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RESEARCH ARTICLE

THE USE OF COMPUTER TECHNOLOGY AS A FACILITATING TOOL FOR TEACHING PEOPLE WITH DISABILITIES

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Abstract

The adoption and use of computer technology in the teaching and learning of people/students with disabilities, is now considered an imperative and inescapable need in the delivery of all knowledge subjects. Based on new studies and empirical research, the usefulness of using the computer and the opportunities and advantages it provides in the education of students of this special group is highlighted. The elaboration of this work, among others, was based on the critical-interpretative method of reviewing the modern data from research that favors the positive contribution of the computer as a facilitating tool and means of development of these students. In any case, the multi-level and diverse contribution of the specific digital medium to the substantial and effective improvement and promotion of both academic performance and practical skills and thinking of the students of this group is recognized.

Introduction:-

In various studies that have been published in valid and reliable scientific journals –by renowned scientists– in recent years, it is demonstrated that the adoption and use of the computer in the teaching of people with disabilities can improve the educational content and quality and be inextricably intertwined with the learning about real issues and situations. The integration and utilization of the computer in the educational process, therefore, allows learners to actively participate in learning and make decisions for themselves (Lin et al., 2012). Henceforth, it can be seen that there is no primacy of teacher-centered delivery and study of printed material in the form of exercises and solving practical activities. On the contrary, it is observed that with the introduction and integration of the computer in all phases and stages of the teaching process, the trainees - students interact easily and fluently with the specific digital medium and, at the same time, interact with the main organizer and controller of this process which is the respective teacher (Ertmer & Otternbreit-Leftwich, 2010).

In this sense, it is noted that computing technology creates new and ground-breaking digital educational opportunities and perspectives, particularly in the learning and development of these students. More and more new IT technologies and especially the computer attract the interest of students/users. The teaching and pedagogical-scientific training of students with disabilities through the computer, in fact, is constantly gaining intense attention from researchers regarding its contribution to their development and improvement in all areas (Boyinbode et al., 2013). The issue from now on is the adoption and use of the computer in a student-centered way and format, so that the students who fall into this group benefit to the fullest. Among other things, it is emphasized that computer technology facilitates the lives of both teachers and students during the learning process (Fokidis & Foniadaki, 2017).

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The adoption and use of the computer in the educational process and practice of these students, therefore, constitutes a methodological tool that brings about substantial changes in the role of the teacher and in the position of the students in school everyday life and life. The modern school and the modern evolving teacher, in other words, must operate from the perspective of a constantly changing and uncertain school environment, which constantly revises the methods and techniques of teaching and educating all its students as a whole. The important role of the computer in the academic course of these students, therefore, highlights its contribution to a large extent in the achievement of their educational goals and in the development of their practical skills and abilities (Alghazo & Al-Otaibi, 2016; Chatzara et al., 2014).

In this way, it can be seen that the computer constitutes that co-auxiliary and at the same time digital educational tool for the teaching of these individuals, so as to overcome the obstacles and difficulties that appear in the process and duration of learning towards the heuristic and discovery course of acquiring the of knowledge (Areej, 2018). However, it should be noted that the opinions of –experts regarding the integration, use and acceptance of the computer– in the education of these students are divided, as there is a portion that claims that their performance improves when the computer is used in the pedagogical-teaching process and, on the other hand, an equally important portion, which considers that the computer does not contribute enough or at all to their development and promotion (Au et al., 2018; McCullum et al., 2014). Nevertheless, while in recent years there has been a wide increase in research and studies on the impact of computer technology on the progress of students without disabilities and/or special educational needs, on the contrary, there is little empirical research investigating its usefulness computer in their teaching and learning (Patti & Garland, 2015; Polydoros, 2021a).

