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Serious Games for Emotional Intelligence's Skills Development for Inner Balance and Quality of Life-A Literature Review

Juegos serios para el desarrollo de habilidades de la inteligencia emocional para el equilibrio interior y la calidad de vida- Una revisión de la literatura

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Abstract. The use of technologies to develop serious games for the enhancement of the abilities in the spectrum of emotional intelligence is of utmost importance and it has led progressively to the appearance of new applications. On the other hand, emotional intelligence is a very important concept that positively affects all areas of our lives. This paper aimed to review to show the current state of the studies that administrate the use of serious games to develop and improve emotional intelligence which is very important for our physical, mental and emotional health. The review included 14 scientific articles that met the inclusion criteria from 2010 until 2021. Our findings showed that serious games can play an important role in cultivating and promoting emotional intelligence skills which in turn results in a better quality of life. Future research on the subject could study and focus more systematically on the importance of serious games in the development of emotional skills in people's daily lives in general. It would be important, in other words, to investigate whether the development of emotional skills through the use of serious games is transferred to a more general context of individuals' personal lives and not just when engaging in the specific activity during the research.

Keywords: Emotional Intelligence, Serious games, Emotional Skills, Empathy, Physical - Mental health, Quality of Life.

Resumen. El uso de tecnologías para desarrollar juegos serios para la potenciación de las habilidades en el espectro de la inteligencia emocional es de suma importancia y ha dado lugar progresivamente a la aparición de nuevas aplicaciones. Por otro lado, la inteligencia emocional es un concepto muy importante que afecta positivamente a todos los ámbitos de nuestra vida. El objetivo de este trabajo fue realizar una revisión para mostrar el estado actual de los estudios que administran el uso de juegos serios para desarrollar y mejorar la inteligencia emocional, muy importante para nuestra salud física, mental y emocional. La revisión incluyó 14 artículos científicos que cumplieron con los criterios de inclusión desde 2010 hasta 2021. Nuestros hallazgos mostraron que los juegos serios pueden desempeñar un papel importante en el cultivo y la promoción de habilidades de inteligencia emocional que, a su vez, se traducen en una mejor calidad de vida. Futuras investigaciones sobre el tema podrían estudiar y enfocarse más sistemáticamente en la importancia de los juegos serios en el desarrollo de habilidades emocionales en la vida diaria de las personas en general. Sería importante, en otras palabras, investigar si el desarrollo de habilidades emocionales a través del uso de juegos serios se traslada a un contexto más general de la vida personal de los individuos y no solo al realizar la actividad específica durante la investigación.

Palabras clave: Inteligencia emocional, Juegos serios, Habilidades emocionales, Empatía, Salud físico-mental, Calidad de vida.

Introduction

In the social structures of contemporary society, the concept of emotional development and the general improvement of the people's skills-capabilities (be in adults or young adults and children) is an issue of utmost importance, which seems to have attracted the interest of scientists and other professionals in a global scale. Research illustrates the very importance of cultivating the many social and emotional skills capabilities that play a particularly significant role in the global psychological and spiritual sphere (Chernyshenko et al., 2018; Moreira et al., 2014).

The main objective of cultivating those types of abilities and skills-capabilities is the overall development of emotionality and sociability, the need for substantial cultivation of human interaction, understanding, and respect for human existence in its most abstract definition (Spence, 2003). The harmonious coexistence of people in society presupposes the development of emotional intelligence and the abilities of which it is composed. Emotional intelligence is the ability to feel, recognize, perceive, express, and regulate emotions (yours and those of others) and it is very important for dealing with various life situations and different kinds of relations (Drigas & Papoutsi, 2020; Szewczyk-zakrzewska, 2019). It is a set of abilities and skills that a person must train and cultivate to succeed in emotional self-realization (Drigas & Papoutsi, 2021). Empathy is a key component of emotional intelligence and is related to a person's ability to experience and understand another person's emotional state, respond emotionally, and be able to see things from a different perspective (Ferreira et al., 2021; Rosado et al., 2022). Research has also shown the positive relationship between emotional intelligence, eudaimonic well-being, and physical – and mental health (Di Fabio & Kenny, 2016;

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Drigas & Papoutsi, 2019; Fernández & Fernández 2019). Moreover, the importance of emotions and emotional intelligence in the educational context is growing and becoming more conclusive (Torres & Saenz-López, 2019).

