# Development of Inclusive Competence of Teachers through Modern Technologies in Secondary Education

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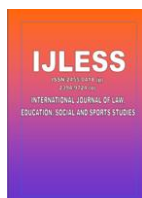
ABSTRACT

Inclusive education seeks to provide equitable learning opportunities for all students, regardless of ability, background, or needs. It stresses diversity, respect and acceptance and requires teachers to build inclusive competency, which is a set of knowledge, skills, attitudes and values necessary to establish inclusive classrooms. In India, legislation viz., the Rights of Persons with Disabilities (RPWD) Act and programmes under the National Education Policy (2020) encourage inclusivity in education, mainly for children with disabilities (CWD). Educators have a transforming position in promoting inclusivity by identifying diverse learning requirements and accept individualized instruction with utilizing assistive and adaptive technology. Modern tools like learning management systems, collaboration platforms and data-driven insights enable teachers to alter their teaching tactics and target specific student requirements. Additionally, professional development alternatives like as online courses, webinars and digital forums help teachers integrate inclusion effectively. This study emphasizes the vital role of inclusive competency in secondary education, the significance of teacher empowerment and the role of current technologies in creating fair learning environments for all.

Keywords. Inclusive Education, Competence, Technologies, Secondary, Teachers

INTRODUCTION

Inclusive Education

Inclusive education involves ensuring that any and all students, irrespective of their level of ability, background, or need, learn side by side in the same context with the opportunity to and provision to, access the same kind of learning and outcome. It upholds diversity and tries to give a hospitable atmosphere enabling every child to be respected and accepted. Inclusive education is the process affirming better of educational institutions, a change from the public consciousness, a shift from

pedagogical theory and practice. All new tasks are introduced for the development of this line. So, for successful realization of ideas and principles of inclusiveness in educational institutions, universal teachers professionals are necessary, therefore, requirements to teacher training, their professional and inclusive competence increase rather strongly.

United Nations Childrens Fund (UNCF) has states that "to provide every child with an equal opportunity to be present at school, acquire knowledge and develop the essential abilities to succeed, inclusive education is the mainly efficient approach." (UNICEF, 2023)

The Government of India has been committed to guarantee every child's right to fundamental education as summarized in the Constitution. Since 1947, a range of policies have been commenced to address special education needs. One of the initial formal efforts was the Integrated Education for Disabled Children (IEDC) scheme in 1974 [Seventh All India School Education Survey, NCERT (2017)'. The Kothari Commission (1966) explained the significance of educating children with disabilities in post independence India (Sharma B., 2011). During 1980s, the Ministry of Welfare documented the need for an organization to oversee and control Human Resource Development (HRD) programmes in disability rehabilitation. By the 1990s, almost 90% of India's estimated 40 million children aged 4-16 with physical and mental disabilities were expelled from normal education. The National Policy on Education (1986) and the Programme of Action (1992) emphasized integrating children with special needs into regular educational settings. In 1994–95, the Government of India launched the District Primary Education Project (DPEP) and by the late 1990s, inclusive education was incorporated into the DPEP framework.

Karnataka is committed to fostering inclusive education by integrating children with diverse needs into mainstream classrooms, ensuring equitable learning opportunities. The National Education Policy (NEP) 2020 underscores the importance of achieving inclusive and quality education by 2030. According to Karnataka's School Achievement Tracking System, as of 2021, 96,020 students with disabilities were enrolled in schools across the state. To strengthen this initiative, the state government introduced a draft curriculum aimed at children aged 3-8, prioritizing inclusivity and early disability identification, with plans to roll it out in the 2023-24 academic years. These measures highlight the state's dedication to creating an inclusive educational system.

Inclusive Competence

Inclusive competence stands for the overall ability of teachers to successfully execute inclusive education principles and practices in their classrooms (Poon, 2016). Inclusive Competence also encompasses not just knowledge and skills other than also attitudes, beliefs and dispositions that endorse equity, diversity and inclusion (UNESCO, 2019).

