

Gamification and artistic education. History of education and application to the classroom with educational needs

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Abstract

One of the main objectives of Ecuador's educational policies is to address spatial needs. Both educational policies and laws in Ecuador respond to this through play and art. For these reasons, this article offers a gamification response that allows the integration of different arts in the educational framework. To achieve this it contextualizes gamification and provides a historical development of special needs work in Ecuador. The gamification offers teachers an intervention model based on the anthropological notion of game-based learning. It can address the developmental challenges that are experienced in a natural way, through motivation, commitment, the competition and freedom to fail, which makes learning more flexible. This is complemented by art developed with five artistic fields: music, dance, literature, plastic arts and theater, which help the students to be the center of the process of teaching and learning, as one attempt to rebalance reality and logic, imagination, awareness and experience. This article is developed through a descriptive study, with the purpose of analyzing situations and events, knowing the relationship or degree of association that exists between two or more categories in a particular context. This has been reflected in an experience in the Ecuadorian Educational System, through a Pedagogical Support Guide (PSG), as well as 150 work booklets (WB) developed in the framework of the Covid 19 emergency, will be used for all students of initial level, up to high school, including those with an educational need. The Guide and the booklets had to undergo the validity process of expert judgment method. This was answered by technical teams from the Ministry of Education and UNICEF, as well as teachers from different courses. Finally, a training for teachers was developed.

Keywords: gamification; motivation; history of education; educational needs; artistic education; linguistic codes; nonlinguistic codes.

1. Introduction

The world for the first time has been faced with a health crisis due to a pandemic such as Covid 19, isolation decisions have been made for a large part of its inhabitants (Dilsad, 2021). Faced with this situation, most educational systems decided for their student population to carry out learning activities at home through online education or radio and television modalities for students who do not have the technology at their fingertips (Delgado, 2020). Education is a key element to achieve the fulfillment of each person, considering that the higher levels of training they reach, the better their quality of life desired. The achievement of educational goals, such as elementary or high school diplomas, are benchmarks for personal development and guarantee future job performance (Bowles et al., 1999). In this context, the application of different teaching-learning methodologies is a reference for analysis so that students can complete the educational levels described. Teaching methodologies with traditional, rote models, with master classes, are opposed to what is required today through authentic experiences, close to the reality of the students, as well as their needs and capacities (Area, 2009). Different authors have analyzed the application of methodologies in which the student acquires a leading role in the teaching-learning process (Markessinis, 1995). Justifying the need to innovate permanently, making the student feel part of what they are doing.

The descriptions indicated have motivated specialists, who describe game-based learning as an authentic learning experience (Huizinga, 2000), it is a means by which the human being develops its capacities and knows the world because it creates an order from uncertainty and chance contributes to the development of the human being, because it offers a space of possibilities, where each individual can project, imagine itself taking actions that until now they had not carried out, socializing in a new way with others and imagining a different, not yet experienced world. "Game based is an innate tendency of men and represents par excellence the movement and freedom as realization and visualization of worlds of possibilities" (Abad, 2020). Another authentic experience used for learning is art, through the development of creativity, imagination and expressive capacities (Jimenez, 2002) of teachers and students to learn by doing. Expressive capacities are all human realization of something new, they are presented by reflections on some object in the outside world or by a certain construction of the brain or feelings (Vygotsky, 1990).

The methodologies described with the application of games or art are essential tools for students at this time when education will be rethought. Education systems have the historic opportunity to analyze their management and intervention to take public policy actions, aimed at prioritizing the right to education. Presence will not continue in the same way, the recommended measures for social distancing will demand new strategies, focused on a job for a student who is at home, who has the support of their parents and / or caregivers and who receives directions from their teachers remotely. The attention to girls, boys and adolescents in these conditions and the description of methodologies from an interdisciplinary approach is the main subject of this research.

Therefore, the Ecuadorian case is of particular interest for this investigation. Considered one of the countries of Latin America that emerged quickly from the global crisis of 2008, and its development based on the "knowledge" led by the State (Pucell, et al., 2017); makes it an interesting case study for this research. The Ministry of Education (ME) and the United Nations International Children's Emergency Fund (UNICEF), together with one of the authors of this article, have prepared a material called "Inclusive pedagogical support guide, for the development of educational activities of the students, in the context of COVID 19 emergency, through artistic and recreational activities" (PSG), Ministry of Education (ME) and the United Nations International Children's Emergency Fund (UNICEF), (2021), being a resource developed to strengthen the learning activities of all students, as well as those who have educational needs (EN) to be used in the context of emergency COVID 19 based in artistic and recreational processes.

