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अर्द्धवार्षिक शैक्षिक शोध पत्रिका भारतीय शिक्षा शोध संस्थान द्वारा प्रकाशित	
सम्पादक मण्डल अध्यक्ष प्रो. एस.के. द्विवेदी मंत्री श्री विजय शर्मा शोध निदेशक डा. सुबोध कुमार परामर्शी डा. विभा दत्ता मुख्य सम्पादक प्रो. सुनील कुमार पाण्डेय सम्पादक मण्डल प्रो. एस.के. द्विवेदी डॉ. आई.पी. शर्मा प्रो. अमिता बाजपेई प्रो. निधिबाला प्रो. शशि भूषण प्रबन्ध सम्पादक डॉ. शिवभूषण त्रिपाठी	
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इस शोध पत्रिका में लेखकों द्वारा व्यक्त विचार, निष्कर्ष आदि उनके अपने हैं। ये विद्या भारती एवं भारतीय शिक्षा शोध संस्थान की नीतियों के परिचायक नहीं हैं। यदि किसी लेखक की प्रकाशित सामग्री से कापीराइट नियम का उल्लंघन होता है तो इसके लिए लेखक स्वयं उत्तरदायी होंगे। प्रकाशक अथवा सम्पादक मण्डल इसके लिए किसी भी प्रकार से उत्तरदायी नहीं होंगे।	
भारतीय शिक्षा शोध पत्रिका का प्रकाशनाधिकार भारतीय शिक्षा शोध संस्थान, सरस्वती कुन्ज, निराला नगर, लखनऊ का है। अतः इस प्रकाशन का कोई भी भाग शोध संस्थान के अध्यक्ष की लिखित अनुमति के बिना न तो प्रयोग किया जा सकता है और न ही किसी रूप में सुरक्षित किया जा सकता है।	

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- References/Bibliography: As APA Style
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The present issue of the Journal Bharatiya Shiksha Shodh Patrika includes various significant Research Studies in the area of Social Sciences. A brief description of some of the studies, based on the research papers of the contributors, is being given here.

In a study conducted by Dr. Shruti Kirti Rastogi, Post Doctoral fellow (ICSSR) and Prof. Harishankar Singh, Dean School of Education, Babasaheb Bhimrao Ambedkar University, Lucknow on the topic 'Assistive Technology for Multiple Disabilities with Visual Impairment (MDVI) Students in Inclusive Education Regarding National Education Policy 2020: A Review' the authors tried to examine the profound impact of Assistive Technology (AT) solutions on MDVI student's educational experiences with inclusive educational settings. The findings indicate that MDVI students can engage with curriculum contents effectively and can participate actively in classroom activities.

In another study titled 'Attitude of Pre-Service Teachers Towards Online Learning During Covid-19 Pandemic' Dr. Mandeep Kaur, Principal Khalsa College of Education, Amritsar and Ms. Meenakshi, Assistant Professor tried to find out the attitude of pre-service teachers towards online learning during Covid-19 pandemic with respect to gender, locale and academic stream. The findings of the study revealed that there was significant difference between attitude towards online learning of pre-service teachers with respect to gender. However no significant difference was found in the attitude towards online learning of preservice teachers with respect to locale and academic stream.

As we all are experiencing the impact of Maha Kumbh at Prayagraj we can say that any event, howsoever big it may be, can be organised effectively if there is a strong will. Dr. Amit Singh and Dr. Bhoomika Meiling presented a paper on "Kumbh Mela and the Mytho-Spatial Consciousness: New Directions" as a part of ICSSR sponsored project on Kumbh Mela. In this paper they explored the three important areas of Kumbh Mela viz, space, myth and belief systems. They emphasized that there is no one sense organ for the perception of space and time. A sacred place is sacred if it is believed so by the society. Kumbh Mela encompasses various historicities and psycho-social realities. The Kumb Mela Kshetra experiences annual Magh Mela at the same period every year which is equally important religiously and socio culturally with a lesser participation. The churning of Ocean represents life, its evolution and its sustenance. Not before this Kumbh the academic angle of this was ever taken into consideration. But time is changing and more social perceptions are gaining importance in academic field.