Inclusive competence of teachers is a special professional competence. The strength of teachers to fulfill professional tasks in inclusive education, taking into account varied educational requirements of children with different educational differences and particularly with a limited health ability. Inclusive competence is defined as the competence, knowledge and disposition of the teacher to build such environments. This covers the knowledge of heterogeneous learning requirements, the implementation of adaptable teaching strategies, nurturing empathy and the establishment of equitability. Building inclusive competence has the potential to be achieved by educators so that they enable all students - students with disabilities or other impediments - to reach out and succeed in their learning.

Inclusive education strives for accessing equitable learning contexts for all students, respecting their individual differences and abilities. For this, secondary school teachers need to develop inclusive competences and all of the knowledge, skills, attitudes and values that allow them to form inclusive classrooms. Contemporary technologies can make a revolutionizing contribution to the capability of teachers to prepare adequately.

TRANSFORMATIVE ROLE IN EQUIPPING TEACHERS WITH NECESSARY COMPETENCIES

Students today are a diverse body of learners from a spectrum of backgrounds, abilities and requirements. Inclusive education means that every student, whatever their disabilities are, is entitled to the equal opportunity for attaining education for all. For that to be possible, teachers themselves need to acquire a competence in inclusivity, in the skills, knowledge and attitudes that enable them to teach all students well. Current tools and methods of teaching can help teachers develop those abilities so that they can, in turn, create a classroom environment where every student can be successful. The following are the main aspects of inclusive competence and how they contribute to sensitizing the teachers in the sense of fostering inclusivity.

1. Knowledge of Diversity

Being able to teach inclusively requires teachers to identify and have an understanding of the various types of diversity present in their classroom.

- *Understanding Varied Learning Needs.* Students may experience individual learning demands to do with physical or mental impairments, language, or socio-economic conditions. Teachers also need to acknowledge that in order to guarantee that every student has the right support, enabling them to succeed. For instance, a deaf student might have an increased need for reading assistance and written directives.

- *Awareness of Policies and Legal Frameworks.* Educators should also be knowledgeable about the laws and policies that underpin inclusive education, e.g., the Rights of Persons with Disabilities (RPWD) Act, India. Understanding these policy guidelines guarantees that educators create a supportive learning environment and implement any accommodations needed for students with disabilities.

2. Instructional Skills

When teachers know the variety in their classrooms they must have the necessary pedagogical skills.

- *Designing Differentiated Instruction.* Differentiated instruction is the method of changing instruction to the needs of all students and teachers may itlize various approaches to teaching namely visual aids, in-hand activities and group work to enable students to learn in the way they feel is best for them. For exmaple, a teacher could allow a child to read more slowly due to problems with reading, or offer visual aids to a child who is a visual learner.

- *Using Assistive and Adaptive Technologies.* Technology may have an vast function in helping students with disabilities and tools viz., screen readers, voice recognition software and devices for children with physical disabilities helps them access the curriculum. Therefore, teachers should study about these technologies to guarantee that every student is clever to participate in learning, regardless of his/her complexity.

3. Empathy and Positive Attitudes

Inclusive education, though, is about more than just teaching prejudice against disability (ableism) it is also about increasing a positive and suitable classroom climate.

- *Fostering Respect for Diversity and promoting Equity.* Teachers require to give an environment in which all students have the similar and respectful treatment, regardless of their background and/or capabilities. Motivating team work and that all students feel they have a position in the classroom assists to create a multicultural classroom.

- *Overcoming Biases through Exposure to varied Perspectives.* Teachers may have biases depend on their own experiences and to be extra comprehensive, they should be conscious of these biases and try to get rid of them. Interaction among students of varieties of backgrounds, participation

in trainings and experience on a variety of cultures can lead the teachers to become an image of openness and acceptance.

Develop these competences and teachers can make classrooms warm, positive and equitable for all learners. Technology and ongoing education play an important role in empowering teachers to become more inclusive in order to help all students reach their full potential.

ROLE OF MODERN TECHNOLOGIES IN SECONDARY EDUCATION FOR INCLUSIVE COMPETENCE

Contemporary technologic approaches are an integral part of developing the teachers' information and skills to design inclusive classrooms and this is the involvement of a variety of technologies to inclusive education in secondary schools in India.

