Technological innovation at the service of the educational inclusion of children with disabilities: digital education

AHMED Bouajila, ASMA jebahi, BARAA Hbazi, AmalBen Aziza

Abstract: *This article explores the uses of technological innovation in the service of the educational inclusion of children with disabilities. Digital technology can and must be used in this overall process of innovation, even to adapt the school to its evolving environment.*

The aim of the study was to list the existing digital education likely to promote the school inclusion of children with disabilities, to identify the challenges to the implementation of these technologies in the classrooms of certain countries.

In fact, several researches show that the implementation of technological innovation in the classroom helps to improve the learning process, increases student motivation and facilitates the work of the teacher. Some research is also reviewed in this research review.

Key words*: Technological innovation, inclusion, digital education, disabled child, inclusive school.*

I. Introduction

An inclusive school environment enables all students to learn, whatever their needs. To do this, pedagogical differentiation and careful arrangements are necessary.

First, teaching must be responsive to the diversity of learners in the classroom. Inclusion is a fundamental concept in which the needs of learners with learning disabilities are taken into account and learning environments are inclusive [1]. (Fig.01)

Fig.01 Learning through NICTs

We are now talking about a paradigm shift where it is no longer the students who must adapt to the environment, but the environment which must adapt to the students' needs. These accommodations allow the learner to fully participate in normal classroom learning activities [2].

From an educational point of view, the omnipresence of information and communication technologies in our daily lives is the catalyst for a profound organizational and pedagogical transformation.[3] Thus digital

becomes the most obvious corollary of innovation. Integrating these technologies into the educational process is no longer optional. It is imperative to take this into account in any attempt to adapt education to the modern world.[4]

According to UNESCO "information and communication technologies (ICT) have become in a short time one of the pillars of modern society. Today, many countries consider the understanding of these technologies and the mastery of their key concepts and skills as an integral part of basic education, as well as reading, writing and arithmetic" [5].(Fig.02)
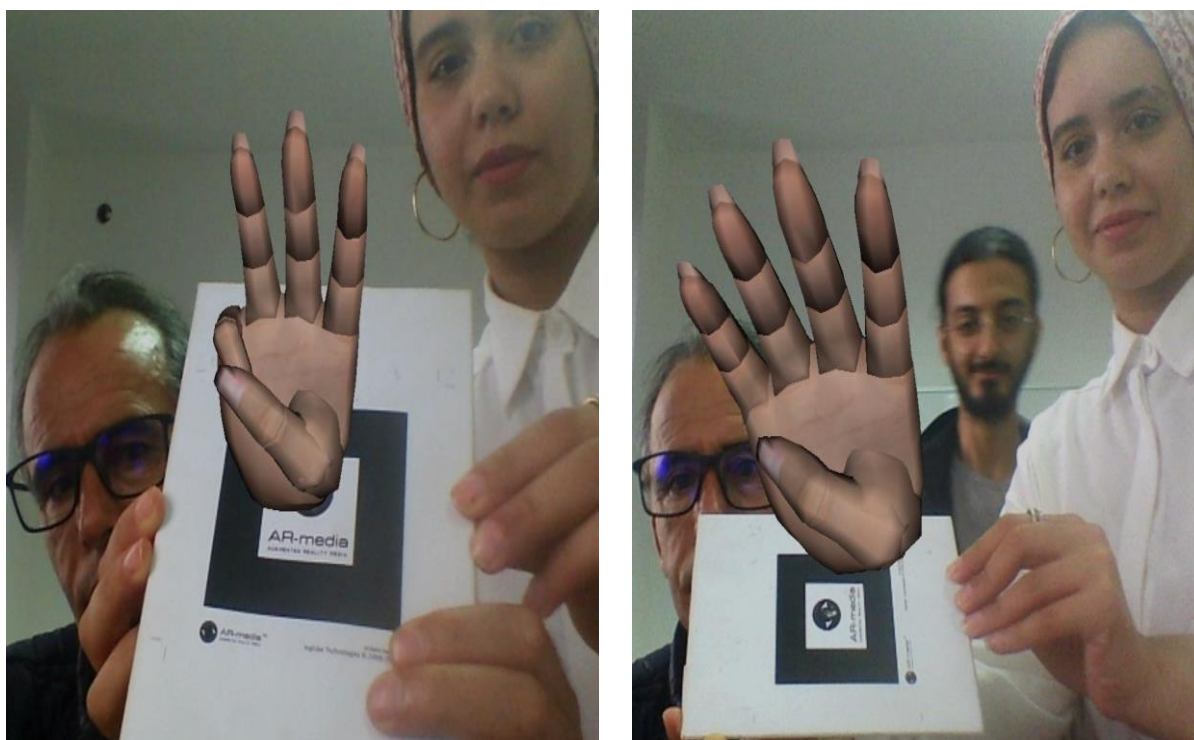

Fig.02Augmented Reality Learning

These digital convergences lead in particular to the simplification and generalization of the possibilities of production and processing of information flows (texts, sounds, images, design), leading to profound transformations on the individual, societies and the world in general. .

