



## Contemporaneity of Language and Literature in the Robotized Millennium

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### Merits and Demerits of Using ICT in Teaching and E-Learning Platforms: Specially from the Perspectives of the Visually Challenged Persons

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#### Abstract

Nowadays, the teaching and learning process has been developed with ICT for accessing and utilizing the educational resources, especially for the visually challenged teachers and learners with many assistive technologies. The tough situations of all the visually challenged persons and their educational needs were at first fulfilled with the accessibility of Braille resources and further with many softwares or Braille machines. Even if so, there was less inclusiveness and equality in the teaching-learning process of all the visually challenged persons in the world. So the ICT has been developed with various accessible assistive technologies for the visually impaired persons in order to fulfill their educational equality. Now, in this digital age, everything is highly possible for them especially in their teaching-learning process better than that of their obstacles and barriers in the previous age. Nowadays, all the visually challenged teachers and learners are facilitated with 'Online Educational Resources' and 'E-Learning Platforms' from which they can freely access. But even if there is a kind of ICT and Assistive Technological development, they are facing both the merits and demerits in their access to those digitalized developments. Therefore, this research article intends to bring out, the merits and the demerits of using ICT in teaching and e-learning platforms specially from the perspectives of the visually challenged teachers and learners. Merits and demerits of the development of ICT and assistive technology specially, for the visually challenged persons are dealt here with the specific reference to the step-by-step development in their survival for getting the fulfilled teaching-learning process equal to that of the other non-differently abled persons.

Keywords: ICT, Assistive Technology, merits, demerits, educational growth of visually challenged teachers and learners.

#### Full Paper

In this twenty-first century, knowledge and information are the main keys of obtaining the productivity, competition, wealth and comfort. So people have started to give importance to gain better quality of education. Education in this twenty-first century is the centre from which all changes and developments arise. Today's information and communication technology (ICT) has the ability of facilitating the educational needs and learning process of any kind of students. It also provides necessary educational information when it is needed. Computers and the ICTs in particular have undoubtedly revolutionized the field of education. The student teacher interaction has drastically changed since the introduction of technology based class structure. The teacher is no longer the centre of the classroom but rather a middleman between information and student. Instead of a being passive listener, the students now become active in gaining, rearranging and displaying information. So, this kind of revolutionary change in education itself became the main reason for the gradual erasure of borders in this digital era. Nowadays, almost any person despite their citizenship of physical state can get medical or educational services all around the world. To regulate such relationships between a person and international organizations, there are many kinds of specialized commissions creating laws and standards. The educational standards claim that students with disabilities should be provided with opportunities to realize their potential. They should participate in education and training on the same basis as students without disabilities and that they are not subject to discrimination. Due to the progress in the IT industry, digital technologies are easily accessible and widespread which allows using them for providing the visually challenged students with new opportunities.

It is further to say, "In education, Information and Communication Technologies (ICTs) have changed the way of accessing and utilizing learning, teaching and research resources. Despite the availability of a growing number of technology enhanced and sophisticated assistive devices that provide alternative formats to support the learning of visually impaired students, there are numerous challenges in when it comes to accessing and using ICTs tools" (Eligi, 2017 87). So, in order to understand the impact of tech-based or ICT-based education from the perspectives of the visually challenged teachers and learners, it is more important to concentrate on the merits and demerits or advantages and disadvantages and issues and challenges of using ICT in teaching and E-Learning platforms. Thus, the resources for this analysis have been taken and cited from many research articles of various journals which are relevant to the study. At the same time, some of the details which are mentioned in this analysis are from the direct perspectives of many of the visually challenged teachers and the learners. Therefore, this research article intends to bring out, the merits and the demerits of using ICT in teaching and e-learning platforms specially from the perspectives of the visually challenged teachers and learners. This research article also tries to prove how technology can simplify the educational process for people with disabilities. Merits and demerits of the development of ICT and assistive technology specially, for the visually challenged persons are dealt here with the specific reference to the step-by-step development in their survival for getting the fulfilled teaching-learning process equal to that of the other non-differently-abled persons.

Eighth Edition of M.L.A. Handbook for Writers of Research Papers has properly used for citation of this research article. Once there was a kind of tough situation for all the visually challenged people to depend on others for everything in their life. This kind of dependency was also continued even to get their primary education. They were discriminated and also degraded to be educated. The parents of the visually challenged children also experienced difficulties to make their children to be educated because of their lack of awareness and also because of less technological developments. Even if it was possible for a few visually challenged persons to be educated after many struggles, there existed a barrier that, his or her parents were illiterate. So those kinds of challenged persons were lacked with readability, accessibility especially for writing the examinations.

