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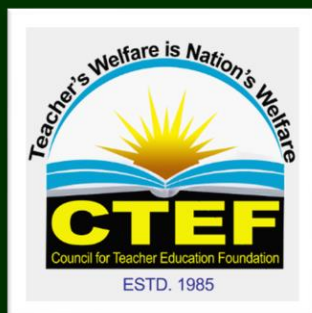
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Integrating 21st Century Competencies in Pre-Service Teacher Preparation

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Abstract

The world is changing rapidly in globalization and modernization. This changing world needs a new set of skills to cope up. Teaching Learning can only be considered truly comprehensive when it enables students to effectively meet their responsibilities across all spheres—personal development, academic life, family duties, social obligations, and national service. The student should be able to face the challenges of life and be capable to take appropriate decisions. The purpose of education is to develop students into conscientious citizens and accountable individuals who clearly recognize their abilities and talents. The present education system is more of rote memorization and knowledge focused. It fails to prepare the students for the future life. We find that the education which is expected to broaden the thinking and instil skills is leading to mental health issues. Students committing suicide has become very common nowadays. Twenty-first century skills are essential for enabling young people to address the challenges and matters affecting their lives. During childhood through adolescence to adulthood, they experience a range of emotions, many of which are connected to their development and progress. This highlights the need for education system to be changed in such a way that it prepares the youth for the future world and future life related issues. To achieve this overhaul of the teacher education program becomes imperative. The role of teacher is very important in this and hence teacher education program should incorporate these 21st century skills and prepare future teachers with these skills. The NEP 2020 also focuses on changing the education system to develop 21st century skills. According to the National Education Policy 2020, education aims to develop both students' intellectual capabilities and personal qualities, creating complete, balanced individuals equipped with the necessary skills for the 21st century. This leads to a question that why can't our education system equip the future teachers with these skills so that they can prepare the young generation to face the challenges of life? There is a need to make the education meaningful.

We need to bring a shift from rote memorization to skill-based teaching learning. This paper emphasizes on understanding the 21st century skills and its need and importance to be integrated in teacher training program. The authors also put forth the argument that integration of the 21st century skills will demand relooking into the teacher education training program. The paper also has made an attempt to suggest the changes in the pedagogy for incorporating the 21st century skills. As socioeconomic and cultural systems advance globally, there emerges a clear need to reconsider how knowledge is constructed in both classroom settings and teacher education programs. The need to move from content transmission to acquisition of skills and competencies. These skills and competencies will facilitate the learner to face the real-life challenges and real-world situations (Kivunja, 2014).

Keywords: 21st century skills, learning skills, literacy skills, life skills, teacher education, curriculum development, integration with technology

Introduction

The world is changing rapidly with globalization and modernization. This changing world needs a new set of skills to cope. The education system must be changed to prepare the youth for the changing world. We need 21st-century skills to be taught to the young generation. The NEP 2020 also focuses on changing the education system to develop 21st-century skills. The present education system is more rote memorization and knowledge-focused. We need to bring a shift from rote memorization to skills-based teaching-learning. This shift is possible only by bringing the change in the teacher education program.

This paper is an attempt to suggest how we can integrate 21st-century skills into the teacher education program. For the 21st-century skills, we need a paradigm shift to new learning methods (Kivunja, 2014). The need is to shift from a teacher-centred model to student student-cantered method. We need to move from content transmission to the acquisition of skills and competencies. These skills and competencies will facilitate the learner to face real-life challenges and real-world situations (Kivunja, 2014).

21st-Century Skills

Let us first understand what 21st-century skills are? Twenty-first century skills are competencies that represent the capabilities a person needs for well-rounded development, empowering them to further the progress of their society, country, and global community. Put simply, 21st century talents are those needed to meet the difficulties of an increasingly

globalised world in the twenty-first century, digitally transforming, collaboratively moving forward, creatively progressing, quick in adopting changes and seeking competent human-resource.

Twenty-first century skills refer to teachable and learnable capabilities and qualities that improve how individuals think, learn, work, and exist in the society. The concept of "21st-century skills" describes a broad range of knowledge, skills, professional conduct, and character traits that are widely acknowledged by educators, supporters of higher education, academics, employers, and other stakeholders as crucial to success in the contemporary era.

Different viewpoints on what defines twenty-first-century skills are given by the US-based Partnership for 21st Century Skills and the global research project Assessment & Teaching of 21st Century Skills (ATC21S). The Partnership for 21st Century Skills categorizes these capabilities into several groups: fundamental subjects with contemporary themes, skills for career and life, communication abilities, collaborative competencies, creative thinking, critical analysis, and proficiency with information, media and technology. Meanwhile, ATC21S organizes these same skills differently, grouping them as thinking methods, working approaches, and practical tools for work and everyday life (Binkley et al., 2012)

Table 1: Global Framework defining 21st century skills

Framework	Skills Highlighted	Relevance for Teacher Education
P21 Framework (2009)	4Cs: Critical thinking, Creativity, Communication, Collaboration + ICT	Core framework shaping curricula
Assessment & Teaching of 21st Century Skills (ATC21S)	Collaborative problem-solving, metacognition, ICT literacy, and citizenship.	Develops research-based methods to teach and assess modern skills, especially through technology.
NEP (2020)	Emphasizes critical thinking, creativity, digital literacy, communication, values, and vocational skills.	Transforms Indian education into a holistic, competency-based, values-aligned system.

