

Serious games to improve health professional's skills when caring for cardiac patients

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1 Abstract / Introduction

It is increasingly necessary for lifelong education and training to promote processes of articulation between teaching and work organizations, resulting in the personal and social development of the individual. In this case, education anticipates the individual's profession, leading to a structured basis of teaching and learning processes. While training is directed towards, formal and non-formal teaching and learning processes appropriate to personal interests and above all, to the needs arising from the technological and psychosocial evolution of the labor career, it is understood to be the individual's responsibility.

This study focuses on a coronary care unit, aiming to identify ways in which these formal caregivers try to solve their problems and educational needs. However, to intervene with non-formal education and training actions, using innovative ways of designing, starting and delivering training, in which the participants involved organize themselves and take an active role in terms of the selection of objectives and contents. This dynamic includes serious games as an element capable of producing attention, memory, and motivation for participants, providing them with effective and affective experiences. A scoping review on the topic highlights the potential of serious games in the development of affection, attention, memory, and motivation to learn, nonetheless other factors should be considered, such as collaborative learning environments.

2 Objective

To promote the development of health professionals emotional skills and enable them to overcome obstacles during healthcare with cardiac patients.

Therefore, this project focuses on different dimensions of knowledge, such as individual promotion and qualification and on the relational qualification of health professionals. In addition to the development of social and emotional skills, the aim is to develop transversal skills, such as entrepreneurial skills, information, communication technologies and lifelong learning, referred has broad skills.

3 Methodology

The participatory study, has a qualitative approach, applying interactive education and training workshops, using serious games built with pertinent health content and adapted to the needs and context where these health professionals work.



The device allows the detection and recognition of emotions; modeling and expression of emotions by the game characters and players. According to the objectives of the study, the sample includes all nurses in the coronary care unit.

4 Conclusions

The robustness of this project will allow a rigorous assessment of the effectiveness of an intervention program. Sustainability expected over time, with effects beyond the time horizon of the intervention program, since the serious games device can be used in other similar contexts. The gains relate to the preparation of health professionals enabling them to develop broad skills, contributing to the empowerment of patient's self-care in post-Acute Myocardial Infarction during hospitalization.

Keywords/Descriptors: Nursing Professionals; Personal Development; Professional Training; Emotional Skills; Coronary Care Unit; serious games

References

- Anderson, L., Brown, J. P., Clark, A. M., Dalal, H., Rossau, H. K., Bridges, C., & Taylor, R. S. (2017). Patient education in the management of coronary heart disease. *Cochrane Database Syst Rev*, 6.
- Barbosa, T., Lopes, S., Leão, C., Soares, F., & Carvalho, V. (2019). Serious Game for Teaching Statistics in Higher Education: Storyboard Design. Lecture Notes of the Institute for Computer Sciences, Social-Informatics and Telecommunications Engineering, LNICST. *7th EAI International Conference on Arts and Technology, Interactivity, and Game Creation, ArtsIT 2018 and 3rd EAI International Conference on Design, Learning and Innovation, DLI*. Braga, Portugal, 265, 169-175.
- Bardin, L. (2016). Content Analysis *Análise de Conteúdo*. Lisboa: Edições 70.
- Bogdan, R. & Biklen, S. (2010). *Investigação Qualitativa em Educação: Uma Introdução à Teoria e aos Métodos*. Porto: Porto Editora.
- Ceccim, R. B. (2018). Conexões e fronteiras da interprofissionalidade: forma e formação. *Interface comunicação, saúde e educação*, 22(Supl.2), 1739-1749.
- Drummond, D., Hadchouel, A., & Tesnière, A. (2017). Serious games for health: three steps forwards. *Advances in Simulation*, 2:3, 1-8.
- Laamarti, F., Eid, M. & El Saddik, A. (2014). An Overview of Serious Games. *International Journal of Computer Games Technology*, Hindawi Publishing Corporation, Vol. 2014.
- Le Boterf, G. (2005). *Construir as competências individuais e coletivas*. Edições ASA: Lisboa.



- Martins, T., Carvalho, V., & Soares, F. (2018). Physioland - A Serious Game for Rehabilitation of Patients with Neurological Diseases. M.E. Auer and D.G. Zutin (eds.), Lecture Notes in Networks and Systems, Online Engineering & Internet of Things. *Springer International Publishing AG, 14th International Conference on Remote Engineering and Virtual Instrumentation REV 2017*. Columbia: University New York, USA, 22, Chapter N. 60.
- OECD (2018). Skills Strategy Implementation Guidance for Portugal: Strengthening the Adult-Learning System. *OECD Skills Studies*. OECD Publishing, Paris.
- Ricciardi, F., & De Paolis, L. T. (2014). A Comprehensive Review of Serious Games in Health Professions. *International Journal of Computer Games Technology, Hindawi Publishing Corporation*. Vol. 2014.
- Silva, V., Soares, F., Esteves, J. S., Figueiredo, J., Leão, C. P., Santos, C., & Pereira, A. P. (2016). Real-time Emotions Recognition System. *8th International Congress on Ultra Modern Telecommunications and Control Systems and Workshops (ICUMT)*. Lisboa, Portugal.
- Wilkinson, S. (1998). Focus group methodology: a review. *International Journal of Social Research Methodology*, 1:3, 181-203.