In their life, the visually challenged persons were at first facilitated with the use of Braille board and Stylus for the purpose of reading and writing through some identification of dots through touching by a finger. So that was a primary relief for them to learn the alphabets of French and English, and then, it got introduced to many other international languages. Tailor Frame was also introduced in order to learn Mathematics. Later, many schools were started in all over the world specially to educate the visually challenged persons. But there are very few colleges in this world, specially for the visually challenged persons. Those few colleges are still now teaching them only to learn the basics of self-employment. But they are not facilitating the students with any other degree courses. Presently, it is the condition for them that they should get their education through a college or university by integrating themselves with all other sighted persons. This kind of integrated education was also made available to them after many struggles, both in schools, colleges and universities. The challenges of the challenged persons got increased in order to prove their equality in academic, extra-learning and other curricular activities.

Now it became quite difficult for them to access many reading materials through copying it in Braille. So a device named Perkins Braille was introduced as a kind of Braille Type-Writer, in order to make the work easier. But Braille, Tailor Frame and Perkins Braille were the kinds of only manual devices, but not the kind of computerized or technologically developed softwares. Now, all the visually challenged persons were started to enter into the professional world after facing a lot of struggles to be educated. In countries like India, many of them were taking teaching as their profession as a passion because of their own interest in facilitating others. Nondisabled people may say that, teaching profession is a kind of easy and stress-free job specially, for the persons with disability like visually challenged. But, it is not so, because those visually challenged or other differently-abled teachers are still now surviving in their teaching profession by overcoming a lot of personal and official or administrative problems, struggles, barriers and difficulties. It is a kind of rhetorical question 'Why there is a struggle in the professional life of the visually challenged persons?' may rise in the human minds. Yes, there is an answer, that is, now they are living in the world of 'Digital Natives' as 'Digital Migrants'. So, it is proved that all the visually challenged students and teachers must have the 'Digital Equity'. Meaning to say that, they are specially in need of a development of Information and Communication Technology for the teaching-learning process in the name of Assistive Technology.

World Health Organization defined the assistive technology as any product or technology supported services which enable the disabled to lead a normal life. In recent years, technology plays a crucial role in the development of teaching learning process due to ease in usage of computer and its supporting accessories. Hence researchers are being motivated towards developing tools for automation of an existing classical system. Individual's ability should be identified before recommending an assistive technology to disabled person. Many years later, in the year 1980, the software named Braille was introduced to the world. It was later followed by Braille Editors, Index Braille App. Index Braille App can so far print Braille, preview, edit any translated Braille document and manage the set up of the B5 printer. Index Direct Braille (DBT), Duxbury U.S. Odt2 Braille, EiTics Print Tactile Graphic Editor, Euler, Dolphin Easy Conver, Biblos are all other kinds of the development of technology as the kinds of softwares, which can transform and edit the text or a document and also set a format it as a Braille material.

These kinds of Braille Printer softwares are not at all enough for those people in this rapidly developing digital world. Information and Communication Technology (ICT) has now been recognized as the driving force and primary gadget for almost all progressive knowledge-based and skills-oriented development activities and initiatives in all spheres of human endeavour. Consequently, many people recognize ICTs as catalysts for change such as change in working conditions, handling and exchanging of information, teaching methods, learning approaches, scientific research, and in accessing information. Just like other segments of the population, the visually challenged people have the right to expect the same standard of education. Indeed, they also have the right to access and use mainstream educational tools, including ICT-based which are tools for fostering education. It is very important to say that, those newly developed ICT tools can be considered as the equalizer and rehabilitator for all the visually challenged students and teachers. In fact, the assistive technology has been used by the blind and the partially-sighted students and teachers to help to increase the independence and boost their social inclusion when it comes to education access. For example, Kurzweil Reading Machine, Computer, Video Conferencing, the Internet and World Wide Web. More than that, the application of different devices such as Screen Reader, Braille Translation Software, Braille Writer Equipment, Closed Circuit Television (CCTV), Braille Embosser and Scanners for visually challenged students and teachers are also important to support their learning and teaching process. ICT plays a crucial role in fostering the inclusion of the visually challenged especially in learning and teaching activities. In fact, ICTs do help decrease and may cut off the sense of discrimination and open access to knowledge in extraordinary ways. "Generally ICT is being used as a tool for improving the quality of the life by improving efficiency and enhancing effectiveness in different socio-economic sphere including in learning" (Eligi, 2017 88).

