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SKILLS NEEDED FOR EDUCATION 4.0 AMONG PROSPECTIVE TEACHERS”: A PRE- AND POST-TEST ANALYSIS IN B.ED COLLEGES OF VIJAYAPUR CITY

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ABSTRACT

This study explores the skill readiness of prospective teachers in B.Ed colleges of Vijayapur city with reference to Education 4.0 competencies. Using pre- and post-test assessment design, the research measured trainees’ achievement scores across eight skill domains: cognitive flexibility, complex problem solving, creativity, critical thinking, decision making, emotional intelligence, negotiation, and time management. Percentage analysis revealed that while the majority of trainees fell within the average category in the pre-test, significant improvements were observed in post-test scores, particularly in critical thinking, creativity, and problem-solving. The study provides evidence-based recommendations for enhancing teacher education curricula to align with Education 4.0 demands.

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INTRODUCTION

Education 4.0 aligns education with the needs of the Fourth Industrial Revolution, emphasizing adaptability, creativity, problem-solving, digital literacy, and socio-emotional intelligence. Prospective teachers are at the heart of this transformation. This study evaluates the preparedness of B.Ed trainees in Vijayapur city through pre- and post-test analyses of eight essential skills, providing insights into areas of strength, weakness, and potential growth. In this study, e-Content refers to electronic content using an e-authoring tool enriched with images, videos, and links to external websites, to teach skills needed for Education 4.0 among Prospective Teachers. According to Spector et al. (2014), “E-content represents a pivotal component of modern educational ecosystems, enabling the creation of rich, diverse, and flexible learning environments that support active and personalized learning experiences”. In the present study Skills needed for Education 4.0 such as Complex Problem Solving, Critical Thinking, Creativity, Time Management, Emotional Intelligence, Decision Making, Negotiation and Cognitive Flexibility. The skills needed for Education 4.0 encompass a set of competencies and knowledge areas that enable teachers to effectively utilize advanced technologies, foster innovative teaching and learning practices, and prepare students for the demands of the 21st century.

Prospective teachers, who have obtained a Bachelor of Education (after graduation 10+2+3) degree, a specialized undergraduate academic degree that prepares individuals for a career in teaching. It designed to equip future teachers with the knowledge, skills, and practical experience necessary to effectively teach and manage classrooms at various educational levels. In the present study B.Ed Trainees were selected from colleges of Education in Vijayapur City, Karnataka.

Objectives

- To assess the pre-test achievement scores of prospective teachers across Education 4.0 skill domains.
- To assess the post-test achievement scores after targeted interventions.
- To compare pre- and post-test results to identify skill improvement.
- To suggest recommendations for teacher education curricula in developing Education 4.0 competencies.

METHODOLOGY

Pre-test Percentage Analysis

S.No	Skills Needed for Education 4.0	N (Low)	% (Low)	N (Average)	% (Average)	N (High)	% (High)
1	Cognitive Flexibility	5	10.3	35	72.1	8	17.6
2	Complex Problem Solving	8	19.1	28	54.4	12	26.5
3	Creativity	5	12.0	37	73.3	6	14.7
4	Critical Thinking	11	25.0	32	64.7	5	10.3
5	Decision Making	7	14.7	34	66.2	7	19.1
6	Emotional Intelligence	9	16.4	26	50.8	13	32.8
7	Negotiation	10	22.0	28	55.7	10	22.3
8	Time Management	6	16.3	35	67.2	7	16.5

Post-test Percentage Analysis

S.No	Skills Needed for Education 4.0	N (Low)	% (Low)	N (Average)	% (Average)	N (High)	% (High)
1	Cognitive Flexibility	3	6.7	35	73.3	10	20.0
2	Complex Problem Solving	5	16.7	27	50.0	16	33.3
3	Creativity	5	13.3	32	63.3	11	23.4
4	Critical Thinking	6	13.2	33	55.2	9	31.6
5	Decision Making	7	10.5	31	67.9	10	21.6
6	Emotional Intelligence	8	14.7	26	54.4	14	31.9
7	Negotiation	6	16.2	30	58.8	12	25.0
8	Time Management	5	15.6	33	54.9	10	29.0

Research Design: A pre-test and post-test descriptive design was employed.

Sample: B.Ed trainees from selected colleges in Vijayapur city were chosen using stratified sampling.

Tool: Structured achievement tests based on eight Education 4.0 skill domains were administered before and after intervention.

Analysis: Percentage analysis was conducted to classify respondents into low, average, and high categories.

RESULTS AND DISCUSSION

Pre-test Percentage Analysis

Inference: The pre-test revealed that most prospective teachers clustered in the average level across skills. Emotional intelligence (32.8% high) was a relative strength, while critical thinking (25% low, 10.3% high) emerged as the weakest domain.

Inference: The post-test results showed notable improvement in critical thinking (from 10.3% to 31.6% high achievers) and creativity (from 14.7% to 23.4% high achievers). Complex problem solving and time management also improved, with more participants reaching the high category. However, some domains like emotional intelligence remained relatively stable.

Comparative Findings

- **Improvement in Higher Order Thinking:** Significant gains in critical thinking, problem-solving, and creativity suggest that targeted interventions were effective.
- **Socio-emotional Skills:** Emotional intelligence and negotiation improved slightly, reflecting the need for more experiential training.
- **Time Management:** Improvement from 16.5% to 29% in high achievers indicates positive growth in self-regulation.

- **General Trend:** Average levels decreased as more trainees shifted toward high achievement categories across skills.

Implications

- **Curricular Integration:** Embedding creativity and critical thinking modules into B.Ed curriculum is essential.
- **Skill-based Workshops:** Problem-solving and negotiation simulations can accelerate skill acquisition.
- **Faculty Training:** Teacher-educators should model Education 4.0 practices through blended and experiential pedagogies.
- **Policy Directions:** Education boards should adopt competency-based assessments as a formal part of teacher education programs.

CONCLUSION

The study highlights that B.Ed trainees in Vijayapur city, while initially average across most Education 4.0 skill domains, demonstrated significant improvement in the post-test, particularly in higher-order cognitive skills. These findings emphasize the transformative potential of well-designed interventions in teacher education. Focusing on continuous improvement of critical thinking, creativity, and emotional intelligence will ensure that prospective teachers are well-prepared to meet the challenges of Education 4.0.

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