To develop emotional intelligence skills, the utilization of games is important and effective (Arzone et al., 2020; Drigas et al. 2017; Karabatzaki et al. 2018; Papoutsi et al. 2018;) and several worthwhile efforts have been made to create games that aim to the improvement of emotional intelligence and its important elements (Drigas & Kokkalia, 2014; Khaled & Vasalou, 2014; Kokkalia et al., 2016; Santos et al., 2021) mostly on children and adolescents with typical development and those in the autism spectrum. Games have a remarkable driving force and are still growing in popularity. In addition, studies have shown that gamification can make a significant contribution to increasing emotional well-being and emotional intelligence and make the teaching process more interesting and accessible to all students while addressing any difficulties they may encounter (Arzone et al., 2020; Lee & Loo, 2021; Narimari et al., 2019).

Serious games could be a complementary tool to support the development of 21st- skills (such as communication, collaboration, social and cultural skills, creativity, critical thinking, problem-solving, empathy, etc.) required to have a better quality of life and adapt successfully to modern society (Karyotaki & Drigas, 2016; Romero et al., 2015; Torres et al., 2020). In addition, serious games that focus on improving emotional skills also strengthen the immune system, making it more resilient as emotional intelligence contributes positively to dealing with stressors resulting in better homeostasis and physical condition (Behbahani et al., 2020; McGregor & Bonnis, 2016). As far as the definition of serious games is concerned, as the years have progressed, various and important definitions have been suggested, definitions that include in every case different aspects of the issue. Table 1 includes some definitions that have been presented in the international bibliography for serious games over the years. Their educational purposes (i.e. transmission of knowledge, changes in behavior) are more and more emphasized through an entertaining and enjoyable process where entertainment and learning coexist harmoniously offering the child a unique experience.

Some researchers emphasize the importance of serious games and reveal through their results their effect on the perceptual, cognitive, behavioral, emotional, and motivational fields (Connolly et al., 2012). Briefly, they are games that serve very particular objectives and that in the end make an effort to add to the character of the children the main skills that were described previously. They offer the feeling of pleasure to children and offer them knowledge. Therefore, their aim is the supply of positive emotions as well as the insurance of the main emotional skills that are important for their development (Giessen, 2015; Iten & Petko, 2016). Great importance is also given to the emotional design of the games (color, shape, expression, and dimensionality of game characters) and the integration of emotional elements to induce specific emotions in learners (Plass et al., 2020) because emotions play a prime role inside the structure and experience of serious games because is connected with the learning processes (Anolli et al., 2010) and are a significant part of our life. Because hormones are associated with emotional intelligence and as a result affect the maintenance of homeostasis, efforts are being made to apply an intelligent emotional layer to serious games to improve the affective power of the agent, create more realistic emotional behaviors, and have a positive impact on the player's emotional intelligence skills (Samani & Polydorou, 2017).

Table 1.
Definitions for serious games.

(Clark Abt, 1970)	Traditional games are used to promote serious purposes.
(Zyda, 2005)	"Serious game: a mental contest, played with a computer by specific rules that uses entertainment to further government or corporate training, education, health, public policy, and strategic communication objectives."
(Michael & Chen, 2006)	"A serious game is a game in which education (in its various forms) is the primary goal, rather than entertainment".
(Derryberry, 2007)	What makes serious games stand out from the rest is that they focus on specific and intentionally educational results to achieve serious, considerable changes in efficiency and behavior.
(Susi et al., 2007)	Games that are used for instruction, advertisement, simulation, and/or education and that are designed to work on personal computers or consoles of videogames.
(Shute et al.,2009)	They are games that have a clear and carefully studied educational objective and that are not primarily destined for entertainment.
(Rego et al, 2010)	Games that allow the player to achieve a specific goal using the element of entertainment and dedication provided by the game experience.
(Hendrix et al., 2012)	Serious Games are interactive simulations that are based on the game and in which the user undertakes an active role in their progress and application.
(Mayer, 2014)	Serious Games have a significant impact on the user given that they transmit knowledge through a very enjoyable process in comparison to traditional teaching. Serious Games focus on knowledge and learning through the provision to the user of the same 'excitement' that is provided by any other game that focuses simply on entertainment.
(Arnab et al.2015)	Serious Games have in their center the pedagogical dimension, differentiated from the rest of the games that focus mainly on the entertainment of the user. From a pedagogical point of view, Serious Games have been created for entertainment purposes, having however always as their basis the education, the instruction, and the transmission of knowledge to their users. Serious Games offer a unique experience and mainly a meaningful and successful 'co-existence' of entertainment and learning.
(Becker, 2021)	Serious Games are a subset of games targeting is changing in behavior, attitude, health, understanding, and knowledge.

