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RESEARCH ARTICLE

THE GAMIZED FORM OF TEACHING STUDENTS WITH DISABILITIES THROUGH THE USE AND UTILIZATION OF THE COMPUTER

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Abstract

Obviously, the gamified form of computer use and utilization in the teaching of students with disabilities has not been sufficiently investigated and studied regarding its contribution to their development and promotion. In this sense, the specific topic was chosen to examine to what extent this way and form of computer adoption and use affects, on the one hand, the processes and the result of the educational process and learning of these individuals/students, on the other hand, the their pedagogical and academic image and performance in all areas. Regarding the method of preparation of the specific work, the critical-interpretative review of the domestic and foreign language literature on this subject was selected and used. The results of the research demonstrate a significant trend and increase in the rates of computer use in the aforementioned form in the teaching and learning of people/students with disabilities, while regarding its contribution to the positive increase in their academic performance there is insufficient evidence from various scientific studies to support the above assumption.

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Introduction:-

The expansion of the gamified use and utilization of computer technology in the teaching and learning of both non-disabled and disabled students has gained more and more ground and space in recent years in the modern pedagogic-teaching approach and practice. With the gamified integration and use of the computer in all stages and phases of the educational process, henceforth, the essential and appropriate framing of finding, analyzing and absorbing the content of the various knowledge objects is achieved, consequently, an increase in the support of students with disabilities is observed during which their education takes place (Boyd & Ellison, 2007). In other words, the gamified form of using the computer provides the scientific-pedagogical quiver, especially the special pedagogues/educators, another method and technique of planning and implementing the learning project, through which the learning motivation of these individuals is activated during the educational process. At the same time, it can be seen that their imagination is stimulated and their curiosity is provoked when they are dealing with their didactic-cognitive subjects and obligations (Alkan & Mertol, 2019).

However, it must be emphasized that the specific form of using the computer in teaching and obviously training the students of this particular group, involves many risks, since the applications and software used with this specific method require the assistance of the corresponding learning theories and approaches , which must be consistent with teaching environments (Borrego et al., 2017). Nevertheless, in order for the gamification of teaching and learning through the computer to function as reinforcement and support for these students, it is considered and recognized

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that there must be an educational environment that is governed by some stable variables and parameters (de Witt & Gloerfeld, 2018). This implies, teachers who have to prepare learning materials and activities based on their knowledge and skills regarding the correct adoption, operation and application of the given method and technique in teaching. In addition, students are required to have very good computer knowledge and educational skills in order to benefit to the fullest and improve their academic performance and cognitive level while taking courses in this way (Ciftci, 2018).

In the light and logic of the new technological trends whose influences are evident in the way of teaching and learning, it is recognized that the gamification of the processes of the education of these individuals through the appropriate tooling of the computer, constitutes a one-way and a sure alternative to their cognition development and promotion (Laurillard, 2008). Given this, it appears to be a groundbreaking approach and a different way of learning to enhance the knowledge of students with disabilities. In this sense, it is found that the gamification of teaching and learning through the computer is a new and innovative technique that leads these students to discover ways of acquiring knowledge and developing their practices, especially their skills (Judge, 2014). Taking into account these data, it is considered that the achievement of the gamification of teaching through the combination of the application of other learning techniques and methods as well as the available digital tools of computing technology, is the driving and promoting force for exploring and discovering the depth and breadth of knowledge acquisition during which the teaching practice takes place every day in the classrooms of the special structures (Kazimoglou et al., 2012; Khalid, 2018).

By using and exploiting the various gamified applications and computer media in the teaching and learning of these individuals, their pioneering engagement with the teaching subjects and their cooperation with the rest of their classmates is promoted (Komis et al., 2013). A necessary condition, however, to strengthen and at the same time improve the gamification environment intended for the educational development and promotion of the students of this group, is its armoring through a framework and scientific approaches and theories aimed at their level and capabilities (Kalieloglu & Gulbahar, 2014). More specifically, it is considered that gamification can be said to be e-/digital learning based on the game, the online environment of searching for information and data from the internet, e-learning in groups among disabled users/people as well as the implementation of programs and educational software through the computer. Based on the above, it is considered a reasonable condition –the delivery of any learning object– that its content and activities are used and exploited through the appropriate application of gamification (Anastasiadis et al., 2018).

