

Indie Games for Ethical and Socioemotional Development in Secondary Education

Jorge Oceja, Júlia Vilasís-Pamos and Jesús Salinas

Universitat de les Illes Balears, Spain

jorge.oceja@uib.es

julia.vilasis@uib.es

jesus.salinas@uib.es

Abstract: Video games, particularly those developed in the independent scene, are a form of media with great educational possibilities. This work in progress will be completed in three years and it aims to improve teachers video game literacy and help them implementing activities for ethical and socioemotional development (European key competencies 5 and 6) through indie games. Therefore, through design-based research and mixed-method designs, it aims to achieve three goals: (O1) identify the perception and meaning-making processes that teachers and students have about videogames and learning through video games; (O2) design a measurable training program for teachers around the educational possibilities of indie games and help them implement activities for ethical and socioemotional development; and (O3) evaluate the programs impact based on the indicators of key competencies 5 and 6. The project is in its first phases and it will be developed in the next three years. First, representative samples of each agent will be accessed to analyze their beliefs, types of knowledge, and practical experience in the field. Subsequently, four independent video games that promote key competencies 5 and 6 will be selected, and classroom activities will be designed for each of them. Next, teachers from four high schools in Spain (Cantabria, Balears, Andalucía and Catalonia) will be trained in the use of the educational resources, and they will be accompanied in its implementation with students. Finally, the programs impact on students will be evaluated based on various psychological variables associated with key competencies 5 and 6 (e.g., empathy, emotional identification, civic skills, etc.) as well as the participants perceptions of the experience, enabling the generation of design principles for future iterations and for the programs scalability.

Keywords: Videoludic Literacy, Media Literacy, Video Games, Game-based learning, Civic Competence, Personal and Social Competence

1. Introduction

Reluctance has lingered when it comes to introducing commercial games into classrooms and their inclusion often is replaced by simple game-based learning or gamification practices that elicit questionable educational benefits (Raessens, 2014; Oceja, 2019). However, in recent years, sociocultural approaches led by James Paul Gee (2014) have highlighted non-explicitly educational games' possibilities when used to generate relevant conversations from dialogical perspectives. These possibilities increase when working with games designed by small studios with high levels of autonomy and creative freedom, leading to so-called *indie games* (Juul, 2019). This scenario, in our view, is the optimal framework for working with most key competences in the European context, particularly with the personal, social, and learning to learn competence (Competence 5) and citizenship competence (Competence 6).

The European Commission (2004) defined key competences as follows:

Key competences represent a transferable, multifunctional package of knowledge, skills and attitudes that all individuals need for personal fulfillment and development, inclusion and employment (p. 6).

Since then, the regulatory framework has modified the names and number of competences. The Council Recommendation of May 22, 2018, established eight key competences that must be addressed in the context of lifelong learning, especially in the curricular development of member states. In particular, Competence 5 is defined as:

The ability to reflect on oneself, manage time and information effectively, collaborate constructively with others, maintain resilience, and manage one's own learning and career. It includes the ability to cope with uncertainty and complexity, learn to learn, contribute to one's own physical and emotional well-being, preserve physical and mental health, and be able to lead a healthy and future-oriented life, express empathy, and manage conflicts in an inclusive and supportive context (p. 10).

Competence 6 is described as:

The ability to act as responsible citizens and participate fully in social and civic life based on an understanding of social, economic, legal, and political concepts and structures, as well as sustainability and global events (p. 10).

As various studies have demonstrated (Gil-Olarte et al., 2006; Palomera et al., 2012), explicit work around these variables with secondary education students is complex, but can make a decisive impact on their lives and improve school climate.

This project will help generate knowledge by (O1) providing information on teachers and students' perceptions and meaning-making processes about learning through video games; (O2) generating a scalable and evaluable training program that educates teachers in the educational use of independent games and allows for implementation of classroom activities for development of ethical and socioemotional competences; and (O3) evaluating its impact on students based on the indicators in which Competences 5 and 6 are manifested, thereby also generating design principles that will be useful in the future.

2. Methods

This project will first focus on students and teachers' practices and meaning-making processes regarding video games to design an educational program that provides teachers with meaningful activities for the classroom.

O1 will be reached through a mixed-methods design, combining questionnaires and focus groups with teachers and students. O2 will be achieved by deploying design-based research (DBR) phases as presented in the following section, and O3 will be achieved through mixed-methods approaches that combine qualitative elements with the application of validated psychometric tests that measure the program's impact on students in relation to the development of Competences 5 and 6. To a certain extent, the entire project also can be interpreted as large-scale DBR. Furthermore, as it combines qualitative techniques with quantitative ones, it also can be interpreted as a sequential exploratory mixed-methods design, in which qualitative work precedes quantitative work.

