

Teacher's Perceptions Regarding the Role of Information and Communication Technology in Inclusive School Environment

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Abstract

The study was aimed to discover the usage of information and communication technology at inclusive schools in Lahore, Pakistan. Objectives of the study were to explore the teachers' experiences and identify the benefits of Information and Communication Technology (ICT) being used in inclusive classrooms. A qualitative approach was adopted while the research design was phenomenological in nature. A cross-sectional survey method was used to conduct the study. Semi-structured interview protocol consisted of six open ended questions. The sample was comprised of fifteen inclusive school teachers that were selected through purposive sampling technique. A semi-structured interview protocol was validated by course instructors and assessment experts. Data was analyzed by using Microsoft excel through thematic analysis and making themes. The study revealed that ICT was helpful in searching material from internet. Teachers expressed that ICT makes their interaction easier with the non-disable and disable students in the class. ICT may help in visually and hearing impaired along with normal students. Computers, audio software, audio books, jaws, tape recorders and multimedia were used in classrooms during teacher's lectures and presentations in inclusive classrooms.

Keywords: Information and Communication Technologies, inclusive schools, Enrolled Teachers

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Introduction

In the 21st century, the education system promotes and appreciates the structure of “inclusive education”. Inclusive education means to increase the participation and decrease the exclusion for students with disabilities from society, culture, and curriculum in the mainstreams schools(Booth & Ainscow, 2002). Students with mild or moderate disability also include with non- disable students in general education classrooms and learn in a same way without any discrimination. In 1990’s special needs education word was used for ethnic minorities and divided disabilities into some categories like visual disability, communication disadvantages, mentally retarded and physically handicapped. Inclusive education gets a great attention over the past 30 years and federal mandates support inclusive education and different acts like “no child left behind”. It is a common target and purpose for all special needs families, children and schools(Downing & Peckham-Hardin, 2007).

Technology means that people get information in a new and different way that they did not have before. With the help of technology people interact with each other and share their information through communication. Through discussion they solve many of their problems all this new skills through critical thinking is called information and communication technology (Irvin, 2007).

In inclusive schools, Information and Communication Technology (ICT) is used to reflect the teacher’s ideas and pedagogy in a new way(Ellis & Loveless, 2013). In the national curriculum of UK, ICT is a subject and students by their own choice choose different subject like computer, science subjects and learn. Primary and secondary level schools, ICT is a compulsory subject and considered very important to get education for both disabled and non-disabled students. ICT subject divided into many categories and all are beneficial for different ability students. It is a bundle of technologies and students choose one technology according to their disability and ability (Florian, 2008; Jameel & Shamim, 2019).

Literature Review

The Punjab area of Pakistan started an ICT lab venture in 2009 of every 6 locale which planned for giving state funded schools ICT hardware and urged educators and understudies to utilize them. Qadir & Hameed(2014) stated that the use of mobile phones increase in Pakistan but ICT cannot be promoted and use everywhere. The use of android and smart mobile phones increasing day by day, different apps can be

downloaded in phones and use easily. Pakistan Telecommunication Authority (PTA) has announced the phone thickness at 62.79%, with cell phones making up 60.7% of this phone thickness. The information accessible with PTA demonstrates that cell phones are utilized everywhere throughout the nation with a few special areas in Pakistan. An ongoing report distributed in 2015 proposed that Pakistan will have 40 million cell phones by part of the arrangement (Baloch, 2015). Lack of teaching and learning action, lack of leadership, non-responsibilities and teachers cannot take interest in adoption of ICT in classrooms. Bughio, Abro, Rashdi, & Shah(2014)demonstrated the positive connection between preparing for the utilization of ICT hardware by the understudies' scholastic competency and execution. Understudies were positively disposed towards ICT and thought of it as a significant piece of value educating and learning condition.

Adebisi, Liman, & Longpoe(2015)tell the importance, use, benefits and meaning of ICT for special needs children. Also discussed the different types if assistive technology that especially made for special need children to help them in reading, writing, learning, mathematics question solution, English and other learning skills. It is concluded that teachers and students face many hidden challenges to use assistive technology for learning disable students. Teachers don't have proper guideline and knowledge to solve these problems of new technologies. Contemporary settings now lean toward instructive program that propel competency and execution. Instructive program are starting to focus capacities and to be concerned with the information may be utilized. ICT as a help to gather data ICT has transformed into an extraordinary informative change. Different past examinations have exhibited that a reasonable usage of ICT can raise educational quality and interface making sense of how to honest to goodness conditions (Lowther, Inan, Strahl, & Ross, 2012).

