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ASSESSING 21ST-CENTURY LITERACY SKILLS AMONG PROSPECTIVE SPECIAL EDUCATORS IN INCLUSIVE EDUCATION: EVIDENCE FROM UTTAR PRADESH, INDIA

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ABSTRACT

The success of inclusive education largely depends on the competencies of teachers who are responsible for addressing the diverse learning needs of students. In the twenty-first century, educators are expected to possess advanced literacy skills that extend beyond traditional reading and writing abilities. These skills include digital literacy, information literacy, media literacy, communication, collaboration, critical thinking, and problem-solving. The present study examined the level of 21st-century literacy skills among prospective special educators in Uttar Pradesh, India. A descriptive survey research design was employed. Data were collected from 300 prospective special educators enrolled in various teacher preparation programs. A structured questionnaire consisting of seven dimensions of 21st-century literacy skills was used to collect data. Descriptive statistics, independent sample t-tests, and one-way analysis of variance (ANOVA) were used for data analysis. The findings indicated that prospective special educator's demonstrated moderate to high levels of 21st-century literacy skills. Significant differences were observed based on institutional type and educational qualification, whereas gender differences were not statistically significant. The study highlights the importance of integrating technology-rich experiences and skill-based training within special education teacher preparation programs to enhance readiness for inclusive educational environments.

Keywords: 21st-century literacy skills, Prospective Special Educators, Inclusive Education, Digital Literacy, Teacher Preparation, Uttar Pradesh

1 INTRODUCTION

The twenty-first century has transformed education through rapid advancements in information and communication technology, globalization, and increasing diversity within classrooms. Educational systems worldwide are emphasizing inclusive education to ensure equitable learning opportunities for all students, including those with disabilities. As a result, teachers are expected to possess competencies that enable them to address diverse learner needs effectively. Traditional literacy skills are no longer sufficient for educators working in contemporary educational settings. Modern educators must demonstrate proficiency in digital technologies, information management, communication,

collaboration, creativity, and problem-solving. These competencies are collectively referred to as 21st-century literacy skills.

For special educators, these skills are particularly important because they support the effective implementation of inclusive practices. Special educators routinely collaborate with general educators, therapists, families, and administrators while utilizing technology and evidence-based instructional strategies to support learners with diverse needs.

India's National Education Policy (2020) emphasizes inclusive and equitable quality education and advocates for the integration of technology within teaching-learning processes. Consequently, teacher preparation institutions must ensure that prospective special educators acquire the competencies required for modern inclusive educational environments.

Despite increasing attention to teacher competencies, limited research exists regarding the 21st-century literacy skills of prospective special educators in India, particularly in Uttar Pradesh. The present study attempts to address this gap.

Prospective special educators, as future professionals, need to develop these competencies during their teacher preparation programmes. Their ability to critically evaluate information, use digital and media resources responsibly, communicate effectively, solve educational problems, and apply technology appropriately can significantly influence the quality of educational support provided to learners with disabilities. Developing such skills is therefore essential for preparing competent, confident, and adaptable special educators.

Despite the growing emphasis on teacher competencies, digital transformation, and inclusive education, limited empirical research has specifically examined the 21st-century literacy skills of prospective special educators in India. The existing research particularly lacks sufficient evidence concerning teacher trainees in the field of special education and the regional context of Uttar Pradesh. This indicates a need to systematically examine the level and nature of 21st-century literacy skills among prospective special educators. The present study attempts to address this research gap by examining the 21st-century literacy skills of prospective special educators in Uttar Pradesh. The study is expected to provide meaningful insights into the competencies of future special educators and may contribute to strengthening teacher preparation programmes, curriculum planning, and professional development initiatives in the field of special education.

2 REVIEW OF LITERATURE

2.1 Concept of 21st-Century Literacy

Twenty-first-century literacy extends beyond basic reading and writing to include the ability to access, analyze, evaluate, create, and communicate information through various media and technological platforms. Modern literacy encompasses:

- Digital Literacy
- Information Literacy
- Media Literacy
- Critical Thinking
- Communication
- Collaboration
- Problem-Solving

These skills are essential for effective participation in contemporary society and educational contexts.

2.2 Inclusive Education and Teacher Competence

Inclusive education is based on the principle that all learners should have access to quality education regardless of disability, language, gender, or socioeconomic background. Successful inclusion requires competent educators who can employ differentiated instruction, individualized support, and collaborative learning approaches.

Teacher competence is consistently identified as one of the strongest predictors of successful inclusive practices. Teachers who possess strong literacy and technological skills are better equipped to address learner diversity.

2.3 Technology and Special Education

Technological innovations have significantly influenced special education. Assistive technologies, digital learning platforms, and adaptive instructional resources have improved educational access for students with disabilities. Consequently, special educators require advanced technological competencies to maximize learning opportunities.

2.4 Previous Studies

Several studies have investigated digital literacy and technological competence among pre-service teachers. Findings generally indicate positive attitudes toward technology but varying levels of competency.

Research has also demonstrated that exposure to technology-rich learning environments contributes significantly to literacy skill development. However, studies focusing specifically on prospective special educators remain scarce in the Indian context.

2.5 Need and Significance of the Study

The demand for skilled special educators is increasing due to the expansion of inclusive education initiatives across India. Teacher preparation programs must ensure that future special educators possess the competencies necessary to navigate rapidly changing educational environments.

Assessing the 21st-century literacy skills of prospective special educators can:

- Identify strengths and areas requiring improvement.
- Inform curriculum development.
- Enhance teacher preparation programs.
- Support inclusive education implementation.
- Guide educational policy decisions.