The inclusion of the computer in the education and teaching of people with disabilities

Obviously, the inclusion and utilization of the computer in the teaching of students with disabilities, provides the possibility for teachers to integrate symbols, sounds, images and videos into the educational process. In this way, they have the opportunity to create simulation conditions, with the aim of the easier and unhindered transmission of information and knowledge. The new way of presenting and approaching knowledge is related to child-centered and socio-centered theories, where especially the individuals of this group learn more easily and assimilate knowledge through discovery, investigation, collaboration and experimentation during the educational process (Harris & Hofer, 2011).

However, there are two ways of approaching knowledge through the use of the computer as an auxiliary tool in teaching and learning. One concerns the use of communication and information applications (Anderson & Dexter, 2005) by practicing activities on the Internet and the other, which is intertwined with the education of students with disabilities, concerns ready-made applications, which in essence are specialized software created for the purpose to contribute to their multimodal and diverse teaching. Hence these software are called "exploratory". Nevertheless, it is considered that the introduction of the computer to the teaching of these individuals entails the risks of creating false impressions regarding the objective analysis and interpretation of knowledge, with the result that they lead others astray in terms of their abilities and capabilities (Brannigan, 2010).

Especially for the students who fall into this category, it appears that their more frequent and substantial engagement with the computer in the school classroom contributes to building new knowledge through the selection, analysis, organization and utilization of various information and cognitive data. Also, they have the ability to critically evaluate the quality of the educational material and information they use through comparison during the teaching and learning processes. However, it is very difficult and sometimes impossible to model the adoption and use of computers in the pedagogical learning practices of people with disabilities. Taking into account the previous reports and scientific assumptions, it is judged that the results of the introduction of the specific tool in the education of the students of this group are below expectations, regardless of whether benefits are ensured in their teaching due to the interactivity, the intersubjectivity, the active participation of the students in the building knowledge and the multisensory presentation and representation of information and data (Stephen & Plowman, 2008; Wartella & Jennings, 2000; Waxman et al., 2003).

The aim is, of course, the design, development and pilot application of appropriate software, which will offer the maximum and optimum in the development of practical skills and in the promotion of the academic performance and potential of these students (Goncalves, 2005). Therefore, the design principles of these softwares must be oriented towards an open-type interactive multimedia environments with hypermedia structure and content. In other words, it is observed that while the development of these softwares has as its main and fundamental purpose the

enhancement of the performance of these students in exclusively cognitive areas and their practice of abilities/skills, in essence their functionality is limited and at the same time their effectiveness during application them, due to their structure, content and form of integration and utilization in the educational process and practice. This implies that educational software developed for the teaching and learning of disabled people are still used today either as drill and practice applications without tangible and measurable results or as digital multimedia libraries of images, videos and sounds that provide only for these students visual and recreational enjoyment, while at the level of cognitive and practical improvement nothing at all useful (Flood & Bamford, 2007; Gardner et al., 1993; Halverson, 2009).

In this sense, it is noted that the teaching of these students is preceded by the delivery of the knowledge objects by each teacher, while the computer is used as a mediating auxiliary technological means of serving and promoting the pedagogical-teaching goals to be achieved and accomplished (Earle, 2002). Given this, it is pointed out that the use of the computer, especially in the teaching of the people of this particular group, is used more to activate and motivate their dormant interest in the content of the lessons through the formation of the best conditions and conditions and, less or/and not at all about the technology itself (Dymoke, 2011). In this way, it must be understood that computing technology facilitates the promotion of educational goals with regard to these students, in a completely different and innovative way and format, which is more attractive and effective educationally and procedurally than traditional methods/conventional teaching and learning methods and techniques (Koutsogiannis, 2011).

The use of the computer as a means of acquiring skills for people with disabilities

The correct and correct adoption and use of computing technology in the teaching of these students must be done with planned and substantial actions, which will provide tangible results in this field. Under this logic, computing technology must be integrated into the pedagogical processes and teaching activities of their education in the safest and verifiably efficient way, so that there are visible benefits both in their academic progress and in the development of their practical skills (Glazer et al ., 2005). Taking into account the aforementioned, it is considered that for the essential introduction of the computer in the educational process in order for the students to acquire these skills, there must be: a) qualified teachers in the specific subject, b) continuous control of the procedures and actions of effective application and use of the computer and, c) a teaching and learning environment that must be designed based on the principles of computing technology that will encapsulate all modern trends and psycho-pedagogical techniques and methods of training these individuals (Hew & Brush, 2007).