21st-century skills are defined differently by different people. Some define it as learning skills, literacy skills, and life skills.

Learning Skills

Learning skills are alternatively identified as the four critical thinking, creativity, collaboration, and communication.

Critical thinking: Critical thinking proficiency allows students to carefully study different values, ideas, and concepts while reflecting on how these relate to their individual beliefs, perspectives, and understandings. It also helps in providing space for intellectual autonomy.

Creativity: Creativity encompasses the mental skill of reimagining problems or tasks through innovative or different cognitive frameworks. This will allow one to use one's imagination to come up with ideas to solve the problem or task. Creativity is about one imagination, generation of new ideas, visualizing things, designing new things, and being innovative and resourceful.

Communication: Communication skill is the ability to understand others and also the ability to be understood by others. It includes effectively communicating your ideas to others, listening to others, providing feedback, and receiving feedback.

Collaboration: Collaboration skill is the ability to work well with others and being able to achieve a common goal. It involves building relationships with one team member and resolving the conflicts within, creating an environment of work that is conducive to all.

Literacy Skills:

The term "literacy skills" refers to abilities that help individuals read and make meaning from various accessible materials, covering media literacy, information literacy, and technology literacy.

Media literacy: Media literacy encompasses the aptitude to critically assess and comprehend various media platforms, ranging from traditional print and broadcast media to digital and social media channels. This involves analysing how media messages are constructed and distributed, and understanding their impact on shaping public opinion, cultural attitudes, and individual beliefs.

Information literacy: Information literacy is recognizing, locating, assessing, and applying information in various contexts, including print and digital media.

Technology literacy: Technology literacy involves understanding the way to use digital tools for productivity, communication, and problem-solving as well as recognizing the ethical, social, and economic implications of technology. It also involves having the flexibility to

adopt new technology and use it responsibly in social, professional, and personal circumstances.

Life Skills

Life skills refer to abilities that together facilitate a meaningful and successful daily life, including adaptability, leadership qualities, self-initiative, and cross-cultural competence. In Powell's (1985) definition, these skills represent developmentally appropriate coping strategies—the capabilities needed to handle tasks suitable for specific age and gender across psychological, physical, sexual, vocational, cognitive, moral, and emotional aspects of human development.

Need For 21st-Century Skills

21st-century skills are imperative to face the new challenges of the changing world. It will help in making good citizens. 21st-century skills will help in empowering future citizens to deal with their issues and concerns. It will help in preparing an individual for tomorrow's workplace; they need to have both knowledge of discipline-specific as well as some generic and specific skills. (Barrett and Moore, 2011, Slavery, 2006).

Becoming a teacher in the 21st century is a challenging task. The teacher needs to be skilful in dealing with Gen Z Earlier the teaching used to be monotonous which cannot be continued today. The future generation is too exposed to technology and they are very active and curious. They are exposed to lots of information and hence the role of the teacher is no longer the information giver. It is very important for a teacher to keep peace with this new generation of students and hence needs to be equipped with 21st-century skills so that they can provide support and assistance to their students.

We find the young generation committing suicide, entering in wrong company, and making a wrong decision which ruins their life. These incidents take place as the young generation lacks 21st-century skills, they are not able to resolve their problems, and they are not able to communicate their problems to someone. We need to equip these children with 21st-century skills. To equip them with these 21st century skills we must prepare the future teachers with these skills first. Hence 21st century skills must be incorporated in the teacher education program.

Integrating 21st-Century Skills in Teacher Education Program

In the rapidly evolving landscape of education, the demands placed on teachers have transformed significantly. Traditional teaching approaches are now incomplete for developing

students ready to confront present-day challenges. As a result, there is an urgent need to integrate 21st-century skills into teacher education programs. These skills go beyond the traditional curriculum, encompassing a set of abilities crucial for both teachers and their students to thrive in the modern world.

Having understood the importance of integrating 21st-century skills and the concept of 21st-century skills now let's deliberate on how to integrate these 21st-century skills in teacher education programs.

For this, the teacher education system needs to revamp itself in terms of curriculum design, pedagogical approaches, and assessment methods. The following things are to be noted –

Curriculum Development

The educational roadmap should highlight knowledge building while supporting students in creating information of personal significance, as well as helping them develop novel competencies. Developing a curriculum with real-world applications will improve student participation, motivation and understanding their subject matter and preparing them for life. In Jacobsen's (2001) work suggests that multiple technological aids can bolster various competencies such as problem solving, critical thinking, team-based learning, and the overall learning atmosphere. In 21st-century to support the above-mentioned skills tools like Wiki, Quizzes, Google site, Digital Storytelling, Soft Chalk Lesson Builder, E-portfolios, portfolios, Web Quests and, Blog, etc., are needed as highlighted by Alismail (Alismail, H. A., & McGuire, P. 2015).

