

# The role of ICT in the development of children's' with disabilities

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## Abstract

Opportunities for children with disabilities to attend school on an equal footing with their peers are frequently emphasized, despite the fact that many children with disabilities remain segregated. For children with impairments, information and communication technology (ICT) has been recognized as a tool for communication and inclusion. ICT (Information and Communication Technologies) has generated the so-called “digital gap” as a result of technological advancement. Some people are unable to respond to advancement on an individual basis, but with the right use of ICT, they can overcome this handicap. Higher education is becoming more accessible to students with disabilities. In this study, we have discussed the benefits that ICT are providing to these students and the people with normal life as well. ICT have revolutionized the world and are serving in a better way. Further, we have discussed a study to compare the usage of ICT in school activities of two groups of students with physical disabilities, those who used and those who did not use a computer-based assistive technology device (ATD), and students from the general population. We present a study about main problems reported in a survey in some latinamerican countries in the use of ICT supporting teaching-learning process for disabled children.

## Keywords

Information and communication technology, ICT, computer-based assistive technology device, ATD, students with disabilities

## 1. Introduction

Higher education is seeing an increase in the number of students with impairments, and studies show that these students have more difficulty coping with academic skills and/or inadequate learning practices than students without disabilities. Information and Communication Technologies (ICT) allow students to compensate for their limitations in appropriate ways, allowing them to use compensatory academic skills. They can assist users in writing, spelling, planning, organizing, editing, and calculating, as well as assisting them in studying and expressing their requirements [1]. Creative advances over the latest several years have helped the blend and change of people with remarkable necessities in all fields of work. These progressions grant people with this issue to contribute at the work market in this manner cultivating an all the freer life for themselves. From one side of the planet to the other, the state of People with a Visual Disabilities (PVI) had been dubious as far as admittance to data and open doors; in Nigeria, particularly in Oyo, Oyo State, the understudies with outwardly disabled were not just the survivors of actual conditions, yet additionally the objects of the conscious and accidental segregation [2]. They appreciate almost no admittance to all types of social interest. [3]. The concurred objective of introducing various instances of training was not to depict or inspect the mechanical parts of ICT use

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in schooling. Maybe the main goal was to feature the various conceivable outcomes and likely advantages of applying ICT in changed and possibly creative routes in totally different worldwide instructive settings and settings for individuals with incapacities. To accomplish this objective, models from a scope of geological what's more instructive circumstances needed to be thought of. It was additionally important to guarantee that models from "modern" instructive settings were gathered beyond what many would consider possible. Inside the thought of potential models, development was considered as the utilization of regular innovation in unforeseen or untried ways inside a specific instructive setting or setting, just as the utilization of recently evolved innovations for schooling [4]. What's more, the models gathered for this Review have been chosen to outline how ICT in instruction for individuals with incapacities can be utilized viably and in inventive routes according to four topical regions that rise out of a thought of the key messages inside the UN Convention. These connect with ICT to help: individual admittance to data and information, learning and showing circumstances, individual correspondence and communication, lastly, admittance to instructive managerial strategies for individuals with handicaps [5]. Computer-based ATD can compensate for activity limitations and promote the use of the computer as an educational tool and/or as an alternative tool for learning for those children who do have motor or cognitive limitations, allowing them to participate independently in the same educational activities as their peers, such as writing and browsing through a book [6].

## **2. The Role of ICT in the enhancement of disabilities**

Inability is not the same as a disability. Only when a condition hinders someone from accomplishing what they want or need to do is it truly a disability. Physical obstacles can be overcome with the use of technology and communication gadgets. By supporting personal access to information and knowledge, learning and teaching situations, personal communication and interaction, and access to educational administrative procedures, information, and communication technologies (ICT) provide a model for allowing people with disabilities to better integrate socially and economically into their communities. The merging ICT is critical for developing countries to achieve long-term development. ICT applications help people with disabilities better integrate into their communities on a social and economic level. They are designed to improve the functional capabilities of people with disabilities. Some are relatively low-tech and very familiar, such as such as reading glasses, crutches and hearing aids. Others are more advanced, using cutting-edge science and technology under development that could have a huge impact on all our lives. Accessible ICT can be utilized to remove or reduce barriers to socioeconomic involvement for people with disabilities, hence lowering the inequities indicated, becoming tools for enhancing functioning and active involvement in vital tasks such as acquiring an education, finding work and developing a living, and exercising civic rights, as well as a method of accessing information and social participation.