GO1	GO2	GO3
	Training and implementation of the resource	
Each school	Each school	Each school
12-13	12-13	12-13
13-14	13-14	13-14
14-15	14-15	14-15
15-16	15-16	15-16
Class A: 1 teacher / 20 students Class B: 1 teacher / 20 students	Class A: 1 teacher / 20 alum. Class A: 1 teacher / 20 alum. Class A: 1 teacher / 20 alum. Class A: 1 teacher / 20 alum.	Class A (exp): 1 teacher / 20 students Class B (con): 1 teacher / 20 students Class A (exp): 1 teacher / 20 students Class B (con): 1 teacher / 20 students Class A (exp): 1 teacher / 20 students Class B (con): 1 teacher / 20 students
Sample: Quantitative: x 4 = 32 teachers / 640 stud. Qualitative: x 4 = 4 groups of 8 teachers 4 groups of 8 students	Sample: x 4 = 16 teachers / 320 students.	Sample: Quantitative: x 4 = 320 students experimental x 4 = 320 students control Qualitative: x 4 = 4 groups of 4 teachers
Design: Mixed-method design	Design: Design-based research	Design: Mixed-method design
Approach: Quantitative (descriptive) and qualitative with students and teachers		Approach: Teachers = Qualitative Students = Quantitative

Figure 1: Design-based research

The sample will comprise teachers and students from four schools in Spain. Teachers will implement five activities designed for each of the four games, which will be selected by the research team throughout the first year. Similar activities have been designed and implemented in several Spanish schools in previous years through various funded projects, using games such as *Braid* by Jonathan Blow and *Gris* by Nómada Studio.

The selection of games is a critical element of the project and will take into consideration several factors, including: (1) artistic and creative value, (2) the extent to which they allow explicit work with competencies 5 and 6, (3) the possibilities they offer for dialogical and sociocultural learning, (4) PEGI ratings, (5) price, and (6) accessibility.

Sample selection will consider the centers' sociocultural and socioeconomic diversity; therefore, sampling will be accidental/casual and nonprobabilistic, as the team has access to schools in these various territories. Each

school will participate through their four courses of compulsory secondary education (12 to 16 years old). We will gather information from two classes (a and b) in each course with each school guaranteeing gender representativeness in all cases. This will result in a total teacher sample of $n = 32$. Calculating an average of 20 students per classroom, we will have $n = 640$ students during this first phase. All of them will complete descriptive questionnaires and then representative subsamples of teachers and students will be chosen for the qualitative focus groups. Subsequently, teachers who wish to participate in the training and implementation of the educational resource will be given the opportunity. In this case, it will be required that at least one line from each center and course act as an experimental group and at least another line from the same center and course act as a control group. This will result in $n = 16$ teachers and $n = 320$ students who will apply the resource, with corresponding numbers acting as a control.

2.1 Analysis Strategies and Implementation

For achieving O1, student and teachers' qualitative information will be gathered through focus groups and analyzed using Atlas.ti software. The process will be inductive primarily, with contributions and categories emerging from the data themselves using analytical induction and grounded theory and constant comparison methods.

Regarding O2, agreements with the Education Departments and Teacher Training Centers in the various locations will be forged to implement a training modality called *work groups*, allowing teachers to be trained at their schools throughout the year by a researcher while they implement various activities. This training will comprise six two-hour sessions interspersed with implementation of classroom activities.

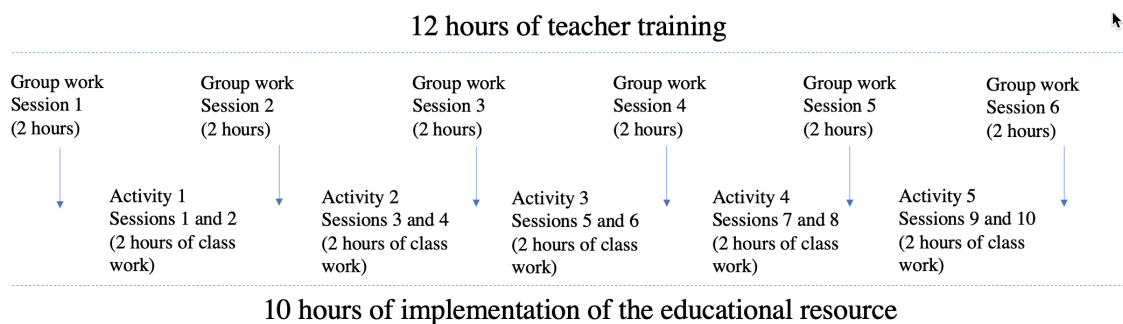


Figure 2

At the end of the process, Department of Education credentials will be given to all teachers who complete the training. The educational resource itself comprises five activities that require about 10 hours of work, so implementation in the class will comprise 10 one-hour sessions.