Our literature review has concentrated on collecting serious games designed to enhance emotional intelligence skills for all age groups. The serious games found were aimed at developing emotional intelligence and general emotional skills, but some of them focused only on developing empathy, which is a key competence of emotional intelligence. Also, several of these serious games were applied to children with special educational needs. To have more uniformity in the results and better distinction, we made an internal division of studies into serious games that cultivate emotional intelligence in general, games that cultivate empathy, a key component of emotional intelligence, and games that cultivate emotional intelligence in people with special emotional needs.

Material and Methods

Search procedure / analysis

In the middle of 2021, there was essential and quite effective research that helped make clear the act of studying the bibliography which refers to the very significance of serious games, and that, certainly, helped make evident the role that the latter play to cultivate the greatest extent possible the skills of emotional intelligence. More specifically, research was conducted on the web to gather the necessary bibliography. The studies refer to research and analyses that were conducted and published during the period between 2010 and 2021.

As far as the electronical sources are concerned, what were used are the following: Medline (PubMed version), Science Direct, and ACM Digital Library. Keywords that were used: "serious games", "emotional intelligence", "emotional intelligence skills", "empathy", "autism", "special educational needs". In table 2 the results from the database are presented.

Inclusion procedure

The main criterion that should be taken into consideration to understand the way this particular research was conducted and, of course, the method of assembling and reaching a conclusion is the exact study of solely scientific analyses and other corresponding research that are properly reasoned and founded upon and real data. Furthermore, it is important to mention the fact that the most important keyword used was the concept of serious games and emotional intelligence. As a result, there was an exclusion of all these articles and opinions that had no link to serious games and that did not deal with the significance of the latter for the cultivation of skills-capabilities in the domain of emotional intelligence.

Data extraction and quality quantification

To achieve the best possible and more proper evaluation of the data that were gathered, there was a study to comprehend whether the articles referred exclusively to serious games and not in general to Apps. That was made possible with the existence of some basic indicators of evaluation and, more specifically, the degrees and the quality scale that was defined by two researchers. On one hand, Connolly defined the effectiveness of the articles with three criteria, using numbers according to the quality of the research (1: low, 2: medium, 3: high), with the higher possible score being 15 (Connolly, 2012). Yusoff dealt more with the degree of reference of the issue and, more specifically, with the following numbers: 0 if there was no relevance, 1 if it was partially analyzed and 2 if it was fully analyzed, while the final and highest score that could be achieved was 24 (Yusoff, 2010).

Results

Extended research was realized regarding the plethora of serious games that refer to the cultivation of skills in the domain of emotional intelligence. Therefore, to be able to conduct an analysis and an evaluation in the best and most effective way possible of the articles and the studies that were used for the present research, there was a classification of the former as far as their objective and their content is concerned. All the games are related to emotional intelligence but there was a division into three sections for better distinction and deepening of the subject under consideration. The sections are the following: A) Serious games and emotional intelligence (in general but also concerning specific emotional skills), B) Serious games and empathy, and C) Serious games, emotional intelligence, and special educational needs.

Serious games and emotional intelligence

"e-Estesia" is designed to improve emotion regulation in patients with impulse control disorders and other disorders characterized by inhibitory control deficits (Mena-Moreno et al., 2021). "e-Estesia" runs on password-protected An-

Table 2.
A total number of papers were identified from each database, identified following the screening, selected as meeting inclusion criteria, and quality coded over 9.

Database	Number of papers found by database search	Number of papers identified following screening for serious games terms	Number of papers selected as meeting inclusion criteria	Number of papers rated over 9
Medline	200	52	9	3
Science Direct	30,143	5,986	20	5
ACM Digital Library	184,258	122,741	38	6

droid portable devices (tablets) and is connected via Bluetooth to a sensor that transmits physiological data [heart rate (HR) and heart rate variability (HRV) from the participant to the device. the game was applied to 26 patients undergoing treatment for (Gambling Disorders) GD. The game takes place on a tropical island where players learn with the help of weather phenomena to regulate their emotions, especially stressful ones, through proper breathing and good sitting posture. The results were encouraging in terms of the game's contribution to emotion regulation in people with impulse control disorders. There are plenty of similar games intended to practice emotion regulation through biofeedback to increase the decision-making performance demonstrating in this way that serious games can play an auxiliary and reinforcing role in improving this emotional skill (Jerčić & Sundstedt, 2019). Videogames also play an important role in cultivating and promoting emotion regulation to improve mental health, emotional health, and well-being (Villani et al., 2018).