Dr. Gagandeep Kaur, Assistant Professor, Mrs Manpreet Kour, Research Scholar, Department of Education GNDU Amritsar conducted a study on 'Self Concept and Perceived Loneliness Among Non-Institutionalized and Institutionalized Students'. The results of the study indicate that institutionalized orphans have higher physical self-concept than non institutionalized orphans. No significant difference was found in institutionalized and non-institutionalized orphans with respect to social, temperamental, educational and intellectual dimensions of self concept. The study further revealed that institutionalized students have higher perception on loneliness than non-institutionalized orphans. The findings of the study suggested that in order to address concerns with child mental health, Physical self concept etc. non institutionalized orphans require extra ordinary child supervision and counselling programmes.

There are many more papers equally important for academia which can not be included in the editorial due to paucity of space. We hope that the published papers significantly contribute to the knowledge sphere of our readers.



(Sunil Kumar Pandey)
Chief Editor

Assistive Technology for Multiple Disabilities with Visual Impairment Students in Inclusive Education Regarding National Education Policy 2020: A Review

**Dr. Shruti Kirti Rastogi, **Prof. Harishankar Singh*

Abstract

The integration of assistive technology (AT) has become increasingly vital in fostering inclusive education for students with multiple disabilities with visual impairment (MDVI) in alignment with the National Education Policy (NEP) 2020. This review paper examines the profound impact of AT solutions on MDVI students' educational experiences within inclusive educational settings. By elucidating the key provisions of NEP 2020 related to inclusive education and the educational needs and challenges faced by MDVI students, this paper underscores the imperative for leveraging AT to address these challenges effectively. Through an exploration of the role of AT in supporting MDVI students, including its importance in providing access to educational materials, enhancing communication, and promoting independence, this paper highlights the transformative potential of AT in facilitating meaningful participation and learning outcomes for MDVI students in inclusive classrooms. Moreover, this paper underscores the significance of aligning AT initiatives with the principles of UDL, ensuring equitable access to educational opportunities, and fostering a culture of diversity and inclusion in educational settings.

Introduction

The goal of the inclusive education is to provide all students, regardless of their background, ability level, or other factors, with equal access to high-quality educational opportunities¹. It promotes an inclusive learning environment where all children, regardless of ability, feel safe, respected, and supported by integrating kids with special needs or disabilities into regular classrooms. When we talk about inclusive education, we're not only talking about physically integrating children; we're also talking about making sure that all students have the resources they need to succeed academically, socially, and emotionally. This approach recognizes and celebrates the diversity of learners, acknowledging that every individual has unique strengths, abilities, and learning styles². By identifying and removing obstacles to learning and engagement, inclusive education guarantees that all students may get a high-quality education and realize their maximum potential.

Importance of Assistive Technology in Inclusive Settings

Assistive technology plays a pivotal role in fostering inclusivity within educational settings by providing tailored support to students with diverse learning needs or disabilities. Its significance lies in its capacity to bridge the gap between learners with different abilities, ensuring equitable access to educational opportunities. Assistive technology empowers students by offering personalized tools and resources that cater to their unique strengths and challenges, promoting independence and self-reliance³. By removing barriers to learning and participation, it creates an environment where every student can fully engage in classroom activities, access instructional materials, and demonstrate their knowledge and skills. Furthermore, assistive technology fosters a culture of acceptance and diversity, promoting collaboration and mutual respect among students of all abilities. Overall, its importance in inclusive settings lies

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in its ability to promote equity, access, and success for all learners, regardless of their individual needs or differences.⁴

Key Provisions Related to Inclusive Education

The National Education Policy (NEP) 2020 incorporates several crucial provisions aimed at fostering inclusive education and ensuring equitable access to quality learning opportunities for all students. Among its key provisions, NEP 2020 underscores the importance of universal access to early childhood care and education (ECCE), including children with disabilities, and advocates for the expansion of inclusive practices to accommodate diverse learning needs. It emphasizes the establishment of barrier-free learning environments, calling for the removal of physical, infrastructural, and attitudinal barriers in educational institutions⁵. NEP 2020 also prioritizes comprehensive teacher training programs to equip educators with the necessary skills to support diverse learners effectively. Furthermore, it advocates for flexible curriculum frameworks and assessment practices to accommodate the needs of students with disabilities, ensuring they are not disadvantaged in the learning process. Collaboration and stakeholder engagement are also emphasized, highlighting the importance of partnerships between educational institutions, government agencies, and civil society organizations in promoting inclusive education⁶. Overall, NEP 2020 reflects a commitment to promoting equity, access, and quality education for all learners, reaffirming the principles of inclusivity and diversity within the education system.