Mostly, developing countries face problems in implementing inclusive education in schools. Government may adopt new technologies to promote inclusive education. Inclusive education means normal and disable children get same education in a same way without any discrimination. Domingo(2012)communicated that the field of preparing has been affected by ICTs, which have indeed impacted training, learning, and research. Three conditions are key for instructors to bring ICT into their classrooms: (a) Teachers should place stock in the feasibility of advancement (b) Teachers should assume that the usage of development won't achieve any aggravations, (c) Instructors should assume that they have control over development.

Since students are effectively associated with the learning forms in ICT classrooms, they are approved by the educator to decide, plan and think. Heemskerk, Brink, Volman, & Ten Dam(2005)discussed that ICT technologies like audio-visual aids, prior knowledge strategies, instructional structure play an important role in inclusive schools across gender, ethnic and social status. Starcic (2010) reported that the development and educational technology in pre-service primary and undergraduate curriculum at inclusive classrooms. The students follow the SEVERI frame work in schools for special needs children and complete their classroom projects. ICT creates and develops bounding in students and teachers. Importance and role of students and teachers is innovative in digital inclusion. In inclusive schools offered new courses and subject for all type of students. Teachers and students attitude about ICT was very positive and easily assessable in curriculum. Some more policies and ways describe to enhance the skills of teachers in inclusive schools(Jameel & Ali, 2016).

ICT makes a huge transformation in the education system. In Pakistan, the use of ICT increases last 10 years. According to the Pakistani new policy ICT is compulsory in schools and colleges. This policy also suggests the integration of ICT in all inclusive and mainstream and general classrooms during teaching and learning process. The purpose of this study was to find out the use of ICT according to teachers perception in inclusive education, Lahore district. This study explores the advantages and disadvantages of ICT in inclusive schools. To find out the teachers perception regarding use of information and communication technology in inclusive schools was the first objectives of the study. To identify the benefits of ICT in inclusive classrooms was the second objective of the study.

ICT access and increased the development of old technologies like Braille. Audio recordings, multimedia, PowerPoint presentations, talking software, microphone, amplifier, different gadgets, mobile phones and laptops were offered. All these technologies are beneficial for both normal and disable students. In 21st century many innovative and new technologies are coming in the market and many researchers are done to adapt the process of inclusive challenged education, so that the present study was find out the teachers experiences regarding use of information and communication technology at inclusive schools. In many inclusive schools teachers don't have knowledge about the importance of ICT. This study may help to find out the importance and benefits of ICT in inclusive schools.

This study may be significant to identify the use of ICT in inclusive schools. It may also be helpful to seek out the teachers experiences about the use of ICT in inclusive setup. The present study may be helpful for teachers and also helpful for school principals, students with and without disability to know about the use of ICT. This study might provide the information about the teachers' experiences regarding use of ICT at inclusive schools.

Objectives of the study

Objectives of the study were:

- 1- To explore the teachers perception regarding use of information and communication technology in inclusive schools.
- 2- To identify the benefits of information and communication technology in inclusive classrooms.
- 3- To explore the advantages and disadvantages of ICT in inclusive schools.
- 4- To find out the challenges faced by students while using ICT in an inclusive classroom.

1 Research methodology

Qualitative approach was adopted while the research design was phenomenology in nature. A cross-sectional survey method was used to conduct the present study.

2 Procedure of the study

All the inclusive school teachers serving in the inclusive schools were the population. Fifteen inclusive school teachers were selected through purposive sampling technique. First author developed semi-structured interview protocol which comprised of six open ended questions. The semi-structured interview protocol was validated from course instructor and assessment experts. The participants were visited personally in the inclusive schools for data collection. Gathered data was analyzed by using NVivo software version 12 through thematic analysis with the help of open coding and make themes. Questions of the semi-structure interview guide were about: teacher's knowledge ICT, experience regarding use ICT, advantages and disadvantages of ICT, difficulty in using the ICT and benefits of ICT in inclusive classrooms (table 1).