Educational policies that support the development of resources, under the provisions of the Organic Law of Intercultural Education [LOEI] (2011), through the design of curricula with cultural specificities and peculiarities of the region, province, canton or community. The State guarantees universal access to education, promotes special policies and programs and provides the necessary resources to facilitate the regular schooling of children and adolescents who, due to social inequality, have difficulties in educational insertion, significant school lag or who for any reason require compensatory interventions due to their late incorporation into education. The Law guarantees equal opportunities to communities, peoples, nationalities and groups with special educational needs. The purpose of the Law is to develop an ethic of inclusion with affirmative action measures and an inclusive school culture, eradicating all forms of discrimination.

The General Regulation to the Organic Law of Education, cites special educational actions, describes the requirements of support or temporary or permanent adaptations that allow access to a quality service according to the conditions of the student. And Article 370 on

the general rules for the provision of textbooks, food and school uniforms, guarantees the free provision for students of public and fiscal education, progressively and to the extent of the institutional capacity of the State, in accordance with the specific regulations issued for this purpose by the Central Level of the National Education Authority.

The PSG includes 150 WB distributed for each course, from baseline to the last course of high school (10 booklets for each course), which seeks to facilitate academic activities based on interdisciplinary . The cards have been developed with guidelines to apply gamifications, as well as the arts, through five artistic branches: music, dance, literature, plastic arts and theater, being means for the reproduction and cultural representation of society, since they show expressions of life (ME – UNICEF, 2021). The PSG as well as the WB are a valuable resource that explains the features, content and strategies that will help parents, teachers and students achieve learning based on the curriculum and adaptations within the framework of the COVID-19 emergency. To perform this analysis, research has been organized in the following manner: (i) The description of the gamification and applied artistic branches learning. (ii) The characterization of the PSG and WB, as learning resources to be applied in the Ecuadorian educational system. (iii) Its results and discussion in the construction process, pointing out the limitations of the proposed methodology, but considering answers for two research questions that guide its design:

What responses from the PSG and WB characterize its usefulness, from the perception of teachers and technical teams of the ME?

Can the PSG and WB be used by teachers, parents, and students throughout the Ecuadorian educational system, during the health emergency?

In view of the above, educational policies encourage innovative approaches to address special needs. The different descriptions of students, who probably present some NE, have a direct influence on the way of laying the foundations of coexistence in the face of diversity (Guzman, et al., 2019). The different conditions of the students are described as an attention given to diversity, identified according to cultural, ethnic, linguistic, economic or biological differences. Diversity also focuses on functional differences, such as disability; while, in different contexts, diversity may be defined by subtler features, such as generational differences, the ways in which we usually learn, our motivations and the skills that we individually develop (Dosil, et al., 2014). UNESCO, (2017) analyzes cultural diversity, in such a way that they group students of diverse socioeconomic, cultural, political and ideological origins. Therefore, education as a setting requires a radical recognition of diversity in the classroom and the search for intervention strategies that promote an idea of citizenship that supports coexistence in diversity (ME, 2011).

We may consider the purpose is to promote, protect and ensure the full and equal, of all human rights and fundamental freedoms of all people with disabilities; and promote respect for their inherent dignity – it includes those who have long-term physical, mental, intellectual or sensory deficiencies, and who, by interacting with various barriers, are prevented from participating fully and effectively in society, under equal conditions with others (ME, 2012).

The Ecuadorian State guarantees universal access to education, promotes special policies and programs and provides the necessary resources to facilitate the regular schooling of girls, boys and adolescents who, due to social inequity, present difficulties in educational insertion, significant school gap or that for whatever reason demand compensatory interventions due to their late incorporation into education. The Organic Law of Intercultural Education (OLIE), seeks to develop an ethic of inclusion with affirmative action measures and an inclusive school culture, eradicating all forms of discrimination; as itself, the (ME, 2012), cites actions to be implemented under the provisions of the OLIE on issues of inclusive education, developed according to the special educational needs associated or not with a disability, attended in specialized educational establishments or school education establishments. Special educational needs not associated with a disability are detailed in Table 1.

Table 1 Categorization of special educational needs not associated with disability.

Specific learning difficulties	Vulnerability situations	Superior endowment
Dyslexia, dyscalculia, dysgraphia, dysorthography, dysphasia, attention deficit and hyperactivity disorders, behavior disorders, among other difficulties.	Catastrophic and rare diseases, human mobility, minor offenders, victims of violence, addictions, orphans and other exceptional situations foreseen.	High intellectual capacities

Translated Source: (ME, 2012).

The special educational needs associated with disability are defined in Table 2.

Table 2 Categorization of special educational needs associated with disability.