The pedagogical reconstruction of the teaching of students with disabilities through the gamified use of the computer

Now, it is certain and distinct that the face-to-face/classical approach of delivery and analysis of the content of knowledge objects is scientifically-pedagogically outdated (Strijker & Collis, 2005). In this sense, it appears that the introduction and adoption of the computer in the teaching process does not change –only– the way, the form and the method of learning and in general education of the people who attend the general/standard school, but also of the students who study in the special framework and structures (Salovaara, 2005). In this logic, it is pointed out that the gamified use of the computer in the teaching of students of this particular group (Tan & Tan, 2006) does not contribute to their facilitation in the process of searching and analyzing various information and knowledge, but on the contrary, it provides an alternative exercise of critical thinking, filtering all the information on offer and managing learning. By gamification of all the stages and phases of teaching, therefore, the students of this group have the possibility to actively, investigatively and constructively discover knowledge, so that they actually experience the authentic experience and learning (Voogt, 2003; Tan et al., 2005).

Among other things, it is also recognized that with the gamified environment of teaching, the social interaction of these students is expanded, cooperation between them is encouraged and the modern pedagogical-participatory climate is promoted during the teaching process (Karamti, 2016). In essence, it is demonstrated that with the specific form of use and exploitation of the computer in the education of students with disabilities, their metacognitive involvement increases dramatically –both quantitatively and qualitatively– during the performance of their teaching duties and tasks. With the gamified organization and presentation of learning, therefore, their will and desire for knowledge is strengthened and their positive feelings about the conquest of personal experiences are increased (Livingstone, 2012). In another sense, gamification is a type of differentiated teaching method that functions as a design learning environment that takes into account the unique interests and abilities of each student with a

disability. In this way, all the alterities, inhomogeneities, deviations and inherent deficits that these individuals carry are underlined and at the same time covered and dealt with (Hew & Brush, 2007; Mahdi & Al-Dera, 2013).

With the gamified use of the computer in the teaching of students with disabilities, in other words, the chances of their more substantial and better involvement in the processes and activities that take place during its conduct increase (Newhouse, 2013). This implies that interactive and multimedia environments are utilized that give meaning to the creativity of these students and always according to the level of their cognitive abilities and capabilities. In the logic of the above, it appears that through gamification they support their experiences, evaluate their learning skills in a different light, better control their cognitive abilities, thoroughly evaluate their learning status and reflect on the various cognitive issues intersubjectively and metacognitively (Ngeera et al., 2018). In short, they can in a different way and form filter their cognitive sources, use them to their advantage and, most importantly, increase their skill for better intake and analysis of information for the acquisition of knowledge (Garcia & Pacheco, 2013).

Among others, it is shown to give another dimension to learning as a social phenomenon and process, since students as learners are forced to participate in authentically original and exemplary quests to create and solve didactic tasks, to discover learning through practical scenarios and to manage their knowledge load more optimally and effectively (Mcmahon, 2009). With this particular method of teaching and learning, moreover, individuals of this particular group handle the complexity and complexity of the primary and/or non-primary sources, data and information they draw from scientific reality in an unassuming and popular manner. In particular, experience and social peer interaction and negotiation are encouraged and promoted both at individual and group contexts and levels (Pratik, 2013). With the specific form of teaching –through the adoption and use of the computer– of these students, therefore, there is an excess of the offered ready information and knowledge, the reading and interpretation of the content of the data being processed is facilitated, the taking of individual initiatives along the way is encouraged for the search for knowledge –without the obstacle of fear of failure– and their original reflection and curiosity is activated (Drent & Meelissen, 2008).

It has now been established that with the gamified use of the computer in the teaching process and practice of students with disabilities, their interest increases and their motivation for active participation in the learning process is strengthened. In particular, it is observed that their zeal/desire for greater participation during teaching is intensified, their interest is more activated when the lessons are delivered with the specific methodological format and they cope with their learning obligations more successfully. On top of that, it is recognized that the so-called "weak" students, such as those with disabilities, seek for themselves in any way to be involved in the delivery stage of the knowledge objects and manifest excessive focus during the teaching (Al- Faki & Khamis, 2014). More generally, it is observed that they have a more positive attitude regarding the presentation of the knowledge objects, while at the same time it is found that their attention improves in all phases of their education. The interactivity emitted by the gamification of the computer as a tool and means of teaching the students of this group, is in itself an event and at the same time a factor in attracting their interest and activating their dormant motivations for learning (Mitzithras & Kalkanis, 2013).