Table 1
Themes and Subthemes Developed from of the Semi-structured Interview

No	Themes	Sub-Themes
1	Understandings about ICT	Define ICT tools that include in ICT Uses ICT devices in inclusive setup
2	Experiences of Teachers	Teacher's experience through day to day activities Engagement of Class with ICT through individual or group work divide through ICT
3	Benefits of ICT in Inclusive Schools	Advantages of ICT Parents and teachers role in ICT Develop effective skills in both normal and disable Students through innovative technology
4	Negative effect of ICT in Students	Disadvantages of ICT Effect reading skills
5	Challenges face students in class	Disable students face problems Students feel hesitation

Note: ICT means Information and Communication Technology

Thematic data analysis was used to analyze interview data. Themes were mainly identified on semantic or explicit level. However, at some places where there was a need to go beyond the semantic content of the data and identify underlying assumptions, ideas and conceptualizations related to the teacher's perceptions regarding use of ICT in inclusive schools. Thematic analysis process was systematically completed with Microsoft Excel, which gives tools to sort and arrange data in tables, thus facilitating the comparison and contrast data from various participants.

Results of the study

The thematic analysis was based on the six question which are is given below

Table 2
Collective responses of the participants

Themes	Responses
Understanding about ICT	ICT is a type of assistive technology. ICTs are an electronic technology like laptop, computer, mobile phone, different software's that use both normal and disable person. Different software's are use with the help of latest technology to communicate easily in the class.
Experiences regarding use ICT	In inclusive classrooms ICT helps them to deliver lecture easily and communicate every students

		<p>according to their mind level.</p> <p>Teacher's experiences are very good and while using ICTs. Teachers design and divide their day to day activities with the help of ICTs.</p> <p>Teacher make groups and divide group assignments, every member of the group done their task.</p> <p>Teacher may include one disable children in a group. Individual assignments also take in a class through PPT.</p>
Advantages of ICT in inclusive schools	in	<p>ICTs viable advances for educating learning process.</p> <p>Teachers easily know the ability and effort of every student. Every student done their own work and group tasks complete in a good way.</p> <p>Through ICT teachers enhance the ability of every student and expert the student according to their interest level of any software.</p>
Disadvantages of ICT in inclusive schools	in	<p>Some students used ICTs to copy the material from internet like low vision students.</p> <p>Mostly normal students cannot use their personal thinking, opinion and cannot read or write the material deeply. Sometime these technologies are not providing to students skills and students are unable to type something at any topic.</p>
Difficulty level of the students to use ICT		<p>Disable students feel shy to use ICT in front to normal students. Some time students laughing at him.</p> <p>Slow learner students feel difficulty to use ICT in a classroom or even at home.</p> <p>Power point presentations and graphics video, mostly students feel difficulty to work with this tools and present work in class.</p>
Overall benefits of ICT in inclusive classrooms	in	<p>Talking keypad, tape recorder, laptop, computer and different software to communicate easily with students.</p> <p>Overall ICTs helps mankind to move next step with the help of new technology.</p> <p>ICT provide universal knowledge, updates, latest news and special new software's for disable persons to move in a society, school independently.</p>

Note: Description of the responses gained from the participants

Teacher's Knowledge about ICT

Eight participants out of fifteen stated that "ICTs is an electronic and new technology like laptop, computer, mobile phone, different software's that use both normal and disable person. ICT is utilized to enhance direction and instruction". Four participants out of fifteen said that "these are mechanical gadgets that are useful in viable instructing. ICT is communicational electronic gadget utilized as a part of instructing

answered". Three participants out of fifteen reported that "ICT is electronic communicational gadgets utilized as a part of educating (i.e. sight and sound, shrewd sheets, projectors, and so forth)".

Experiences Regarding Use of ICT

According to the various encounters of ICTs in inclusive schools to upgrade educating learning process, ten participants out of fifteen trusted that "computer, talking software, tape recorder, projector, power point presentation, laptop interpreter app is utilized as a correspondence innovation to improve the instructing learning process". In inclusive classrooms ICT helps them to deliver lecture easily and communicate every students according to their mind level. Teacher's experiences are very good while using ICTs. Mostly, disabled students like visual impaired students complete their tasks and assignment through videos or in group presentations". Three participants out of fifteen believe that "ICT saves their time and they can give their point of view to the students by using talking Power Point Presentations. With the help of ICT support they can facilitate them into the classroom. They may make them involved in class activities. During their presentation sessions, they involve their blind students into the discussions. Teachers make a group with normal and disable students and assign tasks to complete the tasks". Two participants out of fifteen said that "teacher's utilized projector, PCs, control point introduction and talking programming in school as ICTs. With the help of ICT they engaged all the students during lecture time. These advancements are utilized for lesson arranging and searching material. ICT also helpful in inclusive schools for teachers to used electronic gadgets for looking material from the web".