Deshabilites
Physical disabilities: these are organic abnormalities in the head, spine, legs or arms; deficiencies of the nervous system through paralysis of the lower and upper extremities, paraplegia, tetraplegia and disorders affecting coordination of movements; and visceral alterations that affect the respiratory, cardiovascular, digestive, urinary, metabolic and immune systems, among others.
Intellectual disabilities: correspond to a series of limitations in the daily skills that a person learns and they serve to respond to different situations in life,

they may be mild, moderate or severe.

Psychosocial disabilities: these are limitations of people who have temporary or permanent dysfunctions of the mind to carry out one or more daily activities.

Long-term sensory disabilities: presented in people who have lost their visual or hearing capacity, they can be profound or moderate.

Multi-disability: when there are two or more disabilities, physical, sensory, intellectual or emotional.

Autism Spectrum Disorder: it is a neurological, genetic and / or developmental condition, it affects behavior, interaction, communication and learning.

Translated sources: ME, (2011) and ME, (2012).

2. Game-based learning and gamification in the classroom

2.1 History of the value of game-based learning

The Law of Sports, Physical Education and Recreation establishes that game is necessary for the proper development of students and especially for those with special needs (Asamblea Nacional del Ecuador). In this sense, the educational law in Ecuador is in line with the constructivist principles of education: "Game-based learning is not a marginal problem but a privileged track towards the central mechanisms of the human mind, a scenario to investigate the most distinctive features of the superior functions" (Vygotsky, 1990). We have previously studied the value of game in identity (Sevilla-Vallejo, 2017)

It consists of a pact by which those involved establish some rules governing an activity within a given space, which seems real in the world of game-based learning: "Every game unfolds in its field, which is, materially or just ideally, expressly or tacitly, marked in advance" (Huizinga, 2000). Players pretend to carry out a certain action, without actually doing it, but it is real to them. Participants have to believe that it is real, even though they know they are playing (Huizinga, 2000). It is about the reality of the 'as if', true within game-based learning, but false outside of it. Human culture arises and develops in the appearance of the reality of game-based learning (Huizinga, 2000), it is an activity inherent to the human being, which always responds to a meaning; and allows to understand oneself and other people. So that game-based learning is freedom, it allows to escape from reality and, at the same time, to rehearse aspects of it. It is a way of knowing based on exploring the possible. The human being transcends the transmitted perception to try other possibilities. In game-based learning, the individual can try a different way of being, can check its relationships with others and imagine an environment other than usual. In this sense, La Rubia, (1999), has studied how fantasy accompanies the human being throughout its life; it develops, until reaching "creative fantasy, a way of knowing the world that, although impossible without experience, transcends it"

(Simões, et al., 2013). The fantasy that imagines stories and worlds is an inseparable part of the human being, constructing fictions is an anthropological part of all individuals because the human being is built around a narrative, that is, identity is built with “the narrative structure to write to ourselves” (Huizinga, 2000).

Game-based learning has found a methodological formalization in gamification, which is a relatively topical term that has emerged as a new trend in the field of education, where this article is framed, gamification has been defined as “the use of game elements in a learning environment” (Dehghanzadeh, et al., 2019). Other authors add elements to the definition and the gamification of education as a term often referred to as “the use of game elements in non-game situations to non-game situations to create enjoyable, fun, and motivating learning experiences for learners” (Kapp, 2012). In the same sense, (Van, 2006. P. 57) the gamification involves “using game-based mechanics, aesthetics and game thinking to engage people, motivate action, promote learning, and solve problems”.

2.2 Evolutionary challenges applied to gamification

Bear in mind that gamification is a methodology that takes on greater significance when it is used a continuous manner (Ortiz, et al., 2018), it has been proved that this methodology mainly affects individual motivational processes that allowed students to maintain self-controlled motivation over time. However, this is not easy at all if the methodology is aimed at students of preschool and school age due to the evolutionary development they experience. In this study, we will make a proposal for intervention from 3- to 18-year-olds. To do this, it indicates some challenges that are, according to the model of (Ancha, 1994), experienced in the developmental stages comprising this age.

3. Art in the classroom

The application of art as a means of learning is supported by the curricular proposal of the educational law of the Ecuadorian baccalaureate in the component of innovation, it seeks to use several languages such as artistic and corporal. The construction of knowledge implies an action on notions, judgments, previous conceptions, mediated by the interaction with objects and phenomena of nature. Constructionism takes into account the elaboration of knowledge, not only at the intrapsychic level, of a subject, but also at the interpsychic level, at the collective level, through theories of genetic social psychology and what some ideologists call social constructivism (ME, 2020); recognizes that the primary function of language is the construction of contextualized human worlds, not simply the transmission of messages from one place to another. In addition, it is recognized that communication comes from the primary social process,