## **3. The Role in the development and modernization**

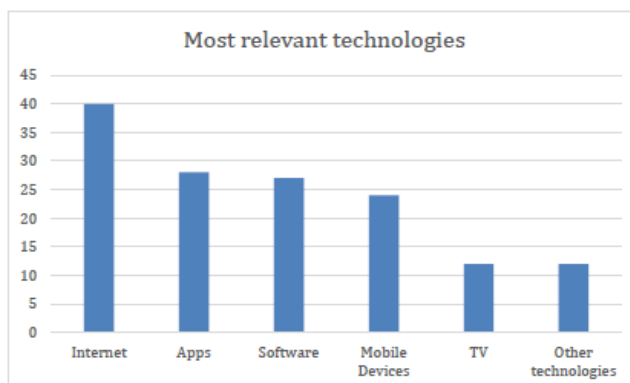
The job of ICT training in the walk towards the turn of events and modernization of any general public couldn't be overlooked. Science and innovation were vital parts of the divider partitioning neediness and success. Data Technologies were thusly, key parts of the improvement challenge. Incorporating society with data and innovation requires a converging of school what's more society, particularly where the social and social qualities in addition to mechanical directions are consumed into the educational system. Such had been the act of creating nations in Europe and America. [7]. Outwardly weakened PC utilized all around the world hurled a moan of alleviation with the presentation of the "Dolphin Pen"; a thumb drive gadget that makes it simple for clients to have their full amplification programming, screen per user or Braille programming on a PC where they are. Dolphin Pen runs from a USB pen drive, which connects directly to a USB port of a PC. Clients have a decision of screen per user, amplification programming or the universes just joined full screen per user/magnifier. This helps permit Visual Impairment clients to convey in their pocket their decision of assistive programming and individual settings that suits their sight misfortune. The significance of ICT

to the people with outwardly disabled could not be over-stressed [8]. On account of composing correspondence, utilizing a pen and a piece of paper to compose a letter or task can be burdensome and tedious for understudies who cannot see as expected, and unreasonable for the individuals who are absolutely visually impaired. Nonetheless, the boundaries against composing correspondence can be diminished with the joined utilization of ICT. For instance, blind understudies can achieve composing undertakings by utilizing PCs with Braille capacity. A few understudies utilize committed electronic word processors for note-taking in classes, delivering records that can be saved electronically and moved to a work area or PC [9]. Additionally, youngsters with vision debilitations join their utilization of assistive advances with applications and the implicit openness highlights of compact gadgets (for example cell phones and tablets) for short and speedy composing messages [10]. Web-based instruments are likewise supplementing oral and face-to-face correspondence of individuals with vision hindrances. Notwithstanding calls, video talks (for example Skype) and online media (for example Facebook and Twitter) are instrumenting that youngsters with vision weaknesses use routinely for correspondence [11].

#### 4. A study in some latinamerican countries

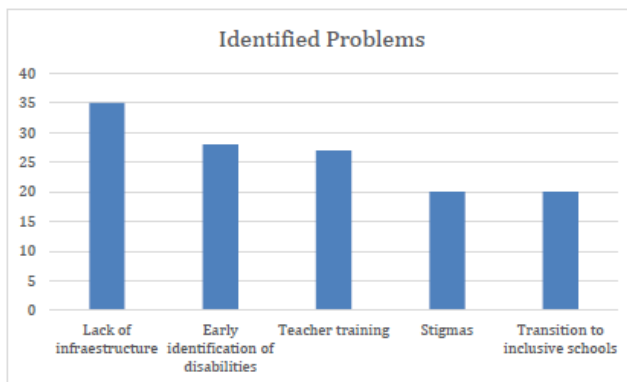
Over the last two decades, the rights of persons with disabilities have gained ground in the regional policy agenda of many countries in Latin America and the Caribbean, where their governments have made important strides towards protecting and promoting the rights and inclusion of persons with disabilities. For example, all 19 Latin American countries and 11 Caribbean countries have ratified the Convention on the Rights of Persons with Disabilities (CRPD). Countries in the region have sought to implement the CRPD through the adoption of national-level legislation, the establishment of national institutes and councils and the implementation of strategies, policies and programs [12].

It is estimated that approximately 7 per cent of people in Latin America and the Caribbean are living with a disability. The population with a disability is diverse, not only due to the different types of disabilities they experience and their severity but also to the interaction between the disability status and other factors, such as age, gender, race/ethnicity, place of residence and socioeconomic status. Although disability is generally associated with disadvantage, it is important to note that not all persons with disabilities experience the same degree of disadvantage and exclusion [13]. In order to obtain a better idea about current situation in some latinamerican countries, we did a survey to different latinamerican researchers who have been working on ICT in education for disabled people. We surveyed 42 people from Colombia, Mexico, Costa Rica, Brasil, Argentina, Perú and Ecuador. The first question was about the most relevant technologies that have a potential impact for the inclusion of disabled people. They could select more than one technology. Figure 1 depicts some of the results obtained.



**Figure 1:** Most relevant technologies in latinamerican countries

Different types of technologies can foster greater access to information, products and services, including inclusive mobile and other devices, and Internet. Access to information and knowledge can enable people to make better decisions and choices in different spheres of their lives. Through these technologies, people are able to express these decisions and to exercise their right to freedom of expression and opinion. ICT can also facilitate access to health services, to education and training as well as to work. It is important to notice how “Other Technologies” like wearables, Screen readers, and use of Artificial Intelligence, begin to be used as tools supporting disabled people. The second question was about the most relevant problems people have in order to better support use of ICT for disabled people. Figure 2 depicts the main results.