According to the Royal National Institute for the Blind "the internet is one of the most significant communication developments since the invention of Braille. For the first time ever, many blind and partially sighted people have access to the same wealth of information as sighted people and on the same terms" (Arrigo, 2004 02). The digitalization of many public services such as education school, university and government may allow people with disabilities to live in much the same

way as those who are not disabled. Nowadays, the visually challenged learners and teachers are also facilitated with the access to various kinds of ICTs for their learning and career growth, such as, internet service provision, telecommunication, equipment and services, information technology, media and broadcasting, libraries and documentation centers with audio, commercial information providers, teleconferencing, email, audio and video conferencing, television lessons, radio broadcast, interactive radio counseling, interactive voice response system and various Android Mobile Applications are mostly used in all over the world. Generally, ICT makes teacher's interaction with the students easier. Using ICT in the interactive and inclusive classroom is a kind of the best facilitator for both the visually challenged students and the visually challenged teachers. The visually challenged students can get to know the particular concepts easily from the projector, when it is projected on the screen by any teacher. It gives teacher (may be a visually challenged or not) a great benefit to display things by using software based projectors. They can give their point of views to the students by using sound based Power Point presentation. With the help of ICT support, they can access their knowledge, facilitate them into classroom. They can make them involved in class activities. There are provisions for any educational institutions to provide the soft copy of the materials to the visually challenged teachers and the students also make them to prove their ability in the teaching-learning process. Those kinds of ICTs such as, radio talks, video lessons, YouTube lessons and videos text books in Microsoft Word or PDF audio and video transcripts are also facilitating the visually challenged teachers and professors to give the valid details to their students of inclusive classes. Further, the teaching- learning process and the practice of the visually challenged persons can also be accessible through many online or e-learning platforms, which are facilitating their educational needs through the form of text in the format of MSWord or PDF or Epub or Mobi documents. Many Databases also providing the audio version of the text books based on the subjects. Few databases are providing free or open access specially, for the visually challenged persons to get those materials.

There are lot of E-Sources are available to fulfill the educational needs of the visually challenged teachers and the learners. Many universities of the United States, the United Kingdom and other European nations such as, France, and Germany are facilitating their visually impaired teachers and the students with online materials for both the primary and the secondary sources specially, even in the web link of their university libraries. They are providing the materials not only through Microsoft Word or PDF format, but also through audio materials which are made available with free access specially, for the visually challenged teachers and the learners of the particular university. Therefore, nowadays, the educational and the teaching needs of the visually impaired persons are meet by many countries in all over the world with new kinds of technologies which are becoming the milestone for their future.

India is one of the most important developing countries in this world, specially, for facilitating the development and educational needs of all the differently abled persons. Among that, India is providing lots of educational facilities for the visually challenged persons. Many Indian universities, both the State and the Central, facilitating their visually challenged students by providing free access to many e-journals through their libraries with the help of screen reader softwares such as, JAWS or NVDA. In order to fulfill the educational needs of the visually challenged students, the universities are also providing audio books whichever available with them in the stalk of the reference sections in the form of printed version. In this twenty first century, India is fulfilling the vision of Dr. A.P.J. Abdul Kalam, by introducing many E-learning platforms and Online Courses. These E-learning platforms and Online Courses are very helpful specially for all the visually challenged persons, because those online courses, online educational resources and e-learning platforms reduce their tension, stress, and specifically their dependence on the help of others to fulfill their needs, that is their dependence on others for reading or writing or mobility from one place to other place for the educational survival.

Nowadays, Ministry of Human Resource Development Center (MHRD) and University Grants Commission (UGC) are introducing various e-learning platforms and online courses for the development of the needs of higher education of this country. Those e-learning and online courses helping the visually challenged persons to pursue Under Graduate or Post Graduate Degrees, certificate or diploma courses without depending on other for the purpose of reading or writing or mobility from one place to other place. This MHRD also introduces Online Refresher Courses for all the Assistant Professors and the Associate Professors for their career advancement in the year 2018, in the online learning platform of SWAYAM. The visually challenged professors are really facilitated with this introduction of Online Refresher Courses, because, there is no need for them to go to any other Human Resource Development Center (HRDC) of the universities for twenty-one days to attend the Refresher Course in person. Such online courses and E-learning platforms are as follows:

NPTEL is a kind of E-learning platform. It provides E-learning through online Web and Video Courses in Engineering, Science and Humanities streams. Talk to Teacher is an award winning indigenously built multi-modal, multi-media e-learning platform that provides an immersive e-learning experience that is almost as good as a real classroom experience developed by Amrita-e-Learning Research Lab. Spoken Tutorial is a project initiative of 'Talk to A Teacher' educational activity through ICT by MHRD, Government of India. Virtual Learning Environment is an online environment of e-resources caters to several disciplines taught at under graduate and post graduate level. It is initiated by University for the purpose of the learning process of all the Indian universities with the Moodle models, the multi-media interactive contents. 'NPTEL', 'Talk to A Teacher', 'Spoken Tutorial' and 'Virtual Learning Environment' are also caters the educational needs of the visually challenged teachers and the learners with the reading materials through PDF or word documents and audio or video files which can be easily accessed by them. Besides everything, the Government of India facilitates the visually challenged teachers and the learners with the online courses through the e-learning platforms such as, SWAYAM. The online courses of SWAYAM provides video lectures, specially prepared reading materials that can be downloaded or printed, self assessment tests and quizzes and an online discussions forum for clearing doubts. It surely helps the visually challenged persons to pursue their degree courses without depending on the help of the others. The visually challenged teachers are also can offer the degree or certificate courses by themselves based on the required quadrants in the e-learning platform of SWAYAM. A Massive Open Online Course (MOOC) is another platform of online course through interactive participation and open access

via the web, that helps the visually challenged learners to learn the degree courses through online but in the distance mode of education, by providing suitable learning materials. In order to seek the reading materials, the visually impaired learners are also can access the e-learning platform of MOODLE with the proper support of the university in which they are studying. Furthermore, UGC is also providing Consortium of Educational Communication (CEC) and e-PG Pathshala to enable all the students including the visually challenged students to freely access the curricula based reading materials through the web. Digital Library Infilbnetor National Digital Library of India (NDLI) also provide various reading sources specially for the purpose of enabling the visually challenged learners, through the web or online which can be freely accessible through the proper registration.

Furthermore, ICTs and other Assistive Technologies increasing the independence of the students freeing themselves from the constant need for direct teacher involvement. As a result, the students can choose the speed of learning that is convenient for them which lead to more personalized learning. When the students doesn't inhibit the learning process for the whole group, it allows reducing the anxiety level which plays a significant role in education as well. Implementation of technologies in special education allows simplifying the communication and improve the academic skills of students with disabilities.

Besides everything, there are lots of demerits or such kinds of limitations are sometimes making the visually challenged persons to overcome their educational needs. The disadvantages or demerits of using Information and Communication Technology or other Assistive Technology are also becoming a major barrier in the teaching-learning process of the visually impaired teachers and the students. In many educational institutions, the visually challenged teachers are taking their classes most probably by copying the text books in the Braille or, sometimes lecturing through listening the audio text or sometimes teaching through asking the students to read out the text book. So, they are facing a lot of difficulties in this traditional way of teaching in a special way. But, nowadays, all the visually challenged teachers are introduced to many Assistive Technologies which can support their profession in a proper way. The technologically developed Virtual Classrooms, Android Teaching Applications for visually challenged teachers are made available with some voice-over softwares in order to make the work easier for them. So, using ICTs and other Assistive Technologies by the visually challenged teachers in the interactive and the inclusive classroom situations make the work difficult. It also sometimes thwart them to achieve their target in teaching, because using those Assistive Technologies and ICTs with voice-over softwares in the interactive and inclusive classes for the purpose of teaching may disturb the listening attitude of the students. The visually challenged teachers may face the lack of time management because they can explain the details to the students only after listening the resources which are available in the computers or Android mobile phones. This kind of teaching through listening may also interrupt the continuity in the teaching. It is further very important to mention that, in countries like India, many visually challenged teachers are not using any kind of ICTs in their classrooms, only because of lack of awareness of ICTs and Assistive Technologies.

The students with disability may, in fact, face relevant difficulties in terms of both accessing and in using E-learning platforms, electronic learning tools, depending on the type of impairment, the obstacles encountered may vary considerably. This setback arises because of many of the different learning educational institutions cannot boost of sufficient professional and devices capable of tapping into the potentials of the students with visual impairment. Moreover, the lack of awareness of the use of information and communication technology devices in many of the higher educational institutions for the visually impaired students despite there being various devices designed electronically to meet the needs of such uses. Generally blind and low-vision students for instance, despite both genders simply being referred to as 'visually impaired', present very different visual problems, find different obstacles and ask for different kinds of help and support. Many of these problems result from the obstacles behind the effective use of tools and may also have a negative influence on the over-all learning process.

