

## **Mobile Apps Alternative Solution to Assistive Aids to Teach CWSN**

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### **ABSTRACT**

There are various applications in smartphones and tablets that can be used as an alternative source of heavy assistive aids to make the class inclusive with normal students and children with special needs. Schools have become barrier-free for physically challenged students. In this paper sensory impairment has been considered for learning through smartphone apps. Mobile learning may provide alternative solutions for teaching CWSN with the help of a few apps by the google play store which is accessible for free. The present paper states how we can use these apps in our smartphones and tablets, which can be alternative learning tools and act as assistive aids for formal and informal learning environments. Here investigator mentioned five apps that can be an alternative to assistive aids of Visually Impaired to develop inclusive classrooms economically adaptive, applicable, and user friendly.

Keywords: - Inclusive Education. Mobile Apps. Smart Phone. Assistive Aids. CWSN.

### **INTRODUCTION**

Education plays an important role to develop and uplift society, and considering this it becomes the fundamental right in the constitution after Eighty-sixth Amendment Act 2002, with the addition of Article 21-A to provide education free and compulsory to all children. Right to Education policy directly states for providing education to all without any discrimination of individual difficulties or characteristics it considers that every child is unique and different. This Act impetus on the elementary education of children with special needs in the section, initiating education for all, under the umbrella of inclusive education. An Inclusive Education refers to a model wherein children with special needs can play, study and share a social bond with general students. In short, a school where children with special needs (CWSN) study together with normal students with required essential settings in a normal classroom or regular classroom. The required or essential settings are done in infrastructures and provide assistive aids. The NCFSE recommended conclusive action at the level of curriculum makers, teachers, writers of teaching-learning materials, and evaluation experts for the success of this strategy of inclusive education. It compels for specially trained teachers to be included with the normal teachers in the regular schools to teach the children with special needs with normal students. CWSN are students who require special assistance either aids or escorts. As District Primary Education Program (DPEP) in 2001 stated that “CWSN is a child who suffers from a disability in visual, hearing, locomotor and intellectual. CWSN are children have cohesion with other children of the same age”. The position paper by NCERT for CWSN refers “to utilize assistive aids with specially trained teachers and including such teachers in regular

schools to develop an inclusive setting in collaboration with assistive aids”. Assistive aids are required for normal learning of CWSN, it enables them and equates similar up to normal peers.

Assistive aids are technological devices that help CWSN to cater and grasp knowledge, the information in the classrooms but they are limited in a task, each device is made for a specific purpose like handheld magnifier is made for to magnify content like that, frequency modulator system in that microphone is used by a teacher and the student wears receiver or headphones, and this whole setup is not economical as all these devices are either very expensive or not easy to operate. Considering the Indian scenario providing all these specific assistive aids in all schools is still a tough task in the means of managing and handling them. Giving strength to it Bindal and Sharma (2010) stated that “Indian schools are facing difficulties concerning the inclusive setting and having failed to provide specific feature such as special teachers, infrastructure, providing a favorable environment and inclusive curriculum, training of teachers as per the necessity of inclusive education”. Keeping as a base of his finding researcher observed that it’s a challenging task to develop inclusive schools concerning teachers and providing training to them on each technology and assistive devices to run appropriately, as every assistive device is made for specific impairment that can cater to a particular disability.

If we consider any multidisciplinary featured device that can cater major needs of inclusive settings it will be very helpful. At present there should be a device like smartphones a single device can do many tasks keeping and raising this point a question arose that can we utilize these smartphones in the place of heavy assistive aids. As we see that smartphones can run various apps according to the needs of the user even it’s easy to operate with the stronger hardware capabilities and extensive mobile operating system. Can a teacher use these smartphones as an assistive aid to teach CWSN? To check it researcher reviewed some article and study that done abroad as well in India to teach and to show reflection towards mobile learnings and its effectiveness with children with special needs, Longwell school of Birmingham conducted a case study and their sample was deaf children in their study they stated that the students were able to use and see the video in due to the method of applying and utilizing the technology was easy with adapting British sign languages the study also stated that students were able to click the photo and record the videos which helped them for better communication. One more case study was conducted by Stockport College to improve the learning experience of widely dispersed learners especially visually impaired with help of using mobile technology as their sample was dispersed learners they aimed to improve the learning experience and work quality. They found that mobile devices were really helpful and gave value to their work. Jamal Ismail (2016), stated that “Mobile learning can be an alternative to assistive technology devices for special needs students he stated the potentials of utilizing smartphones and tablets as an alternative learning tool in the place of assistive technology devices within formal and informal learning environments and found that mobile gadgets, particularly smartphones and tablets, along with open source applications are efficient alternatives to the monofunctional assistive aids”.