However, in order to consider and be optimal and effective the use and acceptance of the computer (Hartley, 2007) in the educational process of students with disabilities, the following must be observed, implemented and ensured:

1. Clarification of the intended goals, the methods of achieving them and the evaluation of their results.
2. Control and selection of the appropriateness of the materials, means and software used and will be used in the teaching processes of these students, so that they are consistent with their age readiness, their learning profile and their interests (Lim, 2007).
3. Activation of learning motivation and the full participation of these individuals in the teaching practice through the computer.
4. Integration of their previous knowledge and experience in the way and form of using and exploiting the computer.
5. Continually ensuring incentives for the active use of the computer that will be consistent with the provision of flexibility during the stage of its integration into the educational process.
6. Continuous updating and enrichment of the material used by the computer to teach these individuals, so that there is a continuous flow of feedback that will be achieved by this process (Lawless & Pellegrino, 2007; Pelgrum, 2001).

Certainly, the introduction of computer technology in the teaching of students with disabilities redefines the educational context, context and philosophy of theories regarding its contribution to their educational becoming and reality (Christodoulou, 2016). The wide range that the use of the computer has, after all, in increasing educational opportunities and facilities, especially for people who are intrinsically possessed by heterogeneity and otherness such as students with disabilities, demonstrates and at the same time highlights its importance and weight in educational change, their development and improvement. In particular, it is noteworthy and noteworthy that the computer is a form of modification and reinforcement of the contents of the cognitive objects presented during the learning process and a way of alternative scientific teaching and innovative pedagogical-teaching principle and method (Tzimogiannis, 2007).

With the introduction and use of the computer in the process of strengthening and improving the performance and practical abilities of students with disabilities, therefore, all the conditions and procedures considered to be the most appropriate for their teaching and learning are ensured (Lane & McAndrew, 2010). Given this, it can be seen that as a digital auxiliary means the computer is used for the functionally correct management of information and data and, exclusively, for pedagogical-learning purposes and outcomes. In this way, it is considered that computing technology contributes to the development and teaching of educational activities designed for each teaching goal and for socio-cognitive student groups that are addressed respectively. In short, either the teachers or the students, who in this case are the people with disabilities, have the possibility to design, manage, implement, produce and evaluate practically all the stages and phases of the teaching-learning resources and processes (Misra & Bajpai, 2010; Natsis et al., 2014).

The acceptance and use of the computer by teachers as a supplementary teaching tool for people with disabilities

It is noteworthy that the development of systems, software and various interactive and multimedia activities and educational games with usability engineering for people/students with disabilities, tends/aims at the adaptation of computing technology to people of this special group, as well as the usability of the software by these individuals (Castro Sanchez & Aleman, 2011; Ward & Parr, 2010). In the light of this logic, the importance of the role of the human factor - the teacher in the use and integration of computing techniques and methods in the teaching practice takes on ever greater and more important dimensions (Hutchison & Reinking, 2011; Sang et al., 2011). Therefore, the human - educator must in this case when the computer functions as a producer of educational stimuli and reflections, to turn into a receiver of these computer stimuli/signals and to process and analyze appropriately and properly the information and data extracted from the specific digital and partially automated machine/tool (Palak & Walls, 2009; Simon, 2013).

The teachers who teach the people of this special group are entirely responsible for the appropriate use of the computer, so that through its integration into the learning process, they promote their transition to an environment that will be exclusively built and shaped on the needs and their peculiarities (Rahmat & Au, 2013). Based on what has been said, it is understood that the teachers who are responsible on a daily basis for teaching these students, that they need to handle the computer skillfully and know that as managers of the educational process and flow they must successfully direct and regulate the correct scientific and pedagogical function of offering teaching work of the specific digitally methodological tool and medium (Puurula, 2002).