"My Brain Works" (MBW) is a serious game designed for people suffering from dementia to foster their emotional and social intelligence to improve their quality of life (Berenbaum et al., 2020). In the game, sessions participated twenty-seven people with dementia (PwD), and through different activities on 23 game screens, there was an effort the enhancement of emotional and social skills. Results illustrated that a serious game can exercise ESI (Emotional and Social Intelligence) capabilities that may be present in dementia. It can also be used as a more accurate tool for evaluating cognitive function because when the game is played, the user is relaxed compared to a more formal examination where the user can be anxious and feel threatened thus influencing the results and helping himself.

Almeida et al., (2019) occupied with the importance of the game FLIGBY, for the users-players to acquire the necessary emotional skills and for the scientists to comprehend the role that the application has in achieving the objective. Forty-nine students from the undergraduate courses of Management and Computer Engineering took part in the game. FLIGBY is a game that refers to the appropriate management of a company that deals with the production of wine – a winery – and to the achievement of the best possible results as far as the economic spectrum is concerned. Therefore, for the users to achieve something like this, what is needed as a requirement is the insurance of a terra-in-climate of harmony in the interior of the company, and thus the achievement of cooperation to a more general context in the company. As a result, the individuals-users learn to promote the dialogue and the act of working as a group and at the same time develop positive emotions toward the rest of the members of the group, in which they are included. Parallelly, the researcher can understand easier through the game in question the degree to which the player can and is offered the opportunity to work in the context of a group and to be able by extension to operate harmoniously but also effectively and profitably in the company, to make the best results possible a reality and for the prestige of the company (in the game) and of the team in real life to be amplified. The implementation of the FLIGBY serious game made it possible to assess students' EI skills and helped to develop these skills.

Cejudo et al., (2019) examined the effectiveness of a video game named "Spock" on emotional intelligence and psychosocial adjustment of adolescents. "Spock" is based on the four branch model of EI (Identifying and perceiving emotions, Emotional facilitation, Emotional understanding, and Emotional regulation). The study involved 92 adolescents aged 17 to 18 years. In the game, the user is asked to give the most appropriate solution to hypothetical intrapersonal and interpersonal situations. The results confirmed significant differences in emotional intelligence, overall behavior, problem externalization, adaptation skills, and personal adjustment as a result of the program being implemented validating it as an effective intervention tool.

DeRosier & Thomas (2019) presented "Hall of Heroes", an adventure game where the player navigates in a virtual school and engages with other characters to solve a social problem that arises through strategies. This interaction aims to improve impulse control, communication, cooperation, social initiation, empathy, and emotion regulation. A sample of 29 youths was recruited for the game and results showed significant improvements in the ability to interact with others (both peers and family members) as well as to receive affection and express emotions with others, compared to young people who did not complete the game. In addition, research has shown a reduction in feelings of anxiety, depression, and despair for the youth that completed the intervention game.

Emotion Detectives (ED), a game funded by the Finnish National Board of Education, was designed to promote children's acquisition of emotional knowledge skills (e.g., recognizing, appreciating, and understanding emotions and their expressions), prosocial behaviors (e.g., helping, sharing, comforting, and showing concern for others), and problem-solving abilities (Koivula et al., 2017). It was considered an intervention tool designed for ages 5-12 and it was implemented in children aged 5-6 for 8 weeks. In the game, the player creates an Emotion Detective office and as a detective tries to solve various social and socio-emotional problems together with his virtual assistant, Aksu. Also, an additional incentive is a fact that players compete with similar companies in the city and must increase the reputation of their newly established office by collecting reputation points resulting in gaining new tools with which they can

move to the next level of the game and solve other cases. An evaluation of the game after its application in two Finnish daycare centers showed an improvement in socio-emotional knowledge and collaborative learning.