that is, we live immersed in social activities, where language is part of those activities, in such a way that it permeates the totality of social activity (Sevilla-Vallejo and García-Moreno, 2019). This perspective applied to education requires an adaptation of pedagogical, didactic or curricular models and strategies (ME, 2020). The statements cited by the author relate artistic activities in the daily life of any person. Creative capacity has been addressed in greater depth in activities related to arts education. Education through art places the subject at the center of the teaching-learning process; the development of neuroscience that has involved the rethinking of intelligence, and the irruption of the arts in medicine, science and technology, teach a transformation of the hierarchies of human faculties in an attempt to rebalance reality and logic, imagination, awareness and experience (Cardenas, et al., 2014). "Culture and the arts contribute to making our lives fuller in every way, generating a significant part of intellectual and creative, personal and social capital" (Clark, et al., 2011). Teachers as they seek that students achieve good habits of life, in the mental, physical and social aspects; that have a structure of values in order to give a positive meaning to life, strengthen potentialities, through appropriate activities; that they become aware of themselves, their possibilities and their aspirations and seek to improve their reality, walk towards perfection in life and believe in themselves; become aware of the need to respect others; explore different ways to express emotions, feelings, and thoughts; improve their ability to perceive the environment; integrate ideas, thoughts, emotions and imagination to generate meaningful experiences (Crespo, 2013).

Therefore, we may consider the importance of applying art in learning activities. This health emergency has changed many aspects of our lives of which, until now, we do not have data that allow us to know the true dimension of the social and educational catastrophe that it has caused. In this context, this initiative arises to generate elements of support for the home, aimed at teachers, parents and / or caregivers, as well as students, analyzing their future in light of the current situation the country faces. In this sense, we want to contribute with the artistic branches to greater sustainability in these difficult times to maintain a comprehensive education. This is supported by the research (Borja, 2014), which defends the value of sustainability in relation to the interdisciplinary work of different materials.

However, artistic education shows a great need for training and updating in the generations of teachers, for whom it is necessary to define new work strategies such as: Achieving learning skills and techniques to produce original and creative works; make a direct approach to history, culture and other social events, which is not imposed, but is related to what students learn through their own creations; develop the ability to describe, evaluate, interpret and value art and what it entails; and develop creativity, originality, flexibility and

fluency (Tobar, 2013). Las artes “son un recurso privilegiado a la hora de descubrir quiénes somos y cómo nos relacionamos, posibilitando formas de pensamiento tan rigurosas como las de las ciencias o las matemáticas, y tan divergentes como las de la filosofía o la literatura. Asimismo, contribuyen a que nuestras vidas sean más plenas en todos los sentidos, generando una parte significativa del capital intelectual y creativo, personal y social” (MinEduc 2011, p.44).

Art, applied with students who have a disability condition, is a great contribution to their proper development, since it not only provides great fun, but can, in turn, provide great benefits for the development of areas in those that present difficulties (Street, 2005).

To work with art in teaching, five artistic branches are described that are very useful in learning. In this case, we are going to address them as modalities of linguistic and non-linguistic communication.

3.1. Music

It helps students in the following ways, (Castillo, 2013) and (ME – UNICEF, 2021): fosters to learn different subjects, contributes to attention and concentration to achieve meaningful learning; to activate automatic memory, and the ability to recall it, it is more powerful than the images; helps to maintain positive mood, relax and stimulate the visual cortex with the imagination; contributes to emotional development and empathy; strengthens relationships with peers and special skills; stimulates the brain and is used as speech stimulation therapy; and sensitizes, for its perception uses all the senses and stimulates the imagination.

3.2. Dance

It benefits learning in the following aspects, (Barba, et al., 2007) and (ME – UNICEF, 2021): It supports the integral development of the mind and the body, stimulating the correlation between movement as a function of thought and thought modifying movement ; stimulates the expression of feelings, emotions and thoughts ; improves creativity, movement, cognition (knowledge) and values ; socio-personal skills (collaboration, creativity, and communication); stimulates academic and metacognitive values (development of critical thinking, knowledge of values, healthy financial habits, caring for the body and awareness and preservation of the environment); it strengthens the knowledge, conscience and corporal knowledge, coming to value virtues and limitations; it allows to develop the sense of proprioception ; fosters esteem and self-confidence; allows the development of the left hemisphere; it allows conceiving the individual as part of the exterior and admitting that movements modify space, that is, the exterior; allows reflection on one's own abilities and self - image; and it is useful to teach different thematic blocks of different subjects.

3.3. Literature

We may consider the following benefits (Escrich, et al., 2017) and (ME – UNICEF, 2021): as a mean to express events, physical, social and cultural rights of any time; as a mean of stimulating expression of feelings and emotions through different types of communication; it underlines creative, cognitive (knowledge), affective, imaginative, identity, and cultural values ; develops social, political, recreational, cultural and artistic activities; socio-personal skills (collaboration, creativity, and communication); it allows the human being to relate to other people permanently ; it exchanges ideas, desires, ways of feeling and wanting, for it makes use of communication; stimulates the development of imagination and intelligence; and facilitates the bond between the child and the adult.