The digital exploitation of the applications of the gamified use of the computer in the teaching of students with disabilities

The gamified form of computer use in recent years is a modern tool for improving cognitive performance and dealing with the psycho-emotional behaviors of students of this special group through the processes of teaching. Therefore, it can be seen that the introduction of the gamified use of the computer in the teaching of the individuals of this group is important, as it facilitates the approach and treatment of their multiple learning difficulties and deficiencies under another methodological consideration and technique (Van Braak et al., 2004). Compared to the traditional way of presenting the teaching objects, of course, gamification appears to bring about mood and enthusiasm, since in some hidden form these students participate voluntarily and enthusiastically in the processes of the educational act (Triggs & John, 2004). In this sense, it is definitely a new and pioneering digital teaching and educational tool, which, through its proper use, ensures the multifaceted and multi-faceted development and advancement of these students. With this specific form of computer utilization, therefore, these students acquire knowledge through other channels, develop critical thinking and skills, and strengthen their positive attitude towards learning (Volman et al., 2005).

It should be noted that the gamified interactive and digital presentation of the teaching objects and the conduct of the teaching, however, constitutes the main reason for pushing and attracting, especially students with disabilities, to engage thoroughly and diligently with the gamified applications of the digital medium (computer) used to train them. Depending on the academic knowledge and practical abilities of each student of this group, therefore, the design and implementation of the teaching is structured, since the greatest possible and optimal participation of them is achieved, which is due to their excessive enthusiasm and impression from the specific format and how to organize and implement their learning (Abrams & Walsh, 2014). The attention and concentration of these students during the delivery of the various cognitive objects, therefore, is a variable that changes constantly and depends on factors such as the method, the techniques and the strategy of planning and carrying out the teaching (Fokidis & Foka, 2018). In other words, it is considered that with the specific form of introduction and digital utilization of the computer as a co-auxiliary tool in the teaching and learning of these individuals, their actions and ventures are strengthened for the even partial conquest and assimilation of a quantity of important knowledge of the teaching subjects (Ertmer & Ottenbreit-Leftwich, 2010).

The digital gamification of the teaching of these students, now, seems to penetrate more and more into the processes that take place during the performance of their educational-pedagogical activities and actions. Although the data on the contribution of gamification to the development and development of students of this group, are few and insufficient, it is recognized that they have the opportunities and potential to increase their ventures during learning, to think creatively, to invent and apply substantial solutions to their problems and to improve their participation in school daily activities (Pilli & Aksu, 2013). The attractive interactive environment of gamification, in particular, is a pole of attraction that stimulates their imagination and curiosity, thus turning the educational process and practice into a pleasant experiential experience that leads to a tangible and optimal result that becomes visible in their daily school life. Inductively, it can be seen that the digital gamification of their learning improves their academic performance, as it works on bodies of previous experiences, recruiting and images from their real life (Omwenga et al., 2015; Behnamnia et al., 2020).

Among other things, it is found that the gamification of teaching and learning through the appropriate use and utilization of the computer, works as a promotional force that activates –apart from the practices– also their intellectual skills (Deng et al., 2020). The combination of the digitized and gamified presentation of the knowledge objects during the educational process, therefore, constitutes the basis of approaching –in another form and manner– the students with disabilities who study in the classes of either the general or the special framework and structures (Wurst et al., 2008; Tomlinson & Imbeau, 2010). With gamification, therefore, skills are cultivated and developed, particularly in the students of this group, that allow them (Leu et al., 2004) to participate with interest, zeal, energy and self-confidence in the teaching and learning processes (Ongoro & Mwangoka, 2019).

Furthermore, due to the relaxed pedagogic-learning environment created by gamification, they seek their comprehensive and multifaceted involvement in the processes of the educational practice, since they feel that their critical thinking, self-esteem and creativity are strengthened and at the same time improved (Cramer et al., 2007). In this way, they feel that their psychology is lifted and their psychosynthesis is stimulated (Zaid, 2011; Angadi, 2016). In conclusion, it appears that with gamification students cooperate with each other as they do not have the pressure of following the subjects in the traditional structure and manner, they interact with their classmates and teachers, they have more time for personal search, comparison and selection of new information and data, the anxiety of failure is removed and, in general, they feel more relaxed in terms of their self-efficacy (Dore et al., 2019).