Above all studies and some other reviews sparked an insight in the researcher to focus on smartphones as an assistive tool. This arose some questions that are, can smartphones perform or replace expensive assistive aids based on task? Can they play an important role in the teaching-learning process of CWSN in Indian classrooms? And can we develop an Inclusive school using smartphones with Apps for impaired students? as various studies concluded that these smartphones can make it easier to operate which are easy to handle and operate, and they are easily accessible and with mobility, and no specific training is required as most of the people are using smartphones. Thus, it can help us for active play, and effective learning for the inclusion of CWSN. The present paper is structured as follows a theoretical framework of

the study based on the concept, policies, and work done by the government in the area of inclusive education, facilities provided and till now, how much it's utilized, and suggestions to utilize alternative resources as mobile apps in place of assistive aids according to the gap felt during the review of related pieces of literature and data.

### **NEED OF THE STUDY**

Considering the census of 2011, 2.68 cr. persons that are 2.21% population of the total population are disabled in India among these disabled population 56 % (1.5cr) are male and 44% (1.18cr.) are females, and infant to five years old children population is around 32.5 lakh and maximum disabled population lies between the age of five to nineteen years i.e. 65.73 lakh. They are termed as Children With Special Needs (CWSN). The WHO in their reports stated that "every child is not similar; they differ in various features, specially CWSN deviates significantly from the normal graph in terms of learning, behavior, and socialization concerning intellectual, emotional, and communication". The National Council of Special Education stated that "A child's special educational need should not define the whole child, there are many aspects like personality, the ability to communicate (verbal and non-verbal), resilience and strength, the ability to appreciate and enjoy life and the desire to learn, for a child's development. Each child has individual strengths, personality and experiences so particular disabilities will impact differently on individual children". India today surveyed to provide comprehensive and detailed information on the current education status of CWSN. "They specified that 75% of CWSN under 5 years and 25% CWSN from 5 - 19 years do not go to any educational institution rest students join the institution but gradually they are self-dropped out from the school as required facilities for CWSN are not available". It's self-explanatory that a huge amount of human resources is either left behind or neglected. Despite NCERT, NCPRD, and NCFSE state "to teach special and normal children in equal mode", and RTE act mandate "that no child should be left out because education is a fundamental right of any child". Central and state government agencies are trying to fill the pit and merge the gap by making various policies. Considering the data reports of various national agencies of India, it's observed that government are putting special focus and attention on children with disabilities because they require some special attention and aids to learn. Kumar Sanjeev stated in his survey report that "many schools are still not settled as inclusive schools after the various initiative has been taken for CWSN at different levels, but still 95% of CWSN are out of the mainstream schools and the schools where inclusive education setup is available lacks in the availability of teachers to deal CWSN. The only point of satisfaction is that inclusive school settings have been recognized with giving respect to their importance. Government is working hard to provide universal education to CWSN under inclusive school". NCFSE specifically focused on "utilizing and providing special consideration to CWSN, in terms of making a flexible curriculum, using assistive aids and technology, applying flexible and cardinal assessment systems, organizing special training programs and workshops for teachers and parents". The Position paper NFG on CWSN 2006, strictly refers "to utilize assistive aids with trained teachers in the regular school to develop an inclusive school". In a conclusion these all national agencies recommended to set up inclusive classes with assistive aids and modification in curriculum and pedagogy, as well as they also majorly focused on the availability of physical resources with an operational mind. The Education report of India for CWD 2019 states "different frameworks for curriculum design should be adopted to develop a curriculum that is both universal and suitable for adaptation. Accessibility to physical infrastructure, assistive and ICT technologies are also essential resources". NCERT focused on "utilizing educational technology and ICT for self-paced learning to creat an effective, applicable and adaptable learning environment especially for