This is all the more true since learners, in almost every country in the world, have fully personalized technological tools and practices, often better than the teachers and trainers themselves.

For its part, digital inclusion (e-inclusion) [6] is often used to refer to the use of digital technologies with the aim of removing the barriers that can hinder learning.

II. Problem

How does technological innovation ensure the educational inclusion of children with disabilities?

III. Inclusive Education And Digital Inclusion

Inclusive education means that the school accommodates the needs of a student with special needs. These adaptations allow the learner to fully participate in normal classroom learning activities [7].

The use of technological tools (word prediction, sound synthesis, etc.) is an example of inclusive education. Nowadays, we can observe a paradigm shift regarding the new vision of inclusion. Inclusive education seeks to meet all the needs of the whole student, even those with special needs. In other words, the school seeks to remove the obstacles that hinder learning, it aims to develop everyone's full potential, making resources accessible to all students certainly helps students with difficulties, but to activate more the potential of other learners in the class.

Research now suggests digital inclusion (e-inclusion) [8], a much newer term often used to refer to the use of digital technologies, as a way to break down barriers that can impede 'learning'. Digital tools allow the disabled learner to develop a certain autonomy or autonomy. Also, through collaboration and interaction, the use of technology allows students to have rich learning experiences.

The use of technology allows learners to access unprecedented social and inclusive wealth.

According to Abbott, to successfully create an inclusive environment using technology, one must first understand that there are three approaches [1]

3.1 technology to form or repeat

The first approach is to use technology to train or rehearse. While this method has its place, it should be a secondary approach or used only when necessary, as it is outdated and even criticized. Often, teachers use this approach because it is easy to prepare and the activity arouses little dissatisfaction among young people.

3.2 technology to facilitate learning

The second category of digital inclusion involves the use of technology to facilitate learning. The application of digital technologies that follow this model is generally not tied to a specific theoretical model of learning. This approach is described as an aid to learning rather than the primary agency through which learning takes place. [1].

IV.   Technology to enable learning

A third approach, which describes much less than classroom practice, is the use of technology to enable learning. Here, the use of technology makes learning possible where it was not possible before. In this case, technology can be mobilized to play an active role in the learning process, for example by asking questions during an activity or by providing simulations or interactive scenarios. This can include using technology to facilitate the creation of collaborations and communities where learners work together.

When students participate, they analyze and evaluate their skills or the method they have chosen to solve a problem. The richness of the exchanges allows the students to ask themselves questions about logic in order to make a judgment which ultimately leads to the completion of the task. The discussions enrich the cognitive and metacognitive levels of the students. All of these exchanges can be supported by technology. When a learner can mobilize their skills and knowledge, they develop the ability to interact with their peers and find their place in the world [9]. Listening, empathy, assertiveness, openness, solidarity and cooperation are essential to developing citizenship in the digital age.

V.   The computer as a compulsory teaching tool

It is important that computers and other electronic aids are integrated into daily educational practice. One of the tasks of schools, whatever their type, is to prepare children and young people for adult life. ICT must tend towards the universality of education, so that children and young people, wherever they are, have access to this tool [10].

The media competence required in everyday life and in school goes far beyond the mere "use" of media armed with software, programs and various functions, and a computer can take over the mantle of quality teaching. . It is a communication tool, a means of representation of the courses, complementary to the teacher. An experienced teacher takes advantage of this innovation to enrich and diversify his classic course in order to satisfy the students.

VI.   Discussion

Digital is the environment we currently live in. It then becomes clear that technology is and will be an integral part of pedagogy in the 21st century. The place of digital technology in education must also be expanded. These tools are increasingly essential for today's learners.

The new generation of students with disabilities needs to learn broad technology-related skills. They will need to communicate, interact, compose, create, design, collaborate and think critically.