3.4. Plastic arts

They benefit learning in the following aspects (ME – UNICEF, 2021): They help to conceptualize the ideas we have about the world ; they foster and stimulate the creative impulse of children and adolescents, through artistic activities, developing their personality and self-expression; develop the capacity for self-reflection on their own work processes; improves the reading comprehension and verbal and written communication ; they foster curiosity for knowledge; they promote a greater inclination towards collaborative work and lead to tolerance and social empathy; they strengthen visual and spatial memory; they improve the sensory capacity to feel, perceive, understand and appreciate the surrounding world; they improve hand-eye coordination ; they promote self-knowledge, and self-esteem; it helps to express ideas and emotions; and they generate autonomy and self-control.

3.5. Theater

It benefits learning in the following aspects (ME – UNICEF, 2021): emphasizes the idea of artistic expression as a delight and enjoyment in classes, as a means of learning and even as a possibility of evolution in social skills; It allows personal discovery, in order to create a common unity among the participants; It promotes collaborative group work, in which we try to respect individuality, to help us discover deeper capacities; it allows the child, adolescent and adult to become aware of themselves and their abilities; provides the opportunity for integration, offering the possibility of moving from bodily expression to shouting, to choreography, relegating the use of the word to a more advanced state of creation, thus allowing students with learning difficulties to be included in the group; generates the development of the natural creative expression that every being brings and stimulates both qualities and social and moral values and self-esteem ; or towards freedom, independence of mind and critical reflection; It encourages the conscious appropriation of the body, the voice and the imagination,

achieving greater security, not only in the creative process in class, but also in their daily lives. Therefore, the student becomes aware of himself or herself, discovering and enhancing the deepest abilities and capacities ; develops the expression and communication skills of students, focusing not only on the language skills of reading, writing, listening or speaking but, above all, on the ability to communicate; allows the integration of mind and body to generate meaningful learning ; develops skills related to critical thinking ; to the theater with different topics of study, so that students and teachers meet and explore new ways of understanding learning ; and it generates the state, the place, the point at which the human anatomy can be understood and through it heal and guide life (Garcia, et al., 2017).

All these branches involve working with students, through linguistic communication, because they are thus encoded, as are literature and theater; as to transmit to the students the instructions of the activities. Moreover, work items represent non - linguistic or body paralanguage and kinesia, in the case of theater and dance performances, and other artistic codes.

4. Methods

This work is developed through a descriptive study, in which (Hernandez, et al., 2016) the purpose of the researchers is to analyze situations and events, to know the relationship or degree of association that exists between two or more concepts, categories or variables in a sample or context. In this particular case, we refer to categories that affect the development of PSG and the WB. In addition, it agrees with a descriptive, non-experimental design, because they "study the incidence of modalities, categories or levels of one or more variables in a population, which are purely descriptive studies" (Hernandez, et al., 2016, p. 127). In other words, without manipulating the categories, only describe the factors that allow inclusive education during the health emergency.

The categories used in this study are: game-based learning, the artistic branches and educational needs. These categories have been merged to raise the PSG and WB, which were developed to be worked with all students in the educational system of Ecuador (basic early childhood education, general education and high school).

The PSG and WB had to undergo process validation. In this case, the method to achieve that is exerts judgement.

The PSG was validated by: i) Technical equipment of the ME - UNICEF, who worked in study circles allowing adjustments about: the cycles of learning, definitions of types of disability is to be addressed and development of icons according to each of the NE. ii) 25 teachers from

different courses of study, who accept this material, as a reference to work in this emergency with art and play, making use of materials from the environment, it will also be a support tool for parents of family.

The PSG and WB had to undergo validation processes, referred to as "degree to which an instrument actually measures the variable it intends to measure" (Hernandez, et al., 2016), by means of the expert judgment method, that is, to estimate to what extent they measure the universe of contents for which they were designed. The collection of information was carried out with focus and / or discussion groups, understood as an opinion space to capture the feelings, think and live of individuals, causing self-explanations to obtain qualitative data (Hernandez, et al., 2016), will be developed from those Experiences that have been possible to realize from the integrated participation of the protagonists. The organization of the information was carried out through the use of tables that specify the number of the booklet and the items related to: learning cycles and other components of the booklets.