O3 will be pursued once training and classroom activities have been implemented. First, qualitative data from teachers who implement the resource will help us analyze their perceptions of the program and to what extent it has impacted their game literacy and games' educational possibilities. Data will be gathered and analyzed by following the same strategies as those used with O1.

Finally the program's impact on the students competence level will be assessed through a quasi-experimental quantitative methodology with a control ($n = 320$) and experimental group ($n = 320$), pretest, and posttest.

Although literature reviews will be conducted to confirm the most relevant instruments, the team already has considered the use of some validated psychometric tests. To measure Competence 5's impact, use of the *Bar-On Emotional Quotient Inventory: Youth Version* will be considered. For Competence 6, instruments such as the *Child and Adolescent Scale of Participation (CASP)* or *Deliberative Process Perceived Quality Scale (DPPQS)* will be used. Data will be analyzed through a general linear model analysis of repeated measures using SPSS data, considering gender in the analyses as a control variable.

3. Expected Results and Applicability

The most evident impact will be linked to improvement of Key Competences 5 and 6 among the students.

Beyond explicit improvement, we expect to observe enriched video game literacy among the teaching staff.

While educational projects might not generate an immediate social and economic return, some extant research indicates that ethical and socioemotional competences are significant predictors of adjusted functioning and individual well-being. For example, improvements related to a lower index of maladaptive behaviors, such as disruptive and aggressive behaviors or risk behaviors that include drug use, have been identified (González-Yubero, et al., 2020). Above all, relationships have been found with greater adapted behavior, such as higher-quality social relationships, higher retention in the educational system, increased prosocial behaviors, better academic performance, better mental and physical health, greater life satisfaction, and increased altruistic behaviors (Gil-Olarte, et al., 2006).

In the same line, various meta-analyses have found that these programs generate improvements in attitudes toward school, a decrease in disruptive and aggressive behaviors, fewer affective problems, and improved academic grades (Durlak et al., 2011).

Therefore, we expect more than just short-term improvement in teachers' video game literacy and students' strength in Key Competences 5 and 6, but above all, an impact on digital critical literacy in schools and, by extension, society as a whole. We advocate for a real critical digital literacy. By helping educators and students recognize games' cultural and artistic value, we envision a learning environment in which digital tools are utilized judiciously and based on pedagogical objectives. Our approach encourages informed decision-making regarding integration of digital resources while ensuring that educational goals remain the most important element.

References

- Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child development*, 82(1), 405-432.
- European Commission (2004) *Implementation of the "Education and Training 2010" work programme. Key competences for lifelong learning a European framework*. Directorate-General for Education and Culture
- European Comision. (2018). *Council Recommendation on key competences for lifelong learning*
[https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32018H0604\(01\)](https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32018H0604(01))
- Gee, J. P. (2014). *What Video Games Have to Teach Us About Learning and Literacy*. Macmillan.
- Gil-Olarte, P., Palomera, R., & Brackett, M. A. (2006). Relating emotional intelligence to social competence and academic achievement in high school students. *Psicothema*, 18 Suppl, 118-123.
- González-Yubero, S., Palomera Martín, R. & Lázaro Visa, S. (2020). Inteligencia emocional rasgo y habilidad como factores asociados al consumo de cannabis en la adolescencia. *Adicciones*, 33(4), 345-358.
doi:<http://dx.doi.org/10.20882/adicciones.1364>
- Jones, D. E., Greenberg, M., & Crowley, M. (2015). Early social-emotional functioning and public health: The relationship between kindergarten social competence and future wellness. *American journal of public health*, 105(11), 2283-2290.
- Juul, J. (2019). *Handmade pixels: Independent video games and the quest for authenticity*. Mit Press.
- Ocea, J. (2019). Playing Emotions: Designing an Educational Resource That Promotes Emotional Education Through Independent Video Games. In L. Elbaek, G. Majgaard,, A. Valente y S. Khalid (Eds.), *European Conference on Games Based Learning*. Odense: Denmark. ACI.
- Palomera, R., Salguero, J. M., & Ruiz-Aranda, D. (2012). La percepción emocional como predictor estable del ajuste psicosocial en la adolescencia. *Behavioral Psychologist*, 20(1), 42-58
- Parker, J. D., Hogan, M. J., Eastabrook, J. M., Oke, A., & Wood, L. M. (2006). Emotional intelligence and student retention: Predicting the successful transition from high school to university. *Personality and Individual differences*, 41(7), 1329-1336. <https://doi.org/10.1016/j.paid.2006.04.022>
- Raessens, J. (2014). The Ludification of Culture. En M. Fuchs, S. Fizek, P. Ruffino, y N. Schrape (Eds.), *Rethinking gamification* (pp. 71-90). Meson Press.