To respond to the characteristics of learners, educational establishments and educators are called upon to rethink their teaching practices, in order to integrate a global pedagogy while supporting the new possibilities offered by technologies. Warschauer shows that a lack of mastery of techniques can make young learners vulnerable to exclusion [11].

Students with disabilities must have the tools to obtain, analyze, then interpret and apply information in a new context. This successful style of learning is only possible if educational institutions make educational changes that are more relevant to today's clients.

However, if school administrators do not make enough changes to meet the new needs of students, they risk facing a setback in their learning. On reflection, it is interesting to see to what extent educational institutions should continue to develop a curriculum for 21st century learners as well as create environments that are conducive to new contemporary knowledge.

VII.   Conclusion

In conclusion, it should be noted that this research has made it possible to properly link the use of different technologies in order to promote an inclusive environment for students with disabilities. Teachers collaborating with new learners must find teaching methods that take into account the needs of the students. To do this, it is inconceivable today to teach in a classroom without implementing strategies that promote an inclusive space. First, this study highlights the importance of inclusive education. This basic concept states that amenities must be provided to meet the student's needs. These accommodations allow the learner to fully participate in normal classroom learning activities [2].

In addition, the school must focus teaching on learning methods rather than on the transmission of knowledge, play a role of mediator in the face of the abundance of knowledge available, encourage research, teach values, make people responsible in the face of digital uses and give learners a spirit of analysis and criticism. "The upheaval of the digital and the evolution of behaviors induced by its use as a tool by the market economy impose themselves on the school which must more than ever want to be the place of construction of thought freed from the primordial body, restoring time and learning are fundamental to obtaining a reprieve. » [12].

Finally, research has shown that the use of technology actually improves the inclusion of children with disabilities. However, how to develop the technological infrastructure in schools to ensure effective integration of these tools? How are teachers (experienced or new) trained to adopt this holistic vision of education in order to better meet the needs of learners?

Inclusion certainly plays a crucial and indispensable role in the training of young learners with disabilities. It is only a matter of raising awareness before technology takes its place in schools to advance the Universal Design for learning approach.

Bibliography

[1].   Abbott, C. (2007). Futurelab Séries : Report 15. E-inclusion : Learning difficulties and digital technologies.
[2].   Fridhi, A., Bali, N., Rebai, N., & Kouki, R. (2020). Geospatial Virtual/Augmented Environment: Applications for Children with Pervasive Developmental Disorders. *Neurophysiology*, *52*(3), 239-246.
[3].   Lebossé, C. (2019, mars). Des pistes prometteuses pour mieux s'adapter à la diversité des élèves et concrétiser une éducation inclusive. L'École branchée, 21, 8-11.
[4].   Fridhi, A., & Bali, N. (2021). Science Education and Augmented Reality: Interaction of students with Avatars Modeled in Augmented Reality. *International Journal of Environmental Science*, *6*.
[5].   UNESCO. (2008). ICT competency standards for teachers. Competency standard modules. Paris, France: UNESCO.
[6].   Pellerin, M. (2013a). E-inclusion in Early French Immersion Classrooms: Using Digital Technologies to Support Inclusive Practices That Meet the Needs of All Learners. Canadian Journal of Education, 36(1), 44-70.
[7].   Laribi, R., Fridhi, A., & Rebai, N. (2021). The impact of augmented reality in improving non-verbal communication in children and young adults with autism spectrum disorder (ASD). *International Journal of Education and Learning Systems*, *6*.
[8].   Pellerin, M. (2013b). E-inclusion Approach: Promoting French Immersion for All. Association canadienne des professeurs d'immersion : Le journal de l'immersion, 35(3), 20-22.
[9].   Paradis, M. et Petit, B. (2019, mars). Citoyen en devenir à l'ère numérique : Développer l'autonomie de toutes et tous. L'École branchée, 21, 35-37.
[10].   L'éducation et la nouvelle technologie pour le 21ème siècle (Internationale de l'éducation-Novembre 1995).La revue de l'EPI N°81, p.1.
[11].   Warschauer, M. (2003). Technology and Social Inclusion: Rethinking the Digital Divide. MA : MIT. Dans S. Collin & T. Karsenti (2013). Usages des technologies en éducation : analyse des enjeux socioculturels. TIC et éducation : avantages, défis et perspectives futures, 41(1), 192-210.
[12].   Meirieu, P. (2012). La pédagogie et le numérique : des outils pour trancher ? In. Kambouchner, Denis, Meirieu, Philippe, Stiegler, Bernard « L'école, le numérique et la société qui vient ». Mille et une nuits.