Gamification as an influential factor in the activation of students with learning disabilities

Obviously, gamification is a new methodological pedagogical-teaching trend of learning for people with disabilities, which in recent years has been growing rapidly and is constantly gaining ground compared to other forms and ways of teaching and learning (Funke et al., 2017). At all levels of education of these students, therefore, the digitally gamified form of learning can coexist with many other forms of learning. In this way, it is considered to encourage the students of this special group and to obtain the maximum pedagogical-teaching benefits from the educational process and practice (Gangaiamaran & Pasupathi, 2017). The interaction created with other teaching participants, competition, dominance over others, results, goal setting, conflicts, rules and virtual representations, constitute the main and essential constituent features of gamification, which with in turn make the specific form of learning of these individuals the most attractive of all the others (Fotaris et al., 2016).

Through the various and many studies and researches, moreover, it is demonstrated that the gamified utilization of the computer as an auxiliary cognitive-teaching tool and means in teaching and learning, increases the students' motivation for even greater involvement in the delivery processes of the objects and attracts their interest, as new and ground-breaking conditions and forms of education are created (Celik, 2020). Especially for people/students with disabilities, it is found that they concentrate, assimilate and master the delivered new knowledge better when they interact with the gamified environments of computing technology (Brown & Mbati, 2015). In the Greek education system, in recent years, a more substantial mobilization has been observed through decisions by the leaders who deal with the introduction and adoption of the computer as an alternative and effective means of education for the students of this group. Based on the above, it is considered that the gamified use of the computer, especially in their education, essentially plays a catalytic and subversive role regarding the development of their cognitive performance and development of their practical skills (Cherner et al., 2014).

The gamified form of teaching through the computer, in other words, constitutes an extremely important method for the achievement of learning and teaching goals and at the same time a scientific revelation of the therapeutic and recreational properties of (gamification) in the education of these students (Bontchev & Panayotova, 2017). In addition to the others, there is a multitude of professional psychologists, special educators and psychotherapists of the students of this group, who strongly advocate for their psycho-emotional and psycho-social stabilization and perhaps rehabilitation, during their engagement with this subject. In this sense, it is now considered that gamification is undoubtedly very successful in the education of students with disabilities. The feeling of pleasure that these students experience from gamification during their engagement in the teaching act, therefore, pushes them towards the conquest of self-discipline, the activation of their latent learning motivation and the acceptance and application of the rules of the school classroom. Also, they are observed to practice more patience and to be restrained in any form of their impulses and unconscious behaviors, as the nature of gamification consists in the aforementioned characteristics (Engerman et al., 2019). In addition to the teaching goals, therefore, gamification requires rules that act as guidelines and instructions, which they must follow in order to achieve the goals and improve their skills (Boholano, 2017; Dagnino et al., 2019).

Conclusions – Suggestions:-

In any case, it is more obvious that through the gamified integration and use of the computer –as a co-assistive tool and medium– of the teaching and learning of people with disabilities, the whole image and form of their education is reconstructed and reformed, as methods and mechanisms are used that they are based on aesthetics and play, so that their action is encouraged and their thinking is changed through attraction. Through play and fun, therefore, motivation is provided and interest in their minds to learn is increased. The adoption, integration and utilization of gamification in all phases and stages of the education of the students of this particular group, in other words, is considered a necessary and imperative statutory condition of their cognitive development and psycho-emotional and behavioral improvement and promotion. The prevailing trend in recent years, after all, is the adoption and application of gamification practices in the support procedures during the learning project, especially for these individuals. As mentioned above, among others, gamification not only supports their education and learning in a multifaceted and multi-prismatic way, but in addition, they shape their behavior for the better through creativity, collaboration and self-guided studies.

Regarding the benefits that the gamified form of teaching provides to students with disabilities, it emerges in the most active and pioneering way that through the use of learning techniques provided by gamified environments, these students access knowledge and skills with ease, while from another is to minimize their negative emotions and impulsive behaviors. It has been proven that gamification increases the mental and practical skills, especially of these students, and stimulates their critical thinking and their participation in group collaborations. However, in order for there to be a result regarding the expanded application of gamification in the field of Special Education, there must be a change in the attitude and culture of the teachers of these students, so that the specific teaching method is adopted and utilized to the fullest and on a constant daily basis form of learning. In this way, the inherent weaknesses of most of these students regarding the correct gamified use of the computer in teaching are alleviated, since they do not have digital skills. Therefore, there is the possibility for teachers to use many and various successfully tested gamification programs and applications, such as Ripple Effects, through which these students have the possibility due to easy access to listen to digital narratives, enjoy interactive experiences and use virtual environments, that is, conditions, that contribute to the acquisition of cognitive, practical and social skills.

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