

Alex Paúl Zambrano-Álava; Ana Thalía Lucas-Zambrano; María De Los Ángeles Lucas-Zambrano;  
Karina Elizabeth Luque-Alcívar

<http://dx.doi.org/10.35381/e.k.v3i5.847>

## **Gamificación y aprendizaje autorregulado**

### **Gamification and self-regulated learning**

Alex Paúl Zambrano-Álava

[paul.zambrano.1990@gmail.com](mailto:paul.zambrano.1990@gmail.com)

Pontificia Universidad Católica del Ecuador, Sede Manabí, Campus Chone  
Ecuador

<https://orcid.org/0000-0001-9327-6353>

Ana Thalía Lucas-Zambrano

[mdlalucas@gmail.com](mailto:mdlalucas@gmail.com)

Pontificia Universidad Católica del Ecuador, Sede Manabí, Campus Chone  
Ecuador

<https://orcid.org/0000-0002-1214-3477>

María De Los Ángeles Lucas-Zambrano

[kaellual@gmail.com](mailto:kaellual@gmail.com)

Pontificia Universidad Católica del Ecuador, Sede Manabí, Campus Chone  
Ecuador

<https://orcid.org/0000-0001-8253-6287>

Karina Elizabeth Luque-Alcívar

[anathaliaalucas@gmail.com](mailto:anathaliaalucas@gmail.com)

Pontificia Universidad Católica del Ecuador, Sede Manabí, Campus Chone  
Ecuador

<https://orcid.org/0000-0002-2052-1087>

Recepción: 20 abril 2020  
Revisado: 25 de mayo 2020  
Aprobación: 20 junio 2020  
Publicación: 26 de junio 2020

Alex Paúl Zambrano-Álava; Ana Thalía Lucas-Zambrano; María De Los Ángeles Lucas-Zambrano;  
Karina Elizabeth Luque-Alcívar

## ABSTRACT

With the investigation, it was proposed to determine the relationship between gamification and self-regulated learning in students of general basic education in the province of Manabí-Ecuador. The study was correlational, with a non-experimental cross-sectional design. The researchers worked with a population made up of 70 teachers from the city of Chone, to whom two standardized instruments were applied. Considering the investigated sample and the results obtained, the Pearson's correlation coefficient was 0.104. This indicates that there is a low positive relationship between the study variables, which implies that the greater the use of gamification, the greater self-regulation in the students' learning process. Consequently, it is determined that gamification is positively related to self-regulated learning, which favors the students' motivation and personal growth as essential factors to promote better academic performance, from a student-centered process.

**Descriptors:** Educational games; teaching materials; educational software; computer assisted instruction. (Words taken from the UNESCO Thesaurus).

## INTRODUCTION

In a digitized world, access to information is continuous and available to all, the experience provided to users by new technologies is extremely enriching, as it transports them to another reality. Such is the case of video games, which capture the people's interest, perhaps, because the human being is related to the game (Valda-Sánchez & Arteaga-Rivero, 2015). Thus, education has innovated by incorporating digital games in the learning process, either as a strategy, resource or tool; hence, gamification has become a trend that promotes the students' cognitive capacity. (Liberio-Ambuisaca, 2019).

In this sense, gamification promotes educational transformation and learners' motivation, since they have favorable expectations of openness towards the teacher's instructions by associating the game with learning in order to meet the proposed or designed goals in the educational plan. To that end, it is essential the accompaniment of parents and representatives, since the student must be advised in their beginnings until achieving

Alex Paúl Zambrano-Álava; Ana Thalía Lucas-Zambrano; María De Los Ángeles Lucas-Zambrano;  
Karina Elizabeth Luque-Alcívar

autonomous learning (Area-Moreira & González-González, 2015). It is evident that students accomplish a high level of commitment when they are motivated because they prefer to continue with the playful activity instead of finishing the class (Fernández, Olmos & Alegre, 2016).

One of the benefits that gamification offers is related to the boredom minimization in class, since it arouses students' greater interest and represents a significant strategy in the achievement of learning objectives to make interactions from a social and collaborative perspective. In this way, it may transcend the void fostered by traditional education where the learners are perceived as isolated to carry out various tasks and may, therefore, enhance their motivation as a fundamental element to specify a favorable process for the achievement of the purposes planned in the schedule school (Ortiz-Colón, et al., 2018). Thus, gamification, given the students' lack of interest in the learning process, constitutes a favorable strategy or tool to promote it (Zepeda-Hernández, et al., 2017).

