E-Learning Takes the Stage: From *La Dama Boba* to a Serious Game

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Title—**E-Learning Takes the Stage: From *La Dama Boba* to a Serious Game.**

Abstract—**In Spain, young people are losing their interest in classical drama. We believe that educational games are an excellent medium for addressing this issue.**

This article describes the design and implementation of a videogame based on *La Dama Boba*, Lope de Vega's stage play. The aim of the videogame is to motivate young people to go to classical theater plays, and to familiarize students with the plot and the characters before they go to the theater. This goal is achieved by making avatars interesting to players, by incorporating different theater techniques to generate characters' personalities and by including the elements that can be used as audio visual content, such as music, scenery and costume design. In this paper, we also present the results of an initial evaluation of the game with master's students from the E-learning group. In order to improve the game, we have studied its effects in terms of improvement of knowledge, learning outcomes and student motivation.

Index Terms—**Educational Technology, Computer Aided Instruction, Virtual Learning Environments, Game-based Learning, Computer Games for Drama Learning, Drama, Serious Games.**

I. INTRODUCTION

IN Spain, young people are losing their interest in drama. The average age of theater audiences is rising up. The gap between the theater and Spanish teenagers is one of the problems that could empty the theaters in the medium term. If we cannot attract that generation to go to the theater, and that lack of interest becomes settled, theater would become a cultural activity for the intellectual elite [1].

For classical theater, the panorama is even worse - the few young people who go to classical staging are normally in a school trip. In those educational activities, it is common to see the young audience getting bored or using their mobile phones.

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One of the key factors to explain the low consumption with respect to scenic arts in Spain is the lack of appropriate policies addressed to catch the interest of young audiences [2]. 75.4% of the population declare to go to the theater almost never, whereas only 3.0% consider it a positive leisure option and frequently attend it. People who went to the theater at an early age present a higher consumption at the moment (69.1% of the spectators) [2]. Besides, the high interest in theater detected among regular spectators leads us to think that it is possible to increase theater attendance.

To overcome the gap between young people and theater, it is essential to save the future of the theater. To stop and to invert the current actual tendency requires to work from the theater industry, as well as to influence other activity sectors, especially in education. One of the priorities of the theater industry in Spain is to increase the attractive of the theater in educational programs [1].

In the last few decades, a new trend has risen, which argues that the educational system must adapt to the new needs of information society. One of the most promising solutions in educational technologies field are videogames. According to several studies, videogames have positive advantages over other approaches, such as increasing motivation, enhancing problem-solving abilities, or fostering active learning (*learning by doing*). Educational games (also called *serious games*) could students to build a more reflexive and personalized understanding [3][4][5][6], and improve students' attitude; therefore, games are currently used to address the lack of motivation and abandonment in formative activities [7].

Nevertheless, when making a conscious decision to replace concrete educational content with a videogame, educators must evaluate the game's cost-effectiveness, including the time and effort to develop and deploy it [8][9]. Thus, to ensure the efficiency of new educational technologies, a deeper evaluation is needed, to assess the tools and the real impact of those tools to achieve our ultimate goal.

In this paper, we present the design and developing processes of a serious game based on *La Dama Boba / The Foolish Lady* by Lope de Vega. The game is aimed at high school students, to increase their interest on classical theater.

The paper is structured as follows: section II analyzes the causes of the lack of interest in classical theater in young audiences. Section III includes the solutions that a game could provide to solve the detected problems and describes the process of creating the game, including the motivations, game

interesting, we can declare that most characters from the classical theater turned into game characters would be "interesting to play" (apart from the aesthetic aspects).

Using an objective-conflicts agenda simplified the characters' creation and design. Following this technique, we avoided the narrative gaps that result from a character not knowing what to do at a certain point.

Creating the game in parallel with the theater rehearsals provided us with a very concrete point of view about the play (both the point of view of the director and the set designer), that we have incorporated into the game. Trying to create a game from a dramatic text without taking into account the point of view of the characters would result in an incomplete game.

We are also fully aware that the doctoral students' evaluation has a limited weight. First, due to the small sample, and second because those students are not the final target audiences of *La Dama Boba* game. Nevertheless, the evaluation proved to be very productive as formative pre-evaluation before the larger scale experiment takes place. It helped us to improve the game's implementation and solve several errors that, if found during the experiment, would have had a difficult solution.

Finally, every teacher who received the experience proposal has shown interest in both the project and the game. They also have worked hand in hand to create the evaluation test and to improve the game.

This leads us to believe that games like *La Dama Boba* could become a real alternative to tackle the young people's lack of interest towards theater.

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REFERENCES

[1] Anuario de las artes escénicas, musicales y audiovisuales 2012. Sociedad General de autores y editores. Available: http://www.anuariossgae.com/informe/pdfs/Conclusi.pdf, pp. 159–161.

[2] M.J. Quero, "El enfoque de marketing relacional en entidades de servicios de exhibición de artes escénicas", PHD, Dept. Economía y administración de empresas, Fac. CC Económicas, Málaga, España, 2002.