Advantages of ICT

Nine participants out of fifteen stated that "ICTs viable advance for educating learning process. In like manner, these innovations are useful to educate outwardly hindered understudies searching material from web (i.e. e-books, jaws, talking books and so on). In inclusive schools, ICT plays a major role to collaborate with students in a class equally. Teachers easily know the ability and effort of every student. Every student done their own work and group tasks complete in a good way. Visual and hearing impaired students mostly use technologies in a class. Visually impaired students use tape recorder in a class and record the lesson and revise it at home. Hearing impaired students see videos and slides and learns easily. On the other hand, normal students also learn easily and give better results". Four participants out of fifteen said that "understudies can look e-books, programming, perusing material by

ICTs gadgets. All students in a classroom utilized these innovations for exhibiting data and addresses in classroom". Two participants said that "ICTs is more valuable for compelling and quick figuring out, how to deliver lecture in class room in an inclusive classrooms".

Disadvantages of ICT

The researcher collects information regarding the disadvantages of the ICTs in inclusive schools. Ten participants out of fifteen thought that "some students used ICTs to copy the material from internet like low vision students. Understudies utilized these innovations deceptively extraordinarily the keen phones". Four participants out of fifteen reported that "because of the broad utilization of ICTs understudies are detracted from the book perusing. They copy material from web". One participant proposed that "these technologies are not valuable for the written work capacities. Sometime these technologies are not providing enough knowledge to students and students are unable to type something at any topic".

Difficulty in the Use of ICT

Twelve participants out of fifteen believe that "new students feel uncomfortable to learn through ICT. Mostly in class visually impaired students prefer to use braille. Slow learner students feel difficulty to use ICT in a classroom or even at home". Two participants out of fifteen discuss that "hearing impaired and slow learner students feel uncomfortable to use recorder, mobile, computers and internet". One participant believes that "power point presentations and class room learning tools affected the student learning process especially in disable students. Power point and different videos affect the student learning process because blind student just imagine all these things".

Benefits of ICT

The researcher collects data about the benefits of ICTs for with and without disable students in inclusive schools. Eleven participants out of fifteen reported that "through ICT we deliver the lecture effectively. Low vision and blind students both enhance their learning process. Slow learner students learn slowly but in a same way that normal students learn. They emphasize that they use talking keypad, tape recorder, laptop, computer and different software to communicate easily with students". Three participants out of fifteen said that "we easily deliver the lecture in classroom students according to their interest (i.e.

documentary video, Games, pictures etc.). Both normal and disable students equally learn and give positive feedback after the lecture”.

One participant emphasize that “disable students like slow learner, visually impaired and hearing impaired students learn more and understand effectively through ICTs. Latest software helps to teach students easily. ICT help them to teach students with different technologies like talking keypad, innovative gloves, speech therapies, jaws etc.

Discussion

ICT in education means teach and learn in a short time and get latest education in an innovative way and utilizing the ability. According to eight teachers ICT makes learning more effective and comprehensible in a classroom. Normally in schools, universities or college power point presentation is very popular. Teachers easily involved students in the class and students enjoying the relevant lectures or subject videos and movies displayed in multimedia. On other side, command in these technologies and adapt all new technologies for disable students in a classroom are very challenging for teachers. In education, inclusion and digital inclusion are two different multidimensional perceptions about social justice in a society. Visual and hearing impaired students need new software's and apps to survive in a society and move independently. ICT is beneficial and effective for disable persons because it reduces the problems, challenges, and barriers that face persons with disability and easily take a part in day to day activities (Stendal, 2012). Schools principals also play an important role to facilitate the ICT in a school or a classroom and create inclusive environment.

These technologies fill the gaps and challenges that held between the learners and teachers. In inclusive schools, mostly use recorder, talking keyboards, Job Access with Speech, Talkback soft copies of text book, multimedia, interpreter, speech therapist and internet in the classroom. All these latest ICT tools not only help in a classroom or a school also helps in curricular or non-curricular activities. Teachers in inclusive classroom use ICTs in preparing lesson, assignments, student's tasks completion, and exams notes. Visual, learning disable and hearing-impaired students use talking software, interpreter, jaws in a classroom and during exams. ICT provide new opportunities for students with disability and normal persons in inclusive classrooms (Jameel & Nabeel, 2017). Technology empowers and promises the person with disability as same like with their friend or peer person without disability. ICT include assistive technology, computer, messages, online tools etc. Now both

persons get benefits of ICT in daily life (Anderberg & Jönsson, 2005). ICT provide a model to teachers and disable persons that how to move in a society like a normal person. ICT assess the information, knowledge, teaching, learning and all communication skills procedures (Khetarpal, 2014). Teachers connect with students through e-mails and mobile phones. ICT in inclusive classrooms helps to learn quickly, easily and make learning process faster for disable students. ICT has brought a blazing ray of hope in education and life of disable students in a normal environment.