1.   **Professional Development Tools. 1. Professional Development Tools.**

- *Online Training Platforms.* Professional development for teachers in the form of online courses such as Coursera, NPTEL and SWAYAM, has a strong emphasis on inclusive teaching techniques and there are courses on these platforms that can teach teachers how to control heterogeneous classrooms, specialize in disabilities and execute contemporary teaching approaches.

- *Webinars and Virtual Conferences.* Online conference and webinar enable teachers to converse with international specialists in inclusive education. They can stay ahead of the developments, discuss the experience and learn how to design an inclusive classroom.

- *Learning Management Systems (LMS).* There are tools such as Moodle or Google Classroom that provide a framework for lifelong learning. These systems can accommodate training materials, offer tools for teachers and enable seamless communication during the learning process.

2.   **Assistive Technologies.**

- *Screen Readers, Text-to-Speech and Speech-to-Text Software.* These technologies enable students with visual or auditory disabilities to gain access to learning materials. For instance, screen readers can be used to support visually impaired students by reading digital text to speech, whereas text-to-speech and speech-to-text software can be used to support students with language disorders or difficulties in writing.

- *Devices for Physical Disabilities.* Technologies (i.e., braille keyboards, hearing aids, adaptive input devices) can allow students with physical impairments to engage with the classroom in a meaningful way. These instruments allow them to access the same pedagogic material that is accessible to the rest of the students.

3.   **Collaborative Learning Tools.**

- *Interactive Platforms.* Platforms such as Microsoft Teams and Zoom offer the functionality of real time teacher-student interaction and support collaborative learning, even in a pure online or mixed mode. These tools can be used for group discussions, peer learning and interactive lessons.

- *Digital Forums for Teachers.* There are online forums that offer a platform for teachers to post good practice, anecdote and resources for inclusive teaching. These platforms are capable of linking teachers from school, district and even state level, which would support a collaborative education approach.

4.   **Data-Driven Insights.**

- *AI and Analytics Tools.* Tools that use artificial intelligence (AI) and analytics can help assess individual student progress. By tracking students' performance over time, teachers can identify learning gaps, which allows them to tailor their teaching strategies to meet each student's needs.

- *Identification of Learning Gaps.* These technologies provides precious insights into where students are struggling, facilitates teachers to adapt lessons, offer extra assist, or modify teaching methods to address these gaps efficiently.

5. **Content Creation and Customization.**

- *Augmented Reality (AR) & Virtual Reality (VR).* AR/VR can be used to model actual-life situations in an accessible way. For example, VR can provide virtual classrooms in which students with disabilities can have access to several learning settings. This technology enables students to interact with their content in more dynamic and more immersive ways.

- *Gamified Learning Tools.* Platforms like Kahoot! Or Quizlet offer gamified learning activities, which are motivating for a range of learners. These tools offer personalized quizzes, challenges and rewards that make learning fun while helping students of all abilities stay engaged.

6. **Interactive Tools for Inclusive Classrooms.**

- *Smartboards.* These can be used to provide multi-sensory learning by integrating text, images and sounds to suit various learning approaches. This has a potential to serve students with different levels and therefore learning can become more inclusive and exciting.

- *Mobile Apps.* There are apps which contribute to language diversity and apps which can be applied to the development of student work (portfolio) or the analysis and documentation of progress, or which offer a learning space in which students reflect. These are educational tools that are tailored to student needs, can be used for whole school and class progress monitoring and support students' personal learning styles.

STRATEGIES FOR IMPLEMENTATION IN INDIAN SECONDARY SCHOOLS.

1. **Teacher Training Programs.**

- *Incorporating Inclusive Pedagogy Modules in Teacher Training.* It's essential to integrate inclusive teaching methods into B.Ed. programs and in-service teacher training. This will guarantee the next generation of educators with the knowledge and abilities to work in a wide array of classrooms.