Understanding Multiple Disabilities with Visual Impairment (MDVI)

Understanding Multiple Disabilities with Visual Impairment (MDVI) entails a multifaceted examination of the challenges and opportunities presented by individuals facing this complex condition. In the context of the National Education Policy (NEP) 2020, which serves as a visionary blueprint for reshaping India's educational landscape, it becomes evident that addressing MDVI within the framework of inclusive education is paramount. NEP 2020 represents a paradigm shift in educational philosophy, prioritizing inclusivity, quality, and relevance. At its essence lies the principle of equitable access to high-quality education for all learners, regardless of background or circumstance. This principle holds particular significance for individuals with MDVI,

whose diverse needs require tailored support to facilitate their holistic development.

Central to NEP 2020 is the recognition of education as a catalyst for holistic development, emphasizing not only academic excellence but also the cultivation of critical thinking, creativity, and essential life skills. This holistic approach aligns with the comprehensive support required for individuals with MDVI, acknowledging the importance of addressing their unique cognitive, sensory, and physical needs.⁷

Additionally, NEP 2020 advocates for continuous improvement, innovation, and research-driven practices in education, principles that are instrumental in advancing the understanding and support systems for individuals with MDVI. By fostering an environment of innovation and research, educators and stakeholders can develop effective strategies and interventions tailored to the specific challenges faced by individuals with MDVI. NEP 2020's emphasis on a flexible and relevant curriculum resonates strongly in the context of MDVI, where traditional educational approaches may not fully address the diverse learning needs of affected individuals. A curriculum that adapts to the evolving needs of learners with MDVI is essential for ensuring their meaningful participation and engagement in the educational process.⁸

Also, NEP 2020 underscores the importance of embracing India's linguistic and cultural diversity while promoting digital literacy and technology integration. For individuals with MDVI, these principles hold particular relevance, as they pave the way for accessible learning materials, assistive technologies, and inclusive educational practices that facilitate their participation in mainstream educational settings. NEP 2020 serves as a guiding framework for advancing the understanding and support systems for individuals with MDVI within the broader context of inclusive education. By embracing its principles of inclusivity, quality, and relevance, educators and stakeholders can work towards creating an educational ecosystem that empowers individuals with MDVI to realize their full potential and contribute meaningfully to society.

Educational Needs and Challenges of MDVI Students: Students with Multiple Disabilities with Visual Impairment (MDVI) face unique educational needs and challenges that require specialized support and intervention. MDVI students often have complex learning profiles, as they experience both visual and additional

disabilities, such as intellectual disabilities, hearing impairments, or motor impairments. Meeting the educational needs of MDVI students involves a multidisciplinary approach that addresses their individualized learning requirements, communication methods, and sensory preferences. Challenges may arise in accessing instructional materials, navigating the physical environment, and communicating effectively with peers and educators. Additionally, providing appropriate assistive technology, adaptive equipment, and sensory accommodations is essential to facilitate learning and promote independence. Furthermore, ensuring collaboration among educators, therapists, and families is crucial for designing comprehensive educational plans that address the diverse needs of MDVI students and foster their academic, social, and emotional development. Overall, addressing the educational needs and challenges of MDVI students requires a holistic and collaborative approach that recognizes their unique abilities and supports their full participation in the educational environment.

Role of Assistive Technology in Supporting MDVI Students : Assistive technology stands as a cornerstone in the educational journey of students with Multiple Disabilities with Visual Impairment (MDVI), offering advanced solutions to address their complex needs and foster inclusive learning environments. In the dynamic landscape of MDVI education, the role of assistive technology transcends mere facilitation, emerging as a catalