

## Gamification in Education: Its Impact on Invisible Learning

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### Abstract

*Gamification in education is a game-based learning technique that seeks to achieve better results for students through dynamics that motivate them to progress, improve their commitment and facilitate learning. This strategy has revolutionized the learning process by incorporating playful elements in educational environments, actively involving students and motivating their participation through games, such as challenges, rewards and levels. This approach not only enhances visible learning, but also impacts invisible learning, stimulating skills such as problem solving, collaboration, decision making and persistence, essential elements that transcend beyond specific knowledge and contribute to development. comprehensive of the students. The objective of the study was to determine the effectiveness of new teaching methodologies in the classroom that improve student learning. The methodology used was descriptive and field and a hermeneutic method. It is concluded that, to enhance meaningful learning in students, digital supports, own elements and take advantage of the support originated from gamification, creating more interactive and immersive educational experiences, since it is a learning technique that seeks to improve skills and allow the absorption of knowledge in a playful way, thus generating invisible learning.*

**Keywords:** *Gamification, education, learning process, invisible learning, educational strategies.*

### INTRODUCTION

Gamification in education is an exciting way to engage students in the learning process by applying game elements in educational settings to motivate interest in learning and increase student engagement. Currently, it has a fundamental role within virtual education, since by applying elements of the game, the motivation in students increases, therefore, it can influence the behavior of young people and thus improve the educational process.

According to virtual education, it is defined as a strategy to improve the quality of education at all levels, in view of its interactive and multimedia characteristics, as it

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allows establishing a scenario for the acquisition of knowledge and communication between teachers and students through technological means.(Velastegui & Bonilla, 2021)

Thus, gamification has become a learning tool, which becomes effective when the teacher who applies it does it correctly. At the same time, gamification allows students to be inserted into a digital world that advances every day. He bases his actions, as his name says, on games; A dynamic-based learning methodology that aims to develop successfully, must identify the learning variables themselves and related problems in connection with the playful intention for .(Gavilanez & Tayupanta, 2023)

In the same context, it is known that in the 21st century, mathematics continues to be taught from a traditional approach, characterized by lectures, not very flexible, of abstract knowledge, rigid, mechanical, rote and with little involvement of ICTs. As a result, students learn traditional learning techniques, become memorizers of mathematical procedures that are satisfied with receiving the teacher's explanation, that do not make an effort to achieve autonomy for their learning and with insufficient skills to solve problems in different circumstances according to the study carried out by , as mentioned by the same authors as the studies and research that have been cited throughout the review of the literature are evidence that Gamification has been transferred to the didactic process with significant results in learning; however, by itself it does not ensure any pedagogical achievement. Motivating, mobilizing knowledge, consolidating learning, among other objectives, are achieved as long as the elements of the game are chosen according to the pedagogical objectives of the subject, the different learning needs and an appropriate teaching methodology(Lazarte & Gómez, 2021)

It should be noted that there are certain sociocultural, demographic, institutional, cognitive, pedagogical, didactic and attitudinal variables that influence the learning process of students, such as the educational level of the parents, place of residence, social integration of the student, age, sex, financing of studies, educational policies, intellectual aptitudes, cognitive styles, motivation, pedagogical accompaniment, self-concept, etc. social skills, responsibility towards learning, among others. According to what has been said, it seeks ways to mitigate this situation with innovative ways that generate interest for students, helps to make educational processes more interactive and attractive, in such a way that this contributes to generating more meaningful learning that motivates students to acquire more knowledge and do so on their own initiative.(López, 2021)

For each person, or in this case student, they have a set of competencies and skills that are specific to their person, and have been developed continuously over the years, not because they are in the same class, they have those same characteristics, and trying to homogenize this conception can cause the destabilization of the gamification process because the different perceptions and responses that it will generate in students with different abilities. In the same way, since social skills are very strong in these young people, the negative results can be quickly shared by the group and lead the process to be a complete fiasco. In any system or any transformation of a system, it is necessary to have a strong leadership and specialty position, which can confidently and authoritatively lead the process within all the contexts defined in the previous point. At this point, it is where the gamification process usually fails on many occasions, because it does not have sufficient leadership levels within the organization and within the classroom, to design, implement and control the execution of the gamification plan.(Contreras & Eguia, 2023)

On the other hand, for a long time it was considered that learning was synonymous with behavior change, because a behaviorist perspective of educational work dominated; However, it can be stated with certainty that human learning goes beyond a simple change in behavior, it leads to a change in the meaning of experience. Human experience involves not only thought, but also affectivity, and it is only when considered together that the individual is enabled to enrich the meaning of his or her experience. In the process of guiding learning, it is vitally important to know the cognitive structure of the

student; It is not only a matter of knowing the amount of information it possesses, but also what are the concepts and propositions it handles, as well as its degree of stability.

For the human being is in a constant process of learning, from its conception to the last day of its life, educational institutions have been part of that process and are in charge of providing the necessary tools for the integral development that as people we need, hence the importance of generating a constant search on what methods, Strategies, resources, and environments are appropriate for this continuous learning process. Over time, sadly, the educational system has not been able to achieve such integral development in its students, largely due to the use of traditionalist teaching methods. It also emphasizes that Problem-Based Learning bases the construction of knowledge on constructivism and on the position that one learns by doing, that is, it highlights the importance of the personal experience of each individual and the relationship with their environment, this breaks the paradigm of rote learning, receptive and passive with which we have worked for a long time.(Rengel, 2021)

Thus, training is any activity that an organization performs in response to a need; In this way, it seeks to improve the knowledge, skills or behaviors of a work team. This makes it possible to avoid the obsolescence of knowledge, as well as to adapt to new changes in society. For teachers, instructors and teachers, it is not enough to have completed university education, but it is necessary to update themselves and participate in training programs that allow them to keep up to date with educational, methodological and didactic approaches, scientific advances and pedagogical technologies. In addition, it mentions that the content of teaching consists of a set of knowledge and social values accumulated by the adult generations that are transmitted to students as finished truths; Generally, these contents are dissociated from the students' experience and social realities.(Montoya & Oña, 2020)

In Ecuador, education has generated a greater demand since literacy processes were implemented up to high school, but even so, the result in learning within the educational system has a tendency to decline due to socioeconomic factors, the infrastructure of educational institutions and the strategies and models of education that are implemented. For this reason, they affirm that motivation is very important for the training of competent professionals because it activates behavior to guide it to a specific goal. It is important that within the learning process, the motivational level that the student possesses is known, regardless of the subject, since in this way this motivation can be invested in the affective and intellectual formation of the student and thus help him to create moral and above all professional values that help him to become professionals and upright citizens.(Saltos & Barbosa, 2021)

(Miranda & Cadena, 2023) Mentioned that teachers' uncertain reading habits and little interest in reading comprehension training have limited the use of metacognitive strategies. While it is true that these skills play a fundamental role in the optimal development of the reading process, because they can be used to identify and correct disturbances that affect the dialogue of comprehension of the text between the reader and the discourse. Therefore, this dialogue includes the planning, monitoring, control, review and evaluation of cognitive mechanisms involved in reading. And Learning strategies can help us form original, critical, and independent learners; The strategy of acquiring information called exploration is the one with the greatest weight over autonomous learning.

Finally, gamification isn't just about turning everything into a game, it's about using game elements to enhance the educational experience. Tools such as online platforms, apps, and classroom strategies can integrate gamification effectively. In this sense, by incorporating gamification, invisible learning and various objectives such as motivation, commitment, collaboration, instant feedback, developing skills, among others, can be achieved.

## **METHODOLOGY**

For the development of the research, descriptive, documentary research was addressed, where the problem is defined, so the inquiry was carried out to better understand it, since it prioritizes the points of view of the researchers. The approach is quantitative and qualitative; The quantitative was applied to obtain percentage data of the study population and the qualitative was applied by using the hermeneutic method in the data collected and investigated in the different secondary sources of information by other authors.

The field research was carried out in the collection of information, followed by the analysis, the foundation of the knowledge and the application of the methods used, to obtain conclusions, take place directly in the environment where the event under study takes place. To collect primary data, a survey was applied through a questionnaire with previously designed questions. According to Espinoza (2016) "The sample itself is a subset of the population, a small and representative portion in which the general characteristics of the population can be evidenced". Simple random probability sampling was applied to the calculation of the sample, because all individuals in the population have the same possibility of being chosen, and it is also important to emphasize that the population is finite. For the aforementioned population, a sample of 368 third-level students was taken.

For the processing of results, Microsoft Excel was used for tabulation and graphic visualization and the word processor Word was used to perform the respective analysis and interpretation of the information, since the research was purely descriptive.

## **RESULTS**

With the approach of the survey, it was possible to collect information on Gamification in education: Its impact on invisible learning; where it was noted that 59% of the respondents believe that meaningful learning can be potentiated in students through digital strategies, 24% through their own elements and finally 18% of the respondents believe that it would be through support and feedback originating from it gamification.

Additionally, 65% of those surveyed believe that gamification does allow us to work on resilience and the acceptance of pedagogical failure as something normal, while 35% consider that it is not possible. Likewise, 35% of those surveyed think that gamification is absorbing some knowledge, 27% think that it is improving some skill, while 25% say that it is a learning technique, and finally 12% believe that the previous options are correct.

51% of those surveyed think that enhancing student learning improves gamification in educational processes, while 35% think that it allows the creation of experiences and finally 14% think that it improves through the development of non-verbal communication.

In question 5 it was possible to analyze how much 20% vote for each of them by stop and memory, while 25% are inclined to charades. It was also observed that 35% of the respondents decide on the three options mentioned above, which means that they are valid options for their help in the teaching-learning process.

In question 6 it was observed that 49% think that a clear objective is defined, 35% believe that the learning of skills is transformed and only 16% are inclined to establish rules of the game. In other words, according to surveys, people think that game-based learning is applied to define a clear objective that transforms learning and skills and a minimum percentage that establishes game rules.

Thus, in one of the diagnostic questions, it was obtained that 31% of the respondents think that gamification is used in education, 33% think that it is used in health, while the majority, which is 25%, vote for the 2 previous options. However, 69% of respondents

believe that gamification is generating a positive experience in society, while 31% believe that it is not, that gamification is generating the opposite.

63% of people believe that gamification is important and innovative in the process of continuing education. On the other hand, 37% believe that gamification is not important or innovative in a continuous teaching process. On the other hand, in question 10, 82% of respondents believe that gamification is the same as Serious Games, while 18% consider that gamification and Serious Games mean the same thing.

Question 11 shows that 27% of the people surveyed think that invisible learning is obtained through formal experiences, while 33% believe that it is obtained through non-formal experiences. 14% believe it is obtained through formal experiences, while 25% believe it is obtained through the combination of all experiences. Thus, 31% think that the competence that exists in invisible learning is to think systematically, 25% think that it is to think by simulating, 31% believe that it is to thrive in means of change and only 12% believe that the 3 competencies mentioned above exist.

In another of the questions asked, 31% of respondents believe that sharing experiences and innovative perspectives is an example of invisible learning, 51% say that an example of invisible learning is to guide to rethink strategies to continuously learn and unlearn and 18% believe that the two examples mentioned have to do with invisible learning. Of those, 51% of respondents know the 5 basic axes of invisible learning and 49% do not.

Finally, 43% of respondents indicate that according to Morava, invisible learning is that we learn through formal, non-formal and fortuitous experiences; The other 43% think it is sharing experiences and innovative perspectives, while 14% vote for none of the above.

## DISCUSSION

Gamification in education is a game-based learning technique that seeks to achieve better results in students through dynamics that motivate them to progress, improve their engagement and facilitate learning. While the term "invisible learning" refers to those learning processes and outcomes that are not easily visible or measurable through traditional assessment methods, these include skills such as critical thinking, problem-solving, creativity, and collaboration, which are critical to success in today's world.

Gamification offers an innovative way to foster and develop these skills, providing an interactive and motivating environment where students can experiment, explore and learn autonomously, one of the main benefits being its ability to increase student motivation. By incorporating fun elements, such as points, levels, and virtual rewards, a friendly competition environment is created that stimulates interest and engagement, this way students feel more motivated to actively participate in learning activities, as they experience a sense of accomplishment and progress as they progress through the game. By applying these elements in the educational context, students have the opportunity to work together, share ideas, and solve problems collaboratively, this promotes the development of social and emotional skills, as well as strengthens students' ability to work as a team, negotiate, and make collective decisions.

In addition to motivating and encouraging collaboration, it also allows students to experiment with real-world situations and scenarios safely through simulation games or case studies, students can apply their knowledge and skills in authentic contexts, giving them the opportunity to practice and refine their performance. For example, by making learning more interactive and fun, it reduces boredom and disinterest on the part of students, leading to greater engagement and retention of information by providing immediate and constant feedback to assess their progress.

(LATAM Global School, 2023) He mentions that gamification should be used as a complementary tool within a comprehensive pedagogical approach, taking into account

the needs and characteristics of students. In addition, it is essential that teachers are trained in the design and implementation of gamified activities, to ensure that educational objectives are met and an effective learning environment is promoted.

Examples of invisible learning include observational learning, experiential learning, and learning through social interaction. Observational learning is a process by which individuals learn through observation and imitation of the behaviors of others, in this type of learning, individuals acquire knowledge, skills, and values by observing and taking other people as a model, a clear example is when a child learns to tie their shoes by observing their parents or older siblings. The child carefully observes how his models perform the action of tying their shoes, and then tries to imitate it for themselves, as he practices and repeats the process, the child improves and perfects his ability to tie his shoes.

Experiential learning is a process in which we acquire knowledge and skills through direct practice, experimentation, and interaction with the environment. An example is when someone learns to ride a bike. At first, you may fall and make mistakes, but as you practice and experiment, you gain skills and knowledge that allow you to balance and walk without difficulty.

Learning through social interaction is a process in which we acquire knowledge and skills through interaction with other people. For example, when a child learns to speak. As she interacts with her parents, siblings, and other members of her environment, she observes, imitates, and practices language, thus acquiring the language skills necessary to communicate effectively. Gamification in invisible learning can have multiple positive impacts, increasing student motivation by making the learning process more entertaining and challenging. In addition, it can improve knowledge retention by engaging learners in a more active and stimulating way, allowing them to learn more organically and autonomously, it can also encourage the development of practical skills by applying learned concepts in simulated or real situations within a game environment. At the same time, it generates in students:

1. Motivation: Play elements can make learning more fun and engaging, motivating students to participate more actively in educational activities.
2. Engagement: By offering rewards, levels, and challenges, greater engagement with educational tasks and concepts is encouraged.
3. Collaboration: Games often involve teamwork and collaboration. By incorporating these elements into the classroom, teamwork is encouraged among students.
4. Instant feedback: Games often provide immediate feedback. By integrating this into education, students receive quick feedback on their progress, allowing them to adjust their approach to learning.
5. Skill development: Some games are designed to improve specific skills, such as problem-solving, critical thinking, or collaboration. Gamification can be adapted to focus on the development of these skills.

That is why, the researchers affirm that digital support would be feasible to potentiate student learning, while the other party opted for the support originated from gamification, which corresponds to a bearish level for student learning. Therefore, it is considered that it would be feasible to work on resilience, as it improves interpersonal skills and is also a learning technique. Through the process, the creation of experiences is allowed, then it potentiates the learning of the students by generating an invisible learning, aimed at rethinking strategies to learn and unlearn continuously,

Finally, it should be mentioned that gamification in education refers to the implementation of game elements in the learning process with the aim of motivating students and improving their academic performance. By using gamification techniques, students can learn in a more fun and engaging way, which can have a positive impact on their learning and motivation to continue studying. As for the term invisible learning, it is that which occurs naturally in the educational environment and is not explicitly planned. This type of learning can have a positive impact on education, as it allows students to acquire knowledge and skills more autonomously and meaningfully, which can improve their academic performance and motivation to continue learning.

## CONCLUSIONS

Gamification is an educational strategy that has a positive impact on invisible learning. By incorporating elements of games, such as immediate feedback, progression, and rewards, gamification can help students stay motivated and engaged with learning as it has proven to be a powerful educational strategy for fostering motivation, engagement, and deeper learning. Its benefits are backed by solid research. Therefore, it should be more integrated into traditional education systems, as it is considered an exciting and necessary evolution to better engage different generations and digital natives eager for interactive and motivating experiences.

Invisible learning is a growing trend in education. As students spend more time learning outside of the classroom, gamification can be a valuable tool to help them make the most of learning opportunities, improving educational processes by enabling the creation of interactive experiences, enhancing student learning, and fostering the development of nonverbal communication.

To enhance meaningful learning in students, it is suggested to use digital supports, own elements and take advantage of the support originated from gamification, creating more interactive and immersive educational experiences, since it is a learning technique that seeks to improve skills and allow the absorption of knowledge in a playful way.

Gamification is a promising educational strategy that has the potential to enhance meaningful learning in students. It can be used in a wide variety of educational contexts, from early childhood education to higher education. Evidence suggests that gamification can generate a positive experience for students and is an important and innovative strategy for the continuing teaching process.

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