**Figure 2:** Identified problems

Surveyed people suggested that many schools do not have the appropriate infrastructure to facilitate the inclusion of students with motor disabilities [14]. The surveys revealed serious deficiencies in school infrastructure (a few academic institutions have ramps for access and circulation; they do not have large enough toilets with handles). Many institutions are not prepared to address children and youth with mobility disabilities.

Another identified problem is the lack of information regarding the accessibility for students with visual, auditory, cognitive and other disabilities. Many surveyed people identified the late or non-identification of children with disabilities as an important problem. Children with disabilities from an early age faces various risk factors that will impact their development and, possibly, survival.

Screening and early detection after birth and during early childhood is a very important step to prevent impairments and disability in the future [15]. It is the goal of the screening protocols that early detection leads to early intervention, which will reduce the impact of impairments after birth. Once an impairment or condition is identified, the child and the parents must be referred to a physician at a secondary health facility. Early childhood is a crucial period for a child’s development and it is a timely opportunity to ensure the beginning of a strong foundation that will influence the child’s entire life. Early diagnosis of a disability rather than later is crucial when promoting inclusiveness and preventing the potential of severe development issues. For instance, studies show evidence that intervention at an early stage in a child’s life in the spectrum of autism has a greater positive impact than when introduced later [16]. Studies also have shown that delays in the diagnosis of hearing difficulties can lead to developmental delays that could have been prevented [17]. In the absence of early intervention for children and support to families, it is likely that the disability can become more severe, leading to lifetime consequences, increased poverty, and exclusion [13]. The opportunity for early identification of a disability usually occurs at a health center, sometimes as early as birth when newborn babies are screened for auditory and other disabilities. Health assessments can be complemented with those of a school to ensure that children are receiving adequate support throughout their academic life. Improved assessments can inform the educational system of the number of children and youth with disabilities enrolling each year so as to provide adequate resources and capacities at the ministry and schools levels.

An essential component to promote effective learning for all children and youth is their access to teachers who are effective. Providing teacher training will also enable the early detection of disabilities and inform of the challenges that students with disabilities face. Teachers are crucial to positive student learning and they play an essential role in not only promoting environments that are inclusive but also

providing learning for all. In order to do this, teachers should be provided appropriate training and resources (e.g., teacher aids) to enable them to proactively manage diversity in the classroom [18]. Many countries in some Latinamerican countries have significant numbers of students within a class, which presents its own set of challenges. Furthermore, teachers lack the capacities to address children with functional difficulties and behavioral disorders.

In relation to inclusive education, this means that trainee teachers and experienced teachers need to learn about the concept of inclusive education, but then also need plenty of opportunities to both observe and implement the theories in practice, ideally with support from experienced colleagues or mentors. They need to be facilitated to reflect on how their practices relate to educational theory, and how they can turn theoretically good ideas into sound practice.

One last important problem has been stigma, due to in many cases, people continue to consider disabilities a taboo, so it is necessary to create policies about the essentiality of education inclusion. Schools with student diversity already have the basis to shift attitudes among stakeholders in the education system, thereby contributing to a society that is void of discrimination

Finally, we asked about some suggestions and recommendations about how to improve use of ICT in teaching-learning scenarios for disabled people. The major part of the surveyed people manifested the definition and creation of regional policy frameworks.

The existence of a normative framework and policies can promote availability of accessible ICT for persons with disabilities. These laws and policies can regulate and enforce accessibility requirements and standards, for example, requiring manufacturers to incorporate accessibility features or require that they modify the existing design; they can also be instrumental in the dissemination of accessible ICT for persons with disabilities, including supporting service delivery infrastructure, funding schemes to subsidize the development and distribution of accessible ICT, and influencing market prices of these technologies (Samant, 2013). More broadly speaking, the existence of laws enshrining the right to access to ICT among persons with disabilities can help to generate demands among the population with disabilities and civil society organizations for the progressive fulfilment of those rights.

## **5. Conclusions and further works**

ICT expect a couple of engaging parts for the school change of children. Considering that students with inadequacies will undoubtedly leave tertiary guidance than their non-impaired friends, a normal line of inquiry and practice can look at how exceptional advances may be involved towards students with impediment's support and responsibility in high-level training. This study is moreover lucky for insufficiency expert centers who may use its encounters to teach the development and execution in regards to blended assistance programs and to interface adequately with adolescents with impairments to grasp their altered points of view and necessities.

It is important that action to respond to the challenge of inclusivity does not target people with disabilities only. For example, the problems of discrimination and stigma require broad attitudinal and organizational change that permeates society.

We have presented a study that describes a range of future technical and regulatory developments that could offer substantial support for the inclusion of people with disabilities in society, education and jobs in some Latinamerican countries. However, it also highlighted the range of technologies and regulations that are already available but are not used to their full effect. While waiting for future ATs, the focus could be on the implementation of current legal frameworks, exploring how current technologies can be used more effectively and taking steps to overcome social discrimination and stigma. The future may be promising, but steps can already be taken now to achieve a more inclusive society today.

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