The validation process was done twice. The pilot version of WB was validated with teams of teachers from different areas of the country, according to each of the courses of study, as well as technical teams from ME - UNICEF. Validations of 150 WB were developed in two stages: i) Submission of the WB, by two-hour meetings to show the PSG, as well as WB with teachers according to the level and course of study, and ii) Validation, through study circles, organized in two working groups according to courses of study, who will meet to validate each of the WB, according to a rubric defined according to the WB scheme with a Likert-type scale scored between 1 to 4, being 1 the lowest score and 4 the highest. Since the results weren't satisfactory, we reviewed the WB to get a final version and we asked to the same experts to repeat their assessments. Later, we will discuss the improvement between the pilot version to the final version.

5. Results

5.1. Application in Ecuador

The material developed for the Ecuadorian educational system makes an in-depth review of the contributions developed in PSG and WB, made for each of the courses of study in Initial Education (Sub-level II), Basic General Education (BGE) and Unified General Baccalaureate (UGB).

The PSG (ME – UNICEF, 2021) seeks to provide essential information to guide teachers, parents and / or caregivers about the importance of inclusive education and the development of learning activities according to educational level or sublevel of the student, based on artistic expression and playful strategies. The PSG suggests an application to work with all students, with their respective orientations or adaptations

according to each need and context, facilitating and enriching educational attention in an assertive way for students with EN, in the context of the emergency COVID 19. The PSG developed: (i) Theoretical component, it includes awareness content for members of the educational community, recognizing the importance of their pedagogical guidance role based on game-like activities and arts, during educational activities, in the context of the COVID 19 emergency; and (ii) Practical component that explains and develops 150 WB to apply with the student.

The WB (ME – UNICEF, 2021) have been developed according to the approach of the curriculum and its adaptations for each of the courses of study, based on general objectives set out by the different areas worked on in the curriculum. Table 3 outlines the 150 WB, as well as their organization by course and according to the reference of the element of the curriculum related to the objectives set for each sublevel or level.

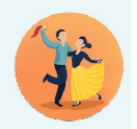
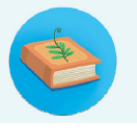
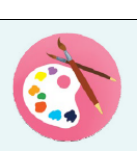
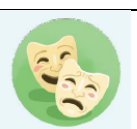
Table 3 Application of the cards.

Primers	For	In	According to one element of the curriculum:
150	Preeschool I (20)	Initial I	Sub-level Goals and Skills
		Initial II	Sub-level Goals and Skills
	Preeschool II (10)	1st	Sub-level integrative objectives and integrative curriculum objectives for each learning domain
		2nd	Integrating objectives of the sub-level and the general objectives of the areas
	Sublevel Basic Elemental (30)	3rd	Integrating objectives of the sub-level and the general objectives of the areas
		4th	
		5th	
	Sub-level Basic Medium (30)	6th	Integrating objectives of the sub-level and the general objectives of the areas
		7th	
		8th	
	Sub-level Basic Superior (30)	9th	Integrating objectives of the sub-level and the general objectives of the areas
		10th	
		11th	
	Unified Baccalaureate (Sciences and Technical) (30)	12th	Integrating objectives of the sub-level and the general objectives of the areas
		13th	

Translated Source: (ME – UNICEF, 2021).

The WB for their use, include buttons that show the artistic branch or recreational activity to be applied, as described in Table 4.

Table 4 Icons used to develop WB.

Game		
Music		
Dance		
Literature		
Plastic arts		
Theater		

Translated source: (ME – UNICEF, 2021).

The WB (ME – UNICEF, 2021) are presented according to the learning cycle or Kolb cycle, a theory of David Kolb. The learning cycles stand out as the protagonist of the learning process to the experience, which starts from a previous abstract theory that will then be put into practice to check its validity, based on subsequent observation and reflection. Thus, for effective learning to exist, a process that includes five cycles must occur:

1. Conceptualization, the purpose of this cycle is to make students identify objectively with the learning experience, get involved with the topic, feel interest, discover its importance, and become aware of their relationship with the topic. It develops activities like reading, the presentation of the information, videos, drawings, observations, role plays or interviews.
2. Experimentation, the purpose of this cycle is for students to experience, analyze or value knowledge according to a lived experience, relate the experience to their values and previous experiences, relate them to other ideas.

3. Application, the purpose of this cycle is that students have the opportunity to practice what they have learned, improve their problem-solving skills, make what they have learned their own, and put something of themselves in their way of working with the knowledge.

4. Internalization, the purpose of this cycle is to define strategies to strengthen knowledge. It develops as activities: exercises of application of knowledge, as well as games.

5. Reflection, the purpose of this cycle is for the students to synthesize the ideas that arose in the experimentation, define and classify the concepts, to understand the subject with adequate depth.

In addition, the WB include “educational needs experience”, they develop curricular adaptations like work methodologies. It proposes different activities to ensure that children and adolescents have new opportunities to experiment, create, investigate, discover, and strengthen their self-esteem and self-confidence, with sufficient support, as required. The experiences for educational needs are described by buttons and activities to be carried out according to the special educational needs associated or not with a disability, considering adaptations as described in Table 5.