Objectives of the Study

The study aimed to:

- Assess the level of 21st-century literacy skills among prospective special educators.
- Examine differences in literacy skills based on gender.
- Determine differences in literacy skills based on institution type.
- Investigate variations according to educational qualification.
- Explore implications for teacher preparation and inclusive education.

2.6 Research Hypotheses

H₁: There is no significant difference in 21st-century literacy skills between male and female prospective special educators.

H₂: There is no significant difference in 21st-century literacy skills based on institution type.

H₃: There is no significant difference in 21st-century literacy skills based on educational qualification.

3 METHODOLOGY

3.1 Research Design

A descriptive survey research design was employed.

3.2 Population

The population consisted of prospective special educators enrolled in teacher education institutions across Uttar Pradesh.

3.3 Sample

A sample of 300 prospective special educators was selected using stratified random sampling.

Table 1: Sample Distribution

Category	Frequency
Male	136
Female	164
Government Institutions	120
Private Institutions	180
Total	300

Instrument: A researcher-developed questionnaire entitled 21st-Century Literacy Skills Scale (21CLSS) was used.

3.4 Dimensions

- Digital Literacy
- Information Literacy
- Media Literacy
- Communication Skills
- Collaboration Skills
- Critical Thinking
- Problem-Solving Skills

A five-point Likert scale was adopted ranging from:

- Strongly Disagree (1)
- Disagree (2)
- Neutral (3)
- Agree (4)
- Strongly Agree (5)

3.5 Reliability

Cronbach's Alpha = **0.91**

3.6 Data Analysis

The following statistical procedures were used:

- Mean
- Standard Deviation
- Independent Samples t-test
- One-Way ANOVA

4 RESULTS

Table 2: Mean Scores of 21st-Century Literacy Skills

Dimension	Mean	SD	Level
Digital Literacy	4.01	0.56	High
Information Literacy	3.96	0.61	High
Media Literacy	3.78	0.59	Moderate
Communication Skills	4.12	0.51	High
Collaboration Skills	4.18	0.48	High
Critical Thinking	3.92	0.54	High

Problem Solving	3.87	0.58	High
Overall	3.98	0.55	High

Interpretation: The overall mean score of 3.98 indicates that prospective special educators possess a high level of 21st-century literacy skills.

Table 3: Gender Differences in Literacy Skills

Gender	Mean	SD	t-value
Male	3.95	0.51	1.36
Female	4.00	0.47	

$p > .05$

Interpretation: No statistically significant difference was found between male and female prospective special educators.

Therefore, H_1 is accepted.

Table 4: Institution-Wise Differences

Institution Type	Mean	SD
Government	3.84	0.52
Private	4.09	0.46

$t = 3.74; p < .05$

Interpretation: Private institution students demonstrated significantly higher literacy skills.

Therefore, H_2 is rejected.

Table 5: Qualification-Wise Differences

Qualification	Mean
D.Ed. Special Education	3.79
B.Ed. Special Education	3.98
M.Ed. Special Education	4.15

ANOVA Results: $F = 5.84; p < .05$

Interpretation: Significant differences exist based on qualification level.

Therefore, H_3 is rejected.

5 DISCUSSION

The findings indicate that prospective special educators in Uttar Pradesh possess high levels of 21st-century literacy skills. Communication and collaboration emerged as the strongest competencies, suggesting that teacher preparation programs effectively promote interpersonal and professional interaction skills.

The significant institutional differences may be attributed to variations in technological infrastructure, faculty expertise, and exposure to digital learning resources. Private institutions often have greater access to modern educational technologies and technology-supported learning environments.

The absence of gender differences suggests that access to technological resources and professional learning opportunities is becoming increasingly equitable among teacher candidates.

The results further indicate that literacy skills improve with higher educational qualifications. M.Ed. students demonstrated stronger competencies than D.Ed. and B.Ed. students, possibly due to increased exposure to research, educational technologies, and professional experiences.

5.1 Educational Implications

5.1.1 For Teacher Education Institutions

- Integrate digital literacy across all special education courses.
- Provide hands-on experience with assistive technology.
- Encourage collaborative and project-based learning.

5.1.2 For Special Education Programs

- Strengthen ICT-based instructional practices.
- Promote inclusive digital pedagogies.
- Develop competency-based teacher preparation frameworks.

5.1.3 For Policymakers

- Establish standards for 21st-century literacy skills among special educators.
- Support technology infrastructure development.
- Encourage professional development initiatives focusing on inclusive education.

Limitations of the Study

- The study was limited to Uttar Pradesh.
- Data were collected through self-report measures.
- Only prospective special educators were included.
- Longitudinal effects were not examined.

Recommendations for Future Research

- Conduct studies across multiple states.
- Examine relationships between literacy skills and teaching effectiveness.
- Explore literacy skills among in-service special educators.
- Investigate the role of assistive technology competencies in inclusive teaching.

6 CONCLUSION

The study concludes that prospective special educators in Uttar Pradesh generally possess satisfactory levels of 21st-century literacy skills necessary for effective participation in inclusive educational environments. Communication, collaboration, critical thinking, and digital literacy emerged as key strengths. Institutional and qualification-based differences suggest the need for targeted interventions to ensure equitable competency development. Teacher education institutions must continue strengthening technology integration, digital pedagogy, and inclusive instructional practices to prepare future special educators for the evolving demands of twenty-first-century education.

STATEMENTS ON COMPLIANCE WITH ETHICAL STANDARDS

Disclosure of conflict of interest

The author declares no conflict of interest.

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