Herodotou et al., (2011) conducted research regarding the role of trait emotional intelligence in gamers' preferences for play and frequency of gaming. The research in question referred in total to 1051 users that were involved with a particular game that is linked with the themes of war and battles. The game in question is called WoW (World of War) and it is founded upon the organization of wars and other corresponding raids in towns, reigns, and military bases. The assessment regarding that application shows that it is a game application that is founded upon the organization of strategies and upon the feeling of trying to survive. As a result, it is quite evident that it is related to the protection of the human species and, more specifically, of the soldiers against extinction. Therefore, the users-supporters of the game in question appear to be cultivating to a great extent their skills and they manage that way to amplify their emotionality and sociability but also their actions in various circumstances. Moreover, this study showed that games are suitable places for people to express their emotions. Also, a positive relationship between trait EI and social preferences for play and a negative relationship between trait EI and achievement preferences for play were found. These findings suggest that players' emotional characteristics are more likely to motivate specific game uses.

Serious games and empathy

Various games have been developed to foster empathy and pro-social behavior in different contexts to improve emotional and social intelligence (Drigas & Papoutsi, 2016). Papoutsi & Drigas (2016) presented an overview with representative studies until the year of 2016 on games that have as an aim the detection and development of empathy on important issues. In the present research, we operate in addition to the above studies by listing later games that were identified as far as empathy was concerned.

A serious game that showed promising results in empathy and prosocial behavior is "Com@Viver", which was designed to study bystander reactions and cultivate empathy in cyberbullying situations (Ferreira et al., 2021). The game was implemented in 221 students (7th and 8th-graders) in classroom settings with results showing a positive impact on players' empathy and an improvement in adolescents' cognitive empathy and prosociality in cyberbullying. The challenge was to win a seat on a year's bus trip, where there was a limited number of seats. To do this, each group of players must perform tasks to organize the trip while interacting with social agents and two other colleagues in a (hypothetical) social network. Several games have been created to inform about issues of bullying and try to cultivate empathy for changing perspectives and successfully dealing with such phenomena (Calvo-Morata et al., 2020).

Another game that is focused on the care of persons with disabilities is "World of Empa" (Sterkenburg et al., 2019). The player comes in contact with various characters and more specifically with a blind boy, a girl with multiple disabilities, a father, a mother, a baby, and a boy without disabilities. It is a game that includes six levels of basic educational situations and questions about the main educational and interaction problems that the characters face. The game aims to discover the effect of sensitive and empathetic reactions to situations and simultaneously have a positive impact on the empathic levels of the players toward people with disabilities. A total of 83 participants participated in the study and the results demonstrated that there was a small short-term effect on the bias and escalation of empathy measurements. Moreover, there was a slight improvement in participants 'ability to transfer imaginatively to the characters' experiences with disabilities.

Tappetina is an empathic serious game about collaborative storytelling (Skaraas et al., 2018). Each player has a smartphone and the purpose of the game is for all the players together to make a story from the elements/themes that the game gives and are related to real-life scenarios. Each player must continue the story from the point where the previous player has stopped. In this way, they practice their imagination and at the same time, they cultivate their empathic abilities as they have to put themselves into the position of the character in the story. A first assessment of the game was made in a workshop that took place in Norway where they participated 12 teenagers (13 years old and older) and the majority of the participants showed an innate ability to use their imagination to rely on history, often forming real, empathetic links with fiction.

Serious games, emotional intelligence, and special educational needs

Literature reviews have studied the fields of serious games, emotional intelligence, and special educational needs. More specifically the work of (Hassan et al., 2021) presents an extensive review of 40 serious games between 2000 and 2019 for the improvement of emotional intelligence and social behavior in individuals with ASD. Another representative study is that of Grossard's et al. (2017) which focuses on serious games for individuals with ASD from the year 2010 to the year 2017 that establishes the immediate interrelation between emotional and social skills. In our study, supplementary articles were used to achieve a final study of the topic. An assess-

ment is made of the fact that serious games carry a specific responsibility for children with autism. In an article, that was published in the year 2014 what is made quite clear is the significance that the existence and usage of serious games appear to have for the cultivation of skills that relate to emotional intelligence in people suffering from autism. That research showcased in the end that the utilization of various digital tools – including tablets, cellphones, and other similar media – helps people with a high degree of mental disorders and is mainly an indicator of autism to be able to respond according to those kinds of skills and to be able by extension to develop themselves more creatively and in many different aspects of their life and personality (Zakari et al., 2014).