Besides that, nowadays, coming to e-learning platforms and the online educational courses are also creating various obstacles in the learning process of the visually challenged persons. Pointing that further, most of the online educational environments are still not accessible to students with Visual impairment. While the information and activities posted to internet sites are not appropriately accessible with assistive technology. So, the visually impaired people are benefiting lesser from these online opportunities than that of the other nondisabled people. There are such online courses which can be completed after qualifying in the online test or examination. It automatically leads the visually challenged learners to seek the support of the scribes even for the online examinations. The reasons behind the backdrop in writing the online examination by the visually challenged students are caused by the lack of development in the technological growth of screen reader softwares. Sometimes, the robotic speech of the screen reader softwares such as, JAWS and NVDA are unable to help the visually challenged learners properly to access the examinations and e-resources. The use of the screen reader softwares also sometimes fail in their function and also make the visually challenged learners to be fail in their access to online resources and tests. The screen reader softwares may also fails sometimes to read out the multiple choice questions (MCQ) during the time of online examinations. So the visually challenged candidates may fail to manage the given time for the online test, even if they were facilitated with the extra time to complete the test. These might be the main difficulties for the testing agencies to provide the separate exam hall and a computer with voice-over software specially, for the visually challenged candidates.

"There are two main aspects to take into account in designing the accessibility of the e-learning environments: technological and methodological issues. Both of them are vital for obtaining a fully accessible online learning environment. For example, an LMS which has some fully accessible tools for learning may be unsatisfactory for visually disabled users if the learning methodology was designed for sighted users. Thus, the enabling technologies are very important but not enough. Similarly, a well designed learning contents methodology, if not supported by a set of accessible tools, is not enough to allow the disabled students to learn on the net" (Arrigo, 2005 02).

Other demerits such as, lack of specialized differently-abled friendly teacher training, limited flexibility in training options for software resources due to financial crisis, lack of formal involvement and governmental organizations and ICT support

structure for the differently-abled, attitude barriers towards people with disability, lack of appropriate differently-abled friendly policies and their implementations, and lack of an independent ministry for people with disabilities.

Finally, in order to conclude, it is very important to mention that, information and communication technology helps the visually challenged teachers and learners to participate equally in the teaching learning process. Even if it is having many advantages and disadvantages, it develops their thinking, knowledge and enables them to perform various educational activities in the educational sector. The use of ICT and other Assistive Technology in education helps to break the barriers of the visually challenged teachers and learners and providing them with access to the most relevant educational programs. But, properly designed software and hardware will allow them to get modern education and achieve any kind of required information online. Besides that, the technological development provides them with individual learning events and enables reaching higher flexibility and differentiation in educational methodologies. With modern technology, the visually challenged teachers also can adapt themselves to the possibilities of the students with minimum effort and choose one of the dozens of available learning tactics designed to meet the needs of individual learners. Meaning to say, in an educational context designing the content interaction is extremely important in order to reach a learning goal. Moreover, in online learning the methodology is crucial. For example, a tool may meet technical accessibility requirements, but it may be unusable for a blind student because it is designed with a visual interface in mind. Likewise, the design of a lesson could be perfect if it is delivered using a multimedia system, but may be poor if it uses adaptive technologies like a speech synthesizer. Therefore, it is very important to redesign traditional pedagogical approaches by integrating information and communication technologies into courses (Arrigo, 2005 03). Despite all government policies and the introduction of numerous standards and guidelines concerning the usability, accessibility and universal design of the internet for the visually challenged, some digital barriers for accessing and using ICT are difficult to overcome. Yes, it is proved that, there are lots of limits or demerits for all the persons with visual impairment specially, for utilizing and accessing the Information and Communication Technologies and other Assistive Technologies. But, everything can be rectifiable by tackling some software, technical, legal and other barriers or issues to their effective participation in the knowledge based economy and society in future. But, it can be possible, only through the further development of ICT and other Assistive technologies which are lies in the hands of the proper authorities who are still supporting the educational needs of the visually challenged persons. Meaning to say that, the future of education is not predetermined by ICTs, but this future will be prominently known for how the technology is going to be constructed. But, this support should be provided by the institutions. Today internet serves as an asset in providing global information to many of the visually challenged teachers, learners and administrators. So launching the internet in classrooms as well as administrative areas substantially enhances the opportunities of modern education and allows the visually challenged persons to use online database resources.

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