In this way, it is recognized that neither advanced technological equipment, nor the presentation and delivery of knowledge objects through the computer, nor learning by using examples of good and effective didactics play a basic and important role in the teaching of individuals of this special group practices, but the appropriate rhythm (timing) that each teacher must adopt and integrate regarding the correct use of the computer in their teaching and learning (Plowman & Stephen, 2005). Teachers who are specialized in teaching these students, therefore, must take into account everything, the conditions and conditions under which they carry out their work (educational and socio-economic level/status of their students' families, language, school culture, relationships with colleagues, etc.). In addition, they must anticipate and take care of the needs and interests of each of their students, especially those who fall into the specific group (Han & Black, 2011) to set feasible and at the same time achievable goals for preparing their daily program using the computer and to know and recognize their capabilities and skills regarding their familiarity with the various forms of technological tools and the ways of integrating them into the learning process and practice (Chen & Chang, 2006; Hatzigianni, 2013).

Certainly, each teacher is possessed by his personal scientific-pedagogical influences, principles, values, attitudes, beliefs and ideologies. Nevertheless, it must ensure the all-round academic development, development and promotion of its students, at the same time facilitating their access to the tools and means of computing technology, as we are rapidly moving through the era of technological literacy and techno-vision. The adequate and qualified technologically/computers, in other words teacher, is the main and exclusively responsible for the degree of introduction and use of the computer by these students, so that they can carry out their various activities/tasks during the course of the knowledge subjects, for the type and suitability of the educational software available to him and he considers that they should be used, as well as for the methodological and strategic form of adopting and utilizing the computer in the teaching and learning processes (Kekkeris, 2010; Kekkeris, 2017).

Conclusions - Suggestions:-

Obviously, it is more obvious that computer technology is, now, a complementary and auxiliary tool of pedagogical use in the teaching and learning of disabled people in particular. With the introduction and use of the computer in the educational process and practice, creativity develops, academic performance increases and the practical skills of these individuals are improved. However, there are also the voices of many professionals and academics in the field, who argue that the use of computer technology in the teaching process does not provide any benefit at all to the learning development and promotion of both people with disabilities and those who do not have/are characterized by disability. Nevertheless, most academic scholars and researchers of the specific subject, consider that there is visibly significant and substantial progress of students in all areas, especially those who fall into this particular group, from the correct use and utilization of the computer during conducting the academic subjects of the schools' timetable. In short, the use of the computer in the education of these students contributes to the improvement of their performance, to the upgrading of teaching in terms of aesthetics, experiences and experiences, to the strengthening of their self-efficacy, to the increase of their motivation for learning, to their awakening to experiment, explore and discover and to activate their skills.

On the contrary, however, there is a lack of serious research and studies on the contribution of computing technology to the development and improvement of students with disabilities. All the existing studies extend and aim to draw conclusions in relation to the involvement of the computer as a complementary and auxiliary tool in the teaching and learning processes and procedures of people without special educational needs. In this sense, large gaps are observed regarding the adoption and acceptance of the computer as a co-auxiliary teaching tool for these individuals. Consequently, serious decisions need to be taken by the educational policy authorities dealing with the specific subject, so as to mitigate the gap and eliminate the obstacles that delay the substantial and effective application of computing technology in the education of students of this group. Among other things, there must be a continuous and lasting evaluation of the results of the use of the computer as a supplementary tool and means of teaching these students. Also, easy-to-use educational software must be created for these students, who will have the ability to edit them without difficulty and adapt them to their pedagogical-learning needs and skills. Finally, it is considered to be an inexorable and imperative need and condition, the targeted training and specialization of special educators on the correct and effective adoption and use of the computer, in order to fully fulfill their task and their mission.

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