CWSN and inclusive classrooms. Andreja Istenic stated that “the use of information technology should be expanded for the children with disabilities and give chance to every child without any discrimination. She also stated to transform teaching practices for the inclusion of diverse learners, overcome stereotypes and build healthy relations towards CWSN in the classroom and beyond”. On a result the ground reports are not up to the mark as its needed school lacks in required assistive aids, trained teachers to use assistive aids. What can be the solution for such a problem? If all schools are going to be built with Inclusive school settings it will be too expensive, and training all the teachers for using assistive aids in inclusive classrooms will be like filling water in the basket. After reviewing and studying all the problems, the researcher comes with an operative measure to overcome such a problem. The researcher researched secondary data on the users of smartphones and based on various data, it’s observed that in India around 80% of people are using smartphones, which gave an insight to researcher utilize smartphones as an M-learning tool that can provide an alternative solution for teaching CWSN with the help of mobile applications. With these apps, a teacher can overcome the problems and easily teach CWSN in the classroom with regular students and can convert the normal classroom into inclusive classrooms.

This study is based on the qualitative comparison between mobile Apps and heavy and expensive assistive aids. There are various applications in the Android play store or IOS apple app store that can be utilized by any individual for their need and purpose. These apps are different from the software that performs specific tasks. The researcher tried to compare some assistive aids with the Apps of mobile or tablet. In the area of M-learning, most of the studies are conducted for normal learners in normal settings. Obiodu and Obiodu stated that “it needed to compare and evaluate the worthiness of any apps before downloading and using it. This can be observed by the reviews and ratings of the apps given by the users as these apps are open source apps so that reviews and rating may help to draw initial concepts about apps”. Ha and Wagner in their article stated that Google play store reviews have information about apps about their performance and work like what they do and how which may help to get a basic idea about the application. Lie and et al surveyed online shopping behavior in that they found 98% of buyers consider reviews of other buyers to purchase any product. It gives evidence that review and ratings help to draw an idea about any apps or products either useful or not. Thus, the researcher kept this in mind and searched for such an app that had higher ratings in their area. Here researcher also limited the study only to Visually impaired learners as there are many apps for various disabilities but the researcher tried to concise in the area of visual impairment and their essential assistive aids for partially visually impaired. This study enlists and compare applicability, practicality, functionality, and its quality of applications with similar assistive aids for partially visually impaired learners.

Thus, researcher decided to prepare a checklist to choose the apps as there are more than thousands of applications in the google play store.

It should be freely accessible and downloadable from the play store

It should be appropriate as per the need of the individual.

The app must be downloaded more than 25 thousand times.

The app must be rated three and a half stars at least.

It has been reviewed by the users.

The researcher also downloaded the app and used it. As these apps fall under the criteria previously set by the researcher. The only drawback observed was that the app required more than 1GB of ram mobiles to work smoothly without lagging.

Here are the apps selected by the researcher that can be used in place of assistive devices by the visually impaired.