ICT use in inclusive classrooms in a two way: ICT as learning and educating technology, ICT is a specific resource for a teachers and students. In inclusive schools teachers need some skills and command in new technology and tools. After complete command teachers create bounding and interaction easily with special needs students. Teachers don't have a clear concept about the use of projector. In public inclusive schools ICT has no common and never use the different devices and tools. Weekly or monthly use these devices and teach the students. In public sector visually impaired students use braille for communicate, learning disable students and hearing impaired students learn without any new device. Hearing impaired students use cane in schools.

Seven participants out of fifteen believe that "ICT help them to deliver lecture by using PowerPoint or multimedia. Lecture method is an old and traditional way that every student cannot easily understand. Audio visual aids and videos save their time during lectures. They said ICT involved every student in class and every student participate in class discussion. Visually impaired and deaf students give very positive response during PowerPoint presentation and pictorial session. They emphasize that teachers share their thoughts and new ideas by using different ICT tools. With the help of ICT, teachers assess every student according to their knowledge, ability level and facilitate special services in classroom. During oral quiz, teachers may involve disabled and normal students into the discussions. Teachers already share lecture convert into PPT and make slide that every student easily prepare the quiz. They purpose that Teachers can give them soft copies of class lectures though online via email or make groups. They can easily take it to their home and whenever they wish open and revise the entire previous lecture(Creswell, 2014).

Moreover, teachers have no complete command on ICT tools software like Power Point, MS Word for creating essential files, video presenter, and mobile phone software's. E-mail is another helpful tool for sharing material normal and disables students. Teachers can easily send

the soft copies of lecture, e-books, and audio files to the students through E-mail or Google drive. Using social media tools like what Sapp, Skype, instagram, messenger; text messaging can be highly advantageous for the teachers. Teacher make a group on Skype and sometime give group video class lectures at home for discussing tomorrow lectures and also share the educational websites link for students. For these reasons, teachers need to have these ICT skills for facilitating the whole learning process. Teachers have a great role in teaching inclusive schools. They can enable and help them, not only in the classroom, but also outside the classroom by the effective use of ICT. For this purpose, they need to have some very essential ICT skills and ability to teach both normal and disable students in same class.

Government just promotes ICT and innovative technologies not only in inclusive schools also in public and private general and special schools. Public schools must take steps to promote ICT and higher new staff who have command and degree related on software's or ICT.

Conclusion

In Pakistan, ICT is important in inclusive schools. Other developing countries use of ICT is compulsory in inclusive, general and special schools. We must promote ICT not in inclusive but also in general and special education centers. Teachers play a vital role in reception and incorporation of ICTs in instructing learning process. The present examination was expected to research the teachers' experiences regarding utilization of ICT for outwardly disabled and normal students. It is inferred that ICTs like PC, talking software's, talking books, jaws, recording device and multimedia is utilized for giving the introductions and addresses amid the classroom by educators. Forthcoming educators utilize PC in the labs to comprehend the route how to instruct outwardly weakened understudies. The aftereffect of the study demonstrated that ICTs supportive in looking material from web. These advancements stay up with the latest instructors with most recent data. ICTs are helpful for visual portrayal of data and picture. These advances can advance through the preparation of educators and important to promote inclusive setup in Pakistan. ICT is very supportive for disable students. As they read, write, think, and communicate like the other sighted students. ICT not only for students and teachers but also for their administrative purposes, it gives them reasonable support.

Recommendations

The following recommendation are given based on the study

- Schools principals or government o train the teachers in which all the experienced staff given information under ICT and tell how to use ICT in inclusive classrooms in an innovative way.
- Must hired trained and experienced teachers in all public and private inclusive schools. Teachers must have a 2 years' experience in teaching inclusive setup.
- Instructors may prepare to comprehend communication advances effectively.
- ICT may be promoted in inclusive schools. New and innovative technologies must be adapt and introduced in schools. Awareness and training seminars and workshops may be held for enrolled and prospective teachers about ICT.

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