Integration With Technology

This is one of the important aspects to be take care of. The technology component should be an important aspect in the teacher education program. The students should develop an ability to use technology creatively. The classroom instructions should be aligned with technology. Many 21st-century teaching practices improve students' acquisition of knowledge and abilities while enabling them to interact with real-world situations.

Pedagogical Methods

The future teachers need to be trained in the variety of pedagogical methods which will help in incorporating 21st century skills in the future generation.

Role Play - Role-playing serves as an educational strategy allowing students to investigate realistic scenarios through structured interactions with peers, helping them gain experience and test different strategies in a supportive environment Based on the activity's objective,

participants might adopt roles resembling their own (or roles they may assume in the future), or alternatively, they could take on the opposing perspective in the conversation.

Project Based Learning - The purpose of project-based learning (PBL) is to use practical, real-world experiences to teach students how to solve problems, think critically, work in groups, and interact with others. With this technique, students engage fully in every aspect of the project, setting it apart from a teacher-centred approach. Students are more likely to be engaged and active throughout the project due to this method encourages deep understanding and is student-driven.

Group Discussion – Group discussion is a formal and systematic method. It refers to a situation in which a few people form a group to exchanges their ideas, viewpoints, knowledge, and information on a particular topic, problem, or situation among the member of groups, the exchanges take place through oral communication.

Assessment - Using a variety of assessment strategies and even preparing them for using a variety of assessment techniques such as: formative, portfolio-based, curriculum-embedded, peer assessment, performance-based assessment, project-based assessment, Rubrics and criteria-based assessment, digital assessment, and self-assessments and reflection.

Challenges of Integrating 21st Century Skills:

The challenges that are encounter while integrating 21st century skills -

Resistance to paradigm shift - Moving from traditional teacher-centered, rote memorization methods to student-centered, skills-based approaches requires significant change in mindset and practice. A study conducted in teacher education institutions in India reported that, despite the availability of ICT resources, many teacher educators continued relying on traditional chalk-and-talk methods because of established practice and insufficient professional training (Kaur & Singh, 2019).

Curriculum redesign requirements - The existing curriculum structure is knowledge-focused and would need substantial restructuring to incorporate real-world applications and competency development.

Technology infrastructure and training gaps - Implementing technology-integrated teaching requires adequate resources, tools, and training for both teacher educators and student teachers. A study during the COVID-19 period revealed that numerous pre-service

teachers in Sub-Saharan Africa were unable to fulfil their practicum obligations because of poor online teaching infrastructure and limited digital support (Onyema et al., 2020).

Assessment methodology transformation - Shifting from traditional examination-based assessment to diverse assessment strategies (portfolio-based, performance-based, peer assessment, etc.) presents practical and logistical challenges.

Teacher educator preparedness - Current teacher educators themselves may lack adequate training in 21st century pedagogical methods and technologies, making it difficult to train future teachers effectively.

Institutional and systemic inertia - The established education system's structures, policies, and practices may resist the comprehensive overhaul needed for meaningful integration.

These challenges show that adding 21st-century skills to teacher education is not only about using technology or offering training. It also depends on changing beliefs, improving systems, and strengthening policies. If all these issues are not solved together, the reforms may look good on paper but will not lead to real change.

Suggestion

Following suggestion can be integrate 21st century skills

Professional Development:

Preparing teachers for 21st-century learning requires support that extends well beyond initial training. Educators need ongoing professional development (CPD) to remain responsive to fast-changing educational demands. Such development is not limited to updating content knowledge; it also involves reskilling and upskilling teachers so they can integrate digital technologies, apply innovative pedagogies, and nurture socio-emotional competencies in learners (Avalos, 2011; Darling-Hammond & Hyler, 2020). Effective CPD today must be continuous, collaborative, technology-rich, and reflective, replacing traditional one-time workshops with sustained, growth-oriented learning opportunities.

Reflective Practice and action Research:

Teachers are encouraged to use reflective practice and action research to bring 21st-century skills into their teaching. Writing reflective journals helps them develop skills like empathy and adaptability. Action research lets teachers study their own classroom practices and try out new, practical ideas (Zeichner, 2010).

Conclusion

With the changing times, there is a need for teacher education to change to prepare teachers for the challenges of 21st-century skills. For teacher educators as well as student teachers who will eventually work as future practitioners in the teaching profession, creating learning environments is a major concern in the education fraternity.

In summary, the need for 21st-century skills in teacher education programs is undeniable. By equipping educators with these skills, we not only enhance the teaching profession but also empower students to thrive in an ever-changing world. The importance of integrating these skills into teacher education cannot be overstated, as it lays the foundation for a more dynamic, relevant, and effective educational system. As we navigate the complexities of the 21st century, investing in the skills of our educators is an investment in the future success of generations to come.

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