1. Magnifier App – It's like a digital magnifier, this Magnifier App can be downloaded by the Google play store for free, it's rated 4.7 out of 5 stars and downloaded more than 1 million times. This app works like a digital magnifier, just an individual needs a smartphone or a tab to download and use this app. This app magnifies the text or figure and also changes the color of the text or figure which helps to read the text accordingly. The flashlight helps to focus on the particular area and helps to read the text. Zoom in and zoom out facility, the image captured in HD order to view them in focus makes the app very effective and user friendly.
2. Kibo reader - This app is prepared by Trestle labs and rated 4.5 out of 5 stars. It has various features with accessibility for all (Blind and low vision) and can be downloaded by the Google play store without any cost. This application is a screen reader for visually impaired individuals which helps to read text across multiple international languages through audio. It comes with various features like viewing recent files, capture and read, play and pause reading, navigation, audio highlight, add bookmark and individuals can save their files also. This app can help individuals to perform tasks in an easy manner and individuals can help to cope up with regular students.
3. Sullivan + App - This app is rated 4.2 out of 5 stars his app is developed for the blind, visually impaired, and low vision provided by TUAT Inc. to perceive information and to enhance the accessibility of them via the camera of the smartphone. The features that it covers are AI mode, face, text, image, and color recognition, with the help of it a person can recognize contents, people, colors, and surroundings. Thus, it helps to perform daily activities.
4. Speech to Text converter - It's a voice typing app and downloaded more than 50000 times and it's rated 4.7 out of 5 stars. With help of this app, a person who speaks in any language detect and convert it into text which helps to make notes, type emails, and messages. It also re-read the text that has been recorded in individual voice form. This app can help an impaired person record lectures and convert them into notes, even individuals can convey their messages to any other individual who is hearing impaired.
5. Lazarillo GPS for the blind- It's a guiding app that helps individuals commuting from one place to another. This app was downloaded more than 1 lakh times by users and rated 4.4 out of 5 stars. This app helps a person to commute easily as this app tells about nearby places, surroundings, and street intersections. This app works without keeping the screen active so that an individual can keep it in their pocket.

## **DISCUSSION**

A few applications discussed above are examples selected by the researcher to convey the message that such apps can be a next-generation weapon to deal with the challenged students and it can be helpful to develop an inclusive classroom. Selecting the apps reviews and ratings helped the researcher to choose the apps for the study. Such types of apps can empower, uplift, and provide an easily accessible environment to achieve self-confidence and also provide a scope to marginalize the gap between regular

and special needs children. This app boosts motivation and fills the sense of inclusion to attain a higher level of self-sufficiency. A few apps discussed above have conveyed the idea that such types of apps can be a next-generation weapon to deal with visually challenged students. It may be helpful to develop an inclusive classroom. Selecting the apps reviews and ratings helped the researcher to choose the apps for the study. This type of apps can empower, uplift, and provide an easily accessible environment, to achieve self-confidence. It also provides a scope to marginalize the gap between regular and special needs children. This app boosts motivation and fills the sense of inclusion to attain a higher level of self-sufficiency. Bandura in 1986 and Liu and Hong in 2007 stated that “supportive families with a motivational environment, a skilled teacher and technological support can provide a positive impact on children with special needs and to uplift their performance at school”. The reviews of various satisfied users explained the applicability, practicality, and usability of the application. Since these apps are available without any cost, if we compare it economically, it’s convenient and affordable than the conventional Assistive devices. Only an individual need to expense in a decent smartphone or a tablet capable of performing database application. The privileges are observable of open source technology and smartphones but, they require a good data connection this, can be a limitation for using smartphones

## **CONCLUSION**

In this article, a total of 5 open-source apps have been discussed which can take place of similar assistive aids regarding the visual impaired. With certain apps somehow we can convert the normal classroom to an inclusive classroom in means of technology. The selected apps showed a positive image to the users. As the assistive aids are expensive and handling of it is very sophisticated whereas smartphone apps are easy to use and free of cost. Thus, it may help to provide an opportunity to include and teach the visually impaired in the normal classroom. Recent apps are available in the English language that may not be fruitful to regional language students but in the future, if this app positively impacts on English knowing students furthermore updated apps can be developed by the developers in regional languages. Here researcher tried to give suggestive measures for inclusive education. If we compare the cost of assistive aids and smartphones there are truly significant differences in the costs, assistive aids are 2 times expensive than a decent smartphone. A smartphone starts from 4000- 5000 and under 10000 Indian Rs a decent smartphone can be purchased and various tasks of assistive aids can be performed. The comparison is based on the affordability and efficiency of the assistive aids. The researchers also showed the impact of M-learning and meeting the expectations of learning. Thus, this application of smartphones and tablets can be a good choice for converting normal classrooms to the inclusive classroom.

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