In addition, gamification is an effective means for achieving significant learning through video games (Hernández-Horta, et al., 2018), due to it provides self-observation, reflections, as well as self-regulated learning processes that foster the generation of autonomy to responsibly assume the activities inherent to educational planning (Torrano, et al., 2017).

Self-regulated learning has potentially stood out in recent years because of its focus on autonomy as a key element; since this has provided students with a greater ability to adapt to any academic circumstance, be more independent and motivating to learn (Torrano, Fuentes & Soria, 2017). In this respect, self-regulated learning may contribute to the design of individualized plans to promote the transcendence of the students' weaknesses and achieve effectiveness in their academic performance (Medina-Ramírez, et al., 2019). Based on what has been addressed, the research aims to determine the relationship between gamification and self-regulated learning in general basic education students in the province of Manabí-Ecuador.

Alex Paúl Zambrano-Álava; Ana Thalía Lucas-Zambrano; María De Los Ángeles Lucas-Zambrano;  
Karina Elizabeth Luque-Alcívar

## **METHOD**

The research is correlational with a non experimental cross-sectional design (Hernández-Sampieri, et al., 2014). Two standardized instruments were applied to the population of 70 teachers from the city of Chone for measuring gamification and self-regulated learning as variables. In this sense, for gamification the instrument validated by (Parra-González, et al., 2019) was used, while for self-regulated learning, the one proposed by (Núñez, et al., 2019) was used. To calculate the correlation between the variables studied, the Pearson Correlation Coefficient was considered. Likewise, the data obtained were processed through descriptive statistics using the Spss V25 program.

## **RESULTS**

### **1- Gamification**

The dimensions of the gamification with the highest percentage were the following: activation with 21%, absence of negative affect 20% and creative thinking with 19%.

### **2- Self-regulated learning**

In self-regulated learning, motivation management stands out as the one with the highest percentage (23%), followed by the comprehension evaluation with 20% and the management of the context with 21%.

### **3- Relationship gamification and self-regulated learning**

The Pearson correlation coefficient of 0.104 indicates that there is a low positive relationship between the variables, which implies that gamification positively influences the generation of self-regulated learning in the investigated sample. The result greater than 0, 05 indicates that there is no bilateral significance in the correlation.

## **DISCUSSION**

Considering the study of (Cortez-Godinez, 2017) and the results obtained, it can be said that fun constitutes the preparatory stimulus in gamified learning, since it benefits the

Alex Paúl Zambrano-Álava; Ana Thalía Lucas-Zambrano; María De Los Ángeles Lucas-Zambrano;  
Karina Elizabeth Luque-Alcívar

cognitive processing of information and procedures to be developed as well as the achievement of a certain proposed goal in the curriculum. It effectively encourages learning; therefore, it is a factor to be taken into account by teachers, parents and representatives, in order to coordinate favorable actions for using the game as part of academic studies.

With regard to creative thinking, the incorporation of gamification in the learning process prepares the students to face the challenges of a technology-based society, where creativity takes an essential value to adapt them to the social context where they develop. (Hernández-Jaime, et al., 2018) affirm that it is extremely important to promote an education based on creativity, innovation, as fundamental pillars to achieve significant changes for approaching the students' socio-economic reality.

Gamification constitutes a powerful activator of cognition in the sense that it awakens the learners' interests to effectively develop a subject of study, a situation that allows them to carry out mental processes in favor of achieving a lasting learning over time (Muñoz-González, 2018). When the students know various topics, this permits them to move towards the development of competencies that aim at accomplishing significant learning by reaching their goals in the school environment, being possible to transfer this stance towards the personal and social context. (Villarroel & Bruna, 2017).

Likewise, this cognitive activation promotes openness to the social context and also stimulates mental operations based on the resolution of real problems, thereby fulfilling the effective attainment of the established learning purpose (Martínez-Albán, et al., 2019). In this context, gamification favors the absence of negative feelings, which means that it contributes both to the achievement of meaningful learning, and to the personal growth of the students by promoting a positive attitude about themselves (Mujica-Johnson & Toro-Oyarzún, 2019). Hence, it is important to form the family close to the student in order to help them understand the importance of the game from a pedagogical perspective and overcome the vision of the game as a waste of time. Thus, the family becomes the most

Alex Paúl Zambrano-Álava; Ana Thalía Lucas-Zambrano; María De Los Ángeles Lucas-Zambrano;  
Karina Elizabeth Luque-Alcívar

important element of support that fosters the positive self-esteem for making up the affective dimension of the student (Hernández, 2018).

With respect to self-regulated learning, its planning enables students to organize and systematize the search for information, thus generating an autonomous process that progressively leads to the development of self-taught competence; which simultaneously implies that the teacher increasingly assumes a student-centered curriculum planning approach (Vallejo-Valdivieso, et al., 2019). Considering this view, planning becomes a powerful process for meaningful student learning. Within self-regulated learning, motivation management is essential, as it contributes to reach the goals set in educational planning. When the students manage to organize the cognitive and academic processes, they are perceived as being motivated and, in that moment, significant learning takes place (Valenzuela, et al., 2015).

Self-regulated learning leads to the knowledge understanding and the ways to produce it, transcending mechanistic teaching. In this sense, the students develop their learning process from a global perspective of the academic and social context where they get along, and in favor of generating problem solving. Therefore, an active and constructive approach to learning is assumed (Castelló & Cladellas, 2013).

In this same context, self-regulated learning focuses on placing the teacher and student in the role of advisor and advised as a work team for self-regulation of learning. Thus, the role of the students become the center of the process (Daura, 2013), projecting themselves through research and inquiry, as pedagogical foundations for the generation of knowledge (Peche-Cruz & Giraldo-Supo, 2019). That situation contributes to psychopedagogical care based on the students' needs and interests, enabling an inclusive classroom of educational quality (Zambrano-Pincay, et al., 2019).

However, by generating a low positive correlation between gamification and self-regulated learning, it is considered that students foster a favorable motivation to achieve their academic goals from self-regulation, as this is a primary factor in the organization of the

Alex Paúl Zambrano-Álava; Ana Thalía Lucas-Zambrano; María De Los Ángeles Lucas-Zambrano;  
Karina Elizabeth Luque-Alcívar

various cognitive and procedural processes for the construction of knowledge and learning. Consequently, it is necessary to continue in the field of gamification as a motivating variable (Melo-Solarte & Díaz, 2018), encouraging the appropriate use of ICT, and deepening the understanding of the student-centered approach (López-de-la-Serna, & Garrido, 2018).

In the same way, it is thought that this gamification-self-regulated learning correlation contributes to recognizing the importance of working from a context based on the reflective skills development and the information search, resulting research as the fundamental strategic resource for the construction of learning and knowledge. In this sphere, self-regulated learning allows students to examine their own actions, feelings, in terms of working to become a better person and, therefore, a student (McPherson, et al. 2019). As a result, it can be specified that gamification contributes to promoting student motivation not only towards academic but also personal growth (Buckley, et al., 2018).

## CONCLUSION

To conclude, it is determined that gamification is positively related to self-regulated learning, which favors the students' motivation and personal growth as essential factors for academic performance and also promotes student-centered learning. For this, both teachers and students form a cooperative teamwork, through the figure of advisor and advised, using research as a means of knowledge management through self-reflection as part of the educational process.

## REFERENCES

Alemán-Marichal, B, Navarro-de-Armas, O, Suárez-Díaz, R, Izquierdo-Barceló, Y, & Encinas-Alemán, T. (2018). Motivation in the context of the teaching-learning process in specialties of the Medical Sciences. *Electronic Medical Journal*, 40(4), 1257-1270.

Alex Paúl Zambrano-Álava; Ana Thalía Lucas-Zambrano; María De Los Ángeles Lucas-Zambrano;  
Karina Elizabeth Luque-Alcívar

- Area-Moreira, M., & González-González, C. S. (2015). From teaching with textbooks to learning in gamified online spaces. *Educatio Siglo XXI*, 33(3 November), 15-38, <https://doi.org/10.6018/j/240791>
- Buckley, J., DeWille, T., Exton, C., Exton, G., & Murray, L. (2018). A Gamification–Motivation Design Framework for Educational Software Developers. *Journal of Educational Technology Systems*, 47(1), 101–127. <https://doi.org/10.1177/0047239518783153>
- Castelló, A, & Cladellas, R. (2013). The assessment of comprehension in learning: ICT in the knowledge structures' analysis. *Pedagogical studies (Valdivia)*, 39(Special), 41-57. <https://dx.doi.org/10.4067/S0718-07052013000300004>
- Cortez-Godinez, R. (2017). A minute for Mathematics”. An Experience of Fun, Learning and Outreach Through the Exploration of Numeric Patterns. *Mathematics education*, 29(3), 225-243. <https://dx.doi.org/10.24844/em2903.08>
- Daura, F. (2013). Context as a Factor of Self-Regulated Learning in Higher Education. *Education y Educators*, 16(1), 109-125.
- Fernández, A., Olmos, J., & Alegre, J. (2016). Pedagogical value of a common knowledge repository for Business Management courses. *@ tic revista d'innovació educativa*(16), 39-47. <https://doi.org/10.7203/attic.16.8044>
- Hernández-Jaime, J, Jiménez-Galán, Y, & Rodríguez-Flores, E. (2018). Developing creative and practical thinking competencies for a business plan: designing learning evidences. *RIDE. Ibero-American Journal for Research and Educational Development*, 9(17), 314-342. <https://dx.doi.org/10.23913/ride.v9i17.383>
- Hernández-Horta, I., Monroy-Reza, A, & Jiménez-García, M. (2018). Learning through Games based on Principles of Gamification in Higher Education Institutions. *University training*. 11(5), 31-40. <https://dx.doi.org/10.4067/S0718-50062018000500031>
- Hernández-Sampieri, R., Fernández-Collado, C., & Baptista-Lucio, P. (2014). Investigation Methodology 6th edition. México: McGraw-Hill/Interamericana editores, S.A. de C. V.



Alex Paúl Zambrano-Álava; Ana Thalía Lucas-Zambrano; María De Los Ángeles Lucas-Zambrano;  
Karina Elizabeth Luque-Alcívar

- Hernández, A. (2018). Walking on the way to school for parents and representatives. A lived experience. *EPISTEME KOINONIA*, 1(1), 51-71. <http://dx.doi.org/10.35381/e.k.v1i1.490>
- Liberio-Ambuisaca, X. (2019). The use of gamification techniques in the classroom to develop the cognitive skills of children from 4 to 5 years of Initial Education. *Conrado*, 15(70), 392-397.
- López-de-la-Serna, A., & Garrido, C. C. (2018). Estudio de las emociones, el aprendizaje autorregulado y la motivación en un curso SPOC. [Study of emotions, self-regulated learning and motivation in a SPOC course]. *IJERI: International Journal for Educational Research and Innovation*, (10), 299-316.
- Martínez-Albán, W., Vallejo-Valdivieso, P., & Moya-Martínez, M. (2019). Mental structures and self-regulated learning in generating meaningful learning. *CIENCIAMATRIA*, 6(10), 629-645. <https://doi.org/10.35381/cm.v6i10.259>
- Medina-Ramírez, R, Álamo-Arce, D, Costa, M, & Rodríguez-de-Castro, F. (2019). Self-regulated learning: a strategy to 'teach to learn' in health sciences. *FEM: Journal of the Medical Education Foundation*, 22(1), 5-10.
- Melo-Solarte, D, & Díaz, P.. (2018). Emotional Learning and Gamification in Virtual Education Environments. *Tecnological Information*, 29(3), 237-248. <https://dx.doi.org/10.4067/S0718-07642018000300237>
- Morales-Salas, R. (2018). The planning of the instruction-learning, competence that strengthens the educator profile. *RIDE. Ibero-American Journal for Research and Educational Development*, 8(16), 311-334. <https://dx.doi.org/10.23913/ride.v8i16.343>
- Muñoz-Morales, N., Barrientos-Oradini, N., Araya-Castillo, L., & Reyes-Saavedra, J. (2019). Metacognitive capacities in the educational system in educational institutions of secondary education. *Koinonía Interdisciplinary peer-reviewed Journal*, 4(7), 103-127. <http://dx.doi.org/10.35381/r.k.v4i7.196>
- Muñoz-González, D. (2018). Cognitive stimulation as a strategy for psychogerontological care for the elderly with dementia. *Cuban Journal of Public Health*, 44(3), 1-8.
- Mujica-Johnson, F, & Toro-Oyarzún, M. (2019). Affective formation in the Preschool Education of Chile. *Educational Research Notebooks*, 10 (2), 57-71.

Alex Paúl Zambrano-Álava; Ana Thalía Lucas-Zambrano; María De Los Ángeles Lucas-Zambrano;  
Karina Elizabeth Luque-Alcívar

- McPherson, G. E., Osborne, M. S., Evans, P., & Miksza, P. (2019). Applying self-regulated learning microanalysis to study musicians' practice. *Psychology of Music*, 47(1), 18–32. <https://doi.org/10.1177/0305735617731614>
- Núñez, J., David-Álvarez, N., García, T., & Dobarro, A. (2019). Self-Regulated Learning from Texts (ARATEX-R) Assessment Scale. *Eur. j. educ. psychol.* 8(1), 9-22. <https://doi.org/10.30552/ejep.v8i1.142>
- Ortiz-Colón, A., Jordán, J., & Agredal, M. (2018). Gamification in education: an overview on the state of the art. *Educação e Pesquisa*, 44, e173773. Epub April 23, 2018. <https://doi.org/10.1590/s1678-4634201844173773>
- Olea-Miranda, J, Contreras, O, & Barcelo-Valenzuela, M. (2016). Capacity of Knowledge absorption as a competitive advantage for the SMEs insertion into global value chains. *Management Studies*, 32(139), 127-136.
- Páez, A. (2018). Teachers and parents in the student learning process. *EPISTEME KOINONIA*, 1(2), 18-34. <http://dx.doi.org/10.35381/e.k.v1i2.509>
- Parra-González, M., & Segura-Robles, A. (2019). Translation and validation of the Gameful Experience Scale (GAMEX). 71 (4), 87-99. <https://doi.org/10.13042/Bordon.2019.70783>
- Peche-Cruz, H., & Giraldo-Supo, V. (2019). Student-centered Flip Learning as a generator of educational quality. *Koinonía Interdisciplinary peer- reviewed Journal*, 4(8), 427-450. <http://dx.doi.org/10.35381/r.k.v4i8.293>
- Torrano, F, Fuentes, J, & Soria, M. (2017). Self-regulated learning: state of the issue and psycho-pedagogical challenges. *Educational Profiles*, 39(156), 160-173.
- Valda-Sánchez, F, & Arteaga-Rivero, C. (2015). Design and implementation of a gamification strategy in a virtual education platform. *Fides et Ratio - Journal of Cultural and Scientific Dissemination of La Salle University in Bolivia*, 9(9), 65-80.
- Valenzuela, J, Muñoz-Valenzuela, C, Silva-Peña, I, Gómez-Nocetti, V, & Precht-Gandarillas, A. (2015). School motivation: Keys to future teachers' motivational training. *Pedagogical studies, (Valdivia)*, 41(1), 351-361. <https://dx.doi.org/10.4067/S0718-07052015000100021>

Alex Paúl Zambrano-Álava; Ana Thalía Lucas-Zambrano; María De Los Ángeles Lucas-Zambrano;  
Karina Elizabeth Luque-Alcívar

Vallejo-Valdivieso, P., Zambrano-Pincay, G., Vallejo-Pilligua, P., & Bravo-Cedeño, G. (2019). Models of educational planning and diversity in classrooms. *CIENCIAMATRIA*, 5(9), 302-315. <https://doi.org/10.35381/cm.v6i10.149>

Villarroel, V, & Bruna, D. (2017). Pedagogical Competencies of University Teachers: A Case Study, which Incorporates the Perspective of Chilean Teachers and Students. *University Training*, 10(4), 75-96. <https://dx.doi.org/10.4067/S0718-50062017000400008>

Zambrano-Pincay, G., Vallejo-Valdivieso, P., Vallejo-Pilligua, P., & Bravo-Cedeño, G. (2019). Psychopedagogy professionals in attention to diversity as an Educational. Agent. *Interdisciplinary Arbitrated Journal of Health Sciences. Health and life*, 3(6), 41-57. <http://dx.doi.org/10.35381/s.v.v3i6.304>

Zepeda-Hernández, S, Abascal-Mena, R, & López-Ornelas, E. (2016). Integration of gamification and active learning in the classroom. *Ra Ximhai*, 12(6), 315-325.