[3] McGaghie, W. C., Issenberg, S. B., Cohen, E. R., Barsuk, J. H., & Wayne, D. B. (2011). Does simulation-based medical education with deliberate practice yield better results than traditional clinical education? A meta-analytic comparative review of the evidence. *Academic medicine: journal of the Association of American Medical Colleges*, 86(6), 706–11. doi:10.1097/ACM.0b013e318217e119

[4] Scalese, R. J., Obeso, V. T., &Issenberg, S. B. (2008). Simulation technology for skills training and competency assessment in medical education. *Journal of general internal medicine*, 23 Suppl 1, 46–9. doi:10.1007/s11606-007-0283-4

[5] McGaghie, W. C., Issenberg, S. B., Petrusa, E. R., &Scalese, R. J. (2010). A critical review of simulation-based medical education research: 2003-2009. *Medical education*, 44(1), 50–63. doi:10.1111/j.1365-2923.2009.03547.x

[6] Rieber, L. P., Smith, L., & Noah, D. (1998). The value of serious play. *Educational Technology*, 38(6), 29-37

[7] Parker, A. (2003). Identifying predictors of academic persistence in distance education. *Journal of the United States Distance Learning Association*, 17, 55-62.

[8] Begg M: Leveraging game-informed healthcare education. *Medical Teacher* 2008, 30:155-158.

[9] Akl, E. A., Pretorius, R. W., Sackett, K., Erdley, W. S., Bhoopathi, P. S., Alfarah, Z., & Schünemann, H. J. (2010). The effect of educational games on medical students' learning outcomes: a systematic review: BEME Guide No 14. *Medical teacher*, 32(1), 16–27. doi:10.3109/01421590903473969

[10] Murray, J., Hamlet on the Holodeck. 1997, New York: The Free Press.

[11] Fernández-Vara, C. 2009. The Tribulations of Adventure Games: Integrating Story Into Simulation Through Performance. Doctoral Thesis. Georgia Institute of Technology.

[12] Pablo Moreno-Ger, Carl Blesius, Paul Currier, José Luis Sierra, Baltasar Fernández-Manjón (2008). Online Learning and Clinical Procedures: Rapid Development and Effective Deployment of Game-Like Interactive Simulations. *Transactions on Edutainment I, Lecture Notes in Computer Science* 5080, pp. 288–304.

[13] <e-Adventure> Platform. [Internet] <e-UCM>ResearchGroup [cited 2009 Sep 16]. Available from:http://e-adventure.e-ucm.es.

[14] Boal, Augusto (1998). Theatre of the Oppressed. TCG, New York.

[15] P. Bradley, The history of simulation in medical educationand possible future directions, *Med. Educ*. 40 (3) (2006) 254–262.

[16] P. Moreno-Ger, D. Burgos, J.L. Sierra, B. Fernández-Manjón, Educational game design for online education, *Comput.Hum. Behav*. 24 (6) (2008) 2530–2540.

[17] M. Wenk, R. Waurick, D. Schotes, M. Wenk, C. Gerdes, H. VanAken, et al., Simulation-based medical education is no better than problem-based discussions and induces misjudgment in self-assessment, Adv. *Health Sci. Educ.:TheoryPract*. 14 (2) (2009) 159–171.

[18] L.P. Sturm, J.A. Windsor, P.H. Cosman, P. Cregan, P.J. Hewett,G.J. Maddern, A systematic review of skills transfer aftersurgical simulation training, Ann. *Surg*. 248 (2) (2008)166–179.

[19] J. Michael, What makes physiology hard for studentstolearn? Results of a faculty survey, Adv. *Physiol. Educ*. 31 (1) (2007) 31–40.

[20] Schechner, R. (1988). Performance theory. New York: Routledge.

[21] S. Chatman, Story and Discourse: Narrative Structure in Fiction and Film, CornellUniv. Press, 1978.

[22] Egri, Lajos. The Art of Dramatic Writing. Simon and Schuster, 1960.

[23] Lankoski, Petri, and StaffanBjork. "Character-Driven Game Design: Characters, Conflicts andGameplay." GDTW, Sixth International Conference in Game Design and Technology.

[24] Meretzky, Steve. "Building Character: An Analysis of Character Creation." Gamasutra (2001). Available: http://www.gamasutra.com/resource_guide/20011119/meretzky_03.htm (accessed November 8, 2012).

[25] C.Stanislavsky. Creación de un personaje. (1992). Mexico:Diana.

[26] Frasca, G. (2009). "Juego, videojuego y creación de sentido. Una introducción". *Comunicación*, núm. 7, pp. 37-44. Available in: http://www.revistacomunicacion.org. (accessed September 1, 2012).

[27] J. Juul,Half-Real: Video Games between Real Rules and Fictional Worlds. Cambridge, MA: MITPress, 2005.

[28] Juul, J., "The Magic Circle and the Puzzle Piece", in Conference Proceedings of the Philosophy of Computer Games 2008. Potsdam University Press: Potsdam 2008, pp. 56-67.

[29] McGaghie, W. C. (2008). Research opportunities in simulation-based medical education using deliberate practice. *Academic emergency medicine: official journal of the Society for Academic Emergency Medicine*, 15(11), 995–1001. doi:10.1111/j.1553-2712.2008.00246.x

[30] Kochevar DT. The critical role of outcomes assessment in veterinary medical accreditation. *J Vet Med Education* 2004; 31(2):116-9.

[31] Klevjer, Rune. In defense of cutscenes, in CGDC conference proceedings,(ed.) FransMäyrä. Tampere University Press, Tampere, 2002.

[32] Julian Kücklich. MMOGs and the Future of Literature. Situated Play, Proceedings of DiGRA 2007 Conference. Available: http://www.digra.org/dl/db/07312.32545.pdf. (Accessed September 3, 2012)

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[33] Rollings, Andew, and Ernest Adams. Andrew Rollings and Ernest Adams on Game Design. Indianapolis, IN: New Riders Publishing, 2003.

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