Table 5 Icons used for specific educational needs.

Educational need	Icon
Special educational needs associated with disability	
Physical disability	
Intellectual disability	
Psychosocial disability	
Sensory disability	 
Multi-disability	

Autistic speWBrum disorders



Special educational needs not associated with disability

Maturational delay in development

Intellectual precocity or giftedness

Living in a situation of vulnerability



Translated source: (ME – UNICEF, 2021).

Finally, WB include “obtained benefits”, the purpose of this section is to highlight the achievements of learning.

The WB are evidenced in an organized way by courses, Table 6 shows the contents addressed, the artistic branch or play strategy, the areas with which the contents are related, being an example for the first course of baccalaureate.

Table 6 Unified general baccalaureate level: First year.

N	Name	Art	Scope / approach
1	¡The rhythmic grid!	Game	Physical education. We will address: Games and playing.
2	¡The motor circuit at home!	Game	Physical education. We will address: Games and playing.
3	¡Music through historical processes!	Music	Historical evolution of the social demands of peoples and nationalities. We will address: Indigenous protests.
4	¡Let's dance Zorba!	Dance	Citizenship and rights. We will address: Citizenship in Ancient Greece.
5	¡The beauty of words!	Literature	Literature. We will address: The style of literary language.
6	Learning, prose	Literature	Literature. We will address: Prose as a literary style.
7	¡The Norm of Ecuador!	plastic arts	Humans in space. We will address: Reality of social security.
8	¡Disinfecting the water!	plastic arts	Chemistry in action. We will address: Forms of determination and their importance in different areas of life.
9	¡Discovering my qualities and defects!	Theater	The identity. We will address: Gestures and Expressions / Characters / Self-knowledge.
10	Comic	Theater	The self: identity / Poetic Roots: Modernism. We will address: Comic / Graphic Novel / Rubén Darío.

Source: The authors

The PSG and the WB are used by teachers, parents and / or caregivers. They contain activities that are developed in a personal way according to the course the student is studying. Each WB, at the time of working with the student, demands time according on the pace and style of learning.

Considering the health emergency, PSG and the WB will be broadcasted in digital media, on radio and television and it is planned to make prints for a delivery to students who do not have access to technological resources.

5.2. PSG validation processes

The PSG involved in the validation of the technical teams of the Ministry of Education, as well as expert leWBurers and two style correWBions in order to manage a rights approach.

5.3. WB validation processes

The validations were carried out by grouping the teams of teachers by levels or sublevels and by years, as shown in Table 3. The results of the validation of each WB according to the rubric used, which included 25 items and a Lickert scale scored on a A range of 1 to 4 points is shown in Table 7, as an example of the sixth year of basic education, in which a team of six teachers participated.

Table 7 Results of the rubric used in the validation of the WB for sixth year of elementary school.

Items	Components of the cards	Average scores in each card									
		1	2	3	4	5	6	7	8	9	10
1 to 6	Conceptualization	3.6	3.6	4	4	3.6	3.6	4	4	4	4
7 to 10	Experimentation	2.3	2.3	3.6	3.6	3	4	4	4	2	4
11 to 12	Aplication	3	2	2	2	3.6	3.6	4	4	4	4
13 to 14	Internalization	3.6	2	2	2	4	2	3.6	3.6	3.6	4
15 to 17	Reflection	2.3	2.3	2	2	3.6	2	4	3.6	4	4
18 to 23	Experiences for special educational needs	4	2	2.3	2	3.6	2	3.6	3.6	4	4
24	Specific benefits	4	2.3	2.3	2	3.6	2	4	4	4	4
25	Motivation	4	2.3	2.3	2	3.6	2	3.8	3.8	3.8	4

Table 8 systematizes the results of the rubrics of the total of WB validated, they include: Year of studies, according to the development of WB, number of teachers who participated in the validation, number of work booklet to which they make observations according to a lower grade score with the Lickert scale

Table 8 Results of the heading utilized you in validating cards.