- *Workshops on Assistive Technologies.* Teachers should be regularly professionalized with the application of assistive and adaptive technologies and workshops that center on practical applications of tools viz., screen readers, braille device and speech to text software ensures that teachers are well-prepared to execute these technologies in their teachings at classrooms.

2. **Policy Support.**

- *Collaboration between Government and Educational Institutions.* The government is required to collaborate with educational and training establishments to ensure the provision of the required infrastructure for delivery of inclusive education. This includes funding for devices, internet access and training programs for teachers.

- *Funding for Technological Tools.* To ensure that all schools, especially in rural and underfunded areas, can access modern technological tools, the government should provide financial support. This may involve subsidies or grants for schools buying assistive technology and other inclusive learning resources.

3. **Research and Innovation.**

- *Encouraging Action Research.* Teachers are to be motivated to undertake action research investigations into how technology can be judiciously used to support inclusion in classrooms.

This study is expected to provide a list of best practices and new and creative approaches that might be shared across schools.

- *Pilot Projects.* Developing pilot studies in a small number of schools to try out new software and practices is essential in understanding which is effective and which is not. Successful projects can then be scaled to other schools.

4. **Community and Peer Support.**

- *Building Teacher Learning Communities.* Teachers are to be incentivised to establish learning communities in which they can exchange resources, ideas and tackle problems together. These networks can facilitate sharing of best practice for inclusive and peer support.

- *Parental Involvement.* Promoting parents' apply of technology in the home to guarantee inclusive education enables students with disabilities to prolong their studies without leaving the classroom. Schools helps to parents utilise apps and tools to sustain their child's learning at residence.

By integrating present technologies with implementing these strategies, secondary schools create more inclusive classrooms where all students, in spite of of their abilities, have the chance to succeed.

CHALLENGES AND SUGGESTIONS

A. Challenges

- *Lack of Access to Modern Technology at Rural setting.* There are many schools, particularly rural schools, with no access to computers, internet or any of the other new technologies of an inclusive classroom. Without, such resources teachers are not able to take advantage of digital tools or teach with technology, thereby constraining the learners' learning potential.

- *Resistance to Change among Educators.* There may be some teachers who are unwilling to implement new teaching methodologies or may be resistant to classroom technology use because of traditional teaching methodologies or a misunderstanding of how technology can benefit student learning. This resistance can hinder the use of modern tools in schools.

- *Limited Training in Advanced Tools.* Teachers are rarely sufficiently trained in the employ of technology for the classroom and without the right training, they could be unconscious of how to use assistive technology, navigate online learning software, or intend inclusive lesson plans.

B. Suggestions

- *Ensure Equitable Access to Technologies for All Schools.* There is a need for the government and education bodies to put efforts to provide devices, including computers, tablets and internet connection to rural schools. This will enable teachers to employ digital resources and students to utilise online learning content.

- *Provide Ongoing Support & Mentorship for Teachers.* It is also essential to assist following provision of technology (namely support in the form of workshops, seminars with mentoring programmes for teachers). This permits educators to appreciate how to implement technology in effectual ways and how to deploy technology differently based on learning wants.

- *Develop User-Friendly Tools That Require Minimal Technical Expertise.* Technology ought to be simple to use, with straightforward interfaces and capabilities that do not involve heavy technical expertise. This will aid teachers in confidently using these tools and ease the learning process for students.

By focusing on these challenges and implementing these suggestions, schools creates a more inclusive and technologically prepared learning environment for all students, despite of their backgrounds or learning capabilities.

CONCLUSION

Modern technologies are very valuable in promoting inclusive competence for teachers in secondary education system and through the application of technology to teacher education and to classroom instruction, educators can build a setting in which diversity is honored to enable each student to thrive academically, socially and emotionally. Modern tools like learning management systems, collaboration platforms and data-driven insights enable teachers to alter their teaching tactics and target specific student requirements. Additionally, professional development alternatives like as online courses, webinars and digital forums help teachers integrate inclusion effectively. This study emphasizes the vital role of inclusive competency in secondary education, the significance of teacher empowerment and the role of current technologies in creating fair learning environments for all.

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