EmoTEA is a serious game developed as a mobile application for children with ASD to improve and develop their emotional intelligence and more specifically emotion recognition and emotional expression skills either their own or other people's (Garcia-Garcia et al., 2021). The game is aimed at children aged between 6 and 12 years old and it consists of 3 different games. The first game is about recognizing emotions from cards while the second game helps children to express emotions with their faces by imitating. The third game is related to the recognition of emotions depending on contexts. Applying software to 3 children with ASD and their psychotherapists has shown that it can be a useful tool for teaching emotion-related concepts.

CISELexia(Computer-Based Method for Improving Self-Awareness in Children with Dyslexia) is a game aimed at dyslexic children to increase their self-awareness, a basic element of emotional intelligence (Rahmawati et al., 2019). It is divided into five sections related to self-awareness: "Know Yourself, Know your family, Know your strengths, Know your weakness, Know your emotion". Based on the implementation results CISELexia can increase the child's self-awareness state according to the rubric questionnaire given by about 10%.

Nakpong et al. (2019) designed six interactive multimedia games to enhance the emotional intelligence (EI) of deaf and hard of hearing (DHH) learners. The games were tested in 10 DHH adolescents aged 13 to 15 in Thailand and all of them were related to emotional intelligence skills. The results of the study showed a significant improvement in emotional-self-control, empathy, problem-solving, self-regard, life satisfaction, and peace in all participants. Furthermore, results demonstrated that games could have a positive impact on the cultivation and improvement of EI in deaf and hard-of-hearing learners.

"Island" is a serious video game that was created and developed within the European research project "PlayMancer" (Fernández-Aranda et al., 2012). The game takes place on an island where the player must form parts of several islands in an archipelago through activities that aim to improve the behavioral and emotional skills and attitudes of patients with impulse-related disorders. A pilot test was held with 24 patients and 14 healthy controls. The game contains emotional elements such as affective speech and technology that can detect the emotional state of the user to help patients with relaxation skills, self-control, and emotional regulation strategies. The pilot study demonstrated that patients started to show new coping styles with negative emotions in normal stress life situations.

Discussion

Digital games, in general, are a rapidly evolving field that is increasingly penetrating the educational process not only because of the dynamics that distinguish them but also because of the student-centered learning model that they represent. At the same time, they can cultivate emotional skills and evoke emotions through the script and the game work environment (Hemenover, S. H., & Bowman, 2018; Kokkalia et al, 2017; Lara-Cabrera & Camacho, 2019).

Serious games are a fast-growing field and can be applied to a wide range of application areas, e.g., the army, the government, and health (Almeida & Simoes, 2019). At the same time, the use of serious games and ICTs, in general, is widespread and particularly useful in the field of education and they can be used as learning tools to enhance the effectiveness of the educational process at all levels of education and in different courses such as physical education (Aguilar, 2019; González et al., 2018) affecting the performance of a physical activity (Vinagre et al., 2021). Serious games could be a good addition to the more traditional methods of teaching children new skills and will revolutionize the way we deliver content to students (Braun et al., 2020). Serious games are an original and fun way to convey a message to the target audience. Furthermore, the fun side of games enhances the experience and therefore the transfer of information. The power of games and ICT tools to immerse, engage and motivate, and their potential to cultivate and facilitate critical thinking, creativity, problem-solving skills, innovation, emotional intelligence, awareness, socialization, collaboration, communication, and behavioral change have led to the development of more games of this nature to develop real-life scenarios (Nieto et al., 2022; Papanastasiou et al, 2017; Petridis & Traczykowski, 2021). Finally, serious games provide feedback, either from the game itself or from interaction with other players.

In our article, there was an important plethora of high-quality articles and research that offered necessary and particularly helpful information for the realization of the present study. More particularly, the international bibliography was large in numbers and it included elements that referred to a vast spectrum of activities and of applications that can allow the development of the main emotional skills-capabilities of the people. Furthermore, all the games and the applications that were presented and developed were purely games, and under no circumstances did they give the feeling that they were an activity or an exercise for the research.

A limitation in research and outcome of conclusions was that some of the studies did not give all the details concerning the design of the game as well as all the activities the user would play to cultivate the emotional skills. This would be a great help in building future serious games with the same goal. Moreover, where this is feasible it would be preferable for the same games to be played again either in a different sample or in other populations of other countries for better data extraction and comparison of effects on the skill that was intended to be cultivated.

Finally, it is necessary to mention the fact that the studies included information exclusively through the course of action of the participants during the game activity with which they were preoccupied and they offered no other kind of information regarding the general course of action of the individuals that took part. This could be considered an inhibitory factor for an informed and complete picture of the issue and at the same time, it put on hold the effectiveness of the study for the elements and the actions that took place in the everyday life of the individuals and that are included in the development of their emotional intelligence skills.

On the positive side, the study showed that the use of serious games is very promising in the development, cultivation, and improvement of emotional skills such as empathy, emotion regulation, emotion recognition, and emotional expression. Serious games which improve emotional intelligence could be an effective way for better performance on the mental and physical level, emotional adjustment, life satisfaction, and increase in self-esteem (Fleming et al., 2017; Fernández-Abascal & Martín-Díaz, 2015; McCallum, 2012). Additionally, the research demonstrated their positive contribution to the cultivation of emotional skills in children with special educational needs and with more application in the field of autistic disorders. An additional suggestion is to create and implement games that target either exclusively one or more emotional skills such as those presented in the pyramid model of emotional intelligence (Drigas & Papoutsi, 2018; Drigas & Pappas, 2017; Maslow, 1981) (see Figure 1).

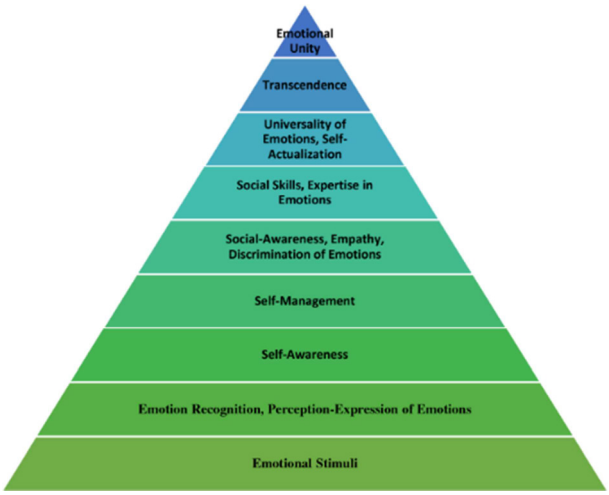

Figure 1. Pyramid model of Emotional Intelligence (Drigas & Papoutsi, 2018)

The pyramid should be read bottom to top; each lower level needs to be met before we progress upward. Serious games could be created that will focus on one of the levels of the pyramid of emotional intelligence, thus cultivating the specific skill each time, or aim at more than one skill, contributing in both ways to the development and improvement of emotional intelligence. Regarding that, "The Wellbeing Game" is an effort to promote well-being and self-actualization (Tolks et al., 2019) and another effort has been made for serious games that promote transcendental and universal values (Marini et al., 2018). In addition, the creation of serious games aimed at improving metacognitive skills will enhance the cultivation of emotional intelligence because metacognition contributes to the proper functioning of the cognitive, emotional, and psychophysiological mechanisms (Drigas & Mitsea, 2020). In modern times it is essential to create appropriate metacognitive and meta-emotional training learning environments with the aim of self-actualization of individuals (Drigas et al., 2021; Murillo & Manzano, 2021).

Training and collaboration with multiple stakeholders (educators, researchers, policy-makers, psychologists, and game developers) are needed for the creation of games targeting emotional intelligence skills. Serious games, when used meaningfully, appropriately, and in combination with human interaction, can contribute positively to the development of social-emotional learning not only in students but in adults too and strengthen those skills with effective pedagogy (Lim-Fei et al., 2016).

Conclusions

Although several games related to emotional intelligence have been built and released, there is still a lack of evidence that they are a sufficient tool for teaching emo-

tional intelligence skills and linking the game experience to real-life situations. Nevertheless, the results were encouraging and promising.

Serious Games and the benefits they appear to possess are certainly positive parameters and they can be applied in a more general context of bettering the skills of people, not only regarding their emotional intelligence but also regarding the amplification of their personality. Even if they are the main elements for the cultivation of the skills of emotional intelligence, under no circumstances should there be an exclusion of their importance for more general research and the enhancement of other characteristics of the people in a community.

The education system can harness students 'passion and energy for serious games in general, to use them to achieve 21st-century education with skills critical to both education and students' future careers. Serious games are a modern tool that can be used as a new learning tool in educational practice and enrich it if used properly.

Therefore, there must be a more intense and more systematic study effort for the bettering of the effectiveness of the games and of the applications that could be used to amplify the more effective development of their emotional skills and more for themselves and as part of a larger community.

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