Course	N ° teachers	N ° WB	Interpretation
Initial 1	6	1	Conceptualization: The name of the booklet does not generate curiosity about the knowledge to be developed; in order to involve the teacher, father / mother and / or caregivers in understanding the topic to be addressed, an area related to the curriculum for the sublevel is not described. This description is not consistent with the theme of the booklet; to involve the teacher, father / mother of a family and / or caregivers in understanding and description of the issue to be addressed, a description that mentions the issue to be addressed is not included. This description is directly related to the theme described in the conceptualization. Experimentation: It does not make use of resources related to game-based learning or an artistic branch, in accordance with the icon that is located in the upper right part.
		6	Experimentation The description given is not clear so that the student can carry it out. Application: It does not use other resources different from those established in the experimentation, in order to deepen the knowledge. Reflection: It does not seek that the student synthesizes the ideas that arose in the conceptualization and experimentation; nor it defines and classifies the concepts, to understand the topic in adequate depth.
Initial 2	7	3	Experiences for special educational needs: The organization of the section on accommodations for specific educational needs is not clear nor easy to understand.
		5	Conceptualization: The text described is not valuable for the learning that arises in the subject of the primer.
		7	Application: It does not use other resources different from those established in the experimentation, in order to deepen the knowledge.
		8	Reflection: It does not allow, through inquiry, to analyze the knowledge acquired by the student.
		1	Conceptualization: The name of the booklet does

			not generate curiosity about the knowledge to be developed .
1st GBS	6	5	Experimentation: The description given is not clear so that the student can carry it out and is accompanied by materials to be used in this activity. The materials are listed as explained.
		4	Experimentation: It does not make use of resources related to game-based learning or an artistic branch, in accordance with the icon that is located in the upper right part.
		1a10	Conceptualization: The adaptations established for students with special educational needs not associated with disabilities do not contribute to the educational process that the legal representative must carry out at home with the student.
2nd GBS	8	9	Conceptualization: The explanation given in the conceptualization does not allow the teacher, father / mother and / or caregivers to understand the subject to be addressed, in order to transmit knowledge to the student.
3rd GBS	6	1a10	Item scores range from 3 to 4 points
4th BGE	6	1a10	Item scores range from 3 to 4 points
5th GBS	8	1a10	Item scores range from 3 to 4 points
6th BGE	6	1a10	Item scores range from 3 to 4 points
7th BGE	10	1	Experiences for special educational needs: The adaptations established for the specific educational needs associated with a disability do not contribute to the educational process that the parent and / or caregiver must carry out at home with the student.
8th BGE	6	1a10	The item scores have been scored at 4
9th BGE	4	1a10	The item scores have been scored at 4
10th BGE	8	1a10	Item scores range from 3 to 4 points
First UGB	2	1a10	The item scores have been scored at 4
Second UGB	2	3	Application: It does not make use of other resources different from those established in the experimentation, in order to deepen the knowledge

		10	Application: It does not seek to practice what has been learned, in order for the student to improve their problem-solving skills. Internalization: Seeks to define strategies to achieve knowledge.
3rd UGB	2	1a10	Item scores range from 3 to 4 points

The WB, not referred to in Table 8, reflect scores that ratified the relevance of their development or formal adjustments had to be made.

6. Conclusion

As has been studied, gamification offers possibilities that respond to challenges specific to the history of education. The gamification offers teachers an intervention model based on the anthropological notion of game-based learning. For this reason, gamification allows addressing the evolutionary challenges experienced by girls, boys and adolescents in a natural way. This is carried out by working on motivation and commitment, an interesting relationship between competition and competition and the freedom to fail, which makes learning more flexible. This is complemented with art in teaching, it seeks the development of fuller lives overall, generating a significant part of intellectual and creative, personal and social capital.

Intervention with EN, as part of an experience for the Ecuadorian Education System under the context of a health emergency, was performed through the development of PSG and WB, initially going through validation processes in addition to the training of the teacher body. As a first perception of the teachers, based on the results of the rubric, greater observances are made to the learning cycles in the first course of study, so it could be described that the WB were strengthened in their elaboration for the courses of study both in the BGE, as well as the UGB. The teachers assumed the commitment to validate the WB, however, the scores do not necessarily reflect a reliability in the courses of BGE and UGB, it could be due to the number of teachers who validated the WB or due to the lack of commitment when reading the booklet of the quoted level.

The PSG and the 150 WB, are a reference regarding learning at home in each of the courses and studio. The WB develop recreational and artistic activities, as well as curricular adaptations for EN. Teachers and parents and / or caregivers, may complement its application and develop other learning activities according to these cards. This allows greater sustainability in the current situation by confinement due to the health emergency.

The WB can be used as a reference for teachers at all levels and sub-levels of the Educational System, in relation to the development of

learning cycles, as well as curricular adaptations for special educational needs associated or not with a disability. Adaptations have been constantly required by teachers.

The WB handle a multidisciplinary nature (areas for initial education, as well as areas for BGE and UGB), however, cards could be supplemented for each of the areas or areas, in order to show that it is possible to work with game-based learning and art. This study summarizes the institutional assessment and the validity process follow to offer quality materials to gamify different subjects and specially for special needs students.

6.1. Limitations

A limitation of the proposed methodology is related to the usefulness of the material by teachers, parents and students, the PSG and the WB are in the process of design and style, so it is not possible to show results related to the application. This leaves open a future publication based on its application.

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