, Kao, Lu and Liu evaluated an English vocabulary learning game which featured competitive gaming scenarios and personalised assistance to enhance college students' acquisition of English vocabulary. A total of 120 college students participated in this study. The results obtained from the study noted that the proposed game benefited the students' English vocabulary learning as well as improving performances and lowering anxiety levels.

The sixth paper, "*Using game-based learning with Kinect technology in foreign language education course*," authored by Yükseltürk, Altıok and Başer, investigated the ways in which the integration of game-based learning and Kinect technology would benefit college students' English studies with the focus being on improved self-efficacy and attitude towards English. A total of 62 students were divided into two groups: the experimental group which took part in the proposed game-based learning activities and the control group which underwent conventional teaching. Based on the results obtained from the study, the researchers confirmed that the integration of game-based learning and Kinect technology were, indeed, beneficial to college students' self-efficacy and that it improved their attitude towards English learning.

Yang and Quadir, in the seventh paper entitled "*Effects of prior knowledge on learning performance and anxiety in an English learning online role-playing game*" investigated: relationships amongst English learners and their proficiency in English prior to game playing experiences, learning performance and learning anxiety. A MMORPG-based educational game was developed and used to facilitate elementary students' English learning. A total of 55 grade six pupils participated in this study. The relationship/s between the four variables were confirmed and suggestions for the application of digital game-based learning were also provided by the authors.
In the next paper, Chen, Chen and Dai developed a contextual game-based English learning system named "*PlanetAdventure*" containing three narrative elements: storyline, character and quest. A total of 61 first-year college students participated in this study. Three types of data were collected and analysed namely: students' English results, perceptions and behaviour indicators. The results of this study indicated that students' English studies benefited from the use of the PlanetAdventure system.

Vazquez-Calvo, in the ninth paper, adopted the case study method to explore an online gamer's language learning through game translation. Multiple kinds of data were collected, including: interviews, online observations and screencast videos. The data analysis focused on the gamer's fandom, literacy practices and workflow when doing game translation. Based on the analysis results, the author identified the features of online gamers' language learning.

Last, but not least, the tenth paper by Lan, Hsiao, and Shih elucidated the design principles of game-based 3D virtual language learning environments for special education students. Four special education pupils, with different inherent disabilities, participated in this study. All four students were comorbid with language delay. After observing their learning processes, the researchers adopted a two-cycled design-based research approach to aid in the refinement of a 3D virtual learning environment for language learning. The principles governing the design of an effective 3D learning environment were therefore proposed to broaden researchers' and designers' reference domain.

All the previously listed papers provide insights into the potential of combining digital technology and contexts for language learning. Various technologies, such as mobile technology, augmented reality, and 3D virtual worlds were adopted in these studies. In addition, the variables explored were multi-faceted including: learning performances, attitudes and learning behaviours, to name but a few. Thus, the papers included in this special issue will likely provide readers with a deep and extensive understanding as to the potential uses of contextual games for language learning. More areas for future research will undoubtedly be identified by reading the articles contained in this special issue.

References

American Council on the Teaching of Foreign Languages (2012). *ACTFL proficiency guidelines 2012*. Alexandria, VA: ACTFL, INC. Retrieved from http://www.actfl.org/sites/default/files/pdfs/public/ACTFLProficiencyGuidelines2012_FINAL.pdf

Cook, G. (2000). *Language play, language learning*. Hong Kong: Oxford University Press.

Council of Europe. (2001). *Common European Framework of Reference for Languages: Learning, teaching, assessment*. Cambridge. Cambridge University Press. Retrieved from http://www.coe.int/t/dg4/linguistic/source/framework_en.pdf

Dewey, J. (1938). *Experience & education*. New York, NY: Kappa Delta Pi.

Ellis, R. (2008). *The Study of second language acquisition* (2nd ed.). New York, NY: Oxford University press.

Eun, B., & Lim, H. (2009). A Sociocultural view of language learning: The Importance of meaning-based instruction. *TESL Canada Journal, 27*(1), 13–26.

Godwin-Jones, R. (2016). Augmented reality and language learning: From annotated vocabulary to place-based mobile games. *Language Learning & Technology, 20*(3), 9–19.

Lan, Y. J. (2014). Does Second Life improve Mandarin learning by overseas Chinese students? *Language Learning & Technology, 18*(2), 36–56.

Lan, Y. J. (2015). Contextual EFL learning in a 3D virtual environment. *Language Learning & Technology, 19*(2), 16–31.

Lan, Y. J., Fang, S. Y., Legault, J., & Li, P. (2015). Second language acquisition of Mandarin Chinese vocabulary: context of learning effects. *Educational Technology Research & Development, 63*(5), 671–690. doi:10.1007/s11423-015-9380-y

Lan, Y. J., Kan, Y. H., Sung, Y. T., & Chang, K. E. (2016). Oral-performance language tasks for CSL beginners in Second Life. *Language Learning & Technology, 20*(3), 60–79.

Lan, Y. J., & Lin, Y. T. (2016). Mobile seamless technology enhanced CSL oral communication. *Educational Technology & Society, 19*(3), 335–350.

Lan, Y. J., Lyu, B. N., & Chin, C. K. (in print). Does 3D immersive experience enhance Mandarin writing by CSL students? *Language Learning & Technology*.

Lantolf, J. P., & Thorne, S. L. (2006). *Sociocultural theory and the genesis of L2 development*. Oxford, UK: Oxford University Press.

Martinson, B., & Chu, S. (2008). Impact of learning style on achievement when using course content delivered via a game-based learning object. In R. E. Ferdig (Ed.), *Handbook of Research on Effective Electronic Gaming in Education* (pp. 478–488). Hershey, PA: IGI Global.

Ozcelik, E., & Acarturk, C. (2011). Reducing the spatial distance between printed and online information sources by means of mobile technology enhances learning: Using 2D barcodes. *Computers & Education, 57*(3), 2077–2085.

Pasfield-Neofitou, S. (2011). Online domains of language use: Second language learners' experiences of virtual community and foreignness. *Language Learning & Technology, 15*(2), 92–108.

Prince, P. (1996). Second language vocabulary learning: The Role of context versus translations as a function of proficiency. *The Modern Language Journal, 80*(4), 478–493.

Ray, S. (2012). Using language in the community for enhancing communication skills. *Language and Language Teaching, 1*(1), 12–17.

Scholz, K. (2017). Encouraging free play: Extramural digital game-based language learning as a complex adaptive system. *CALICO Journal, 34*(1), 39–57.

Stickler, U., & Emke, M. (2011). LITERALIA: Towards developing intercultural maturity online. *Language Learning & Technology, 15*(1), 147–168.

Yeh, Y. L., & Lan, Y. J. (2018). Fostering student autonomy in English learning through creations in a 3D virtual world. *Educational Technology Research and Development, 66*(3), 693–708.

Yuen, S. C.-Y., Yaoyuneyong, G., & Johnson, E. D. (2013). Augmented reality and education: Applications and potentials. In R. Huang, Kinshuk, & J. M. Spector (Eds.), *Reshaping learning – The frontiers of learning technologies in global context* (pp. 385–414). doi:10.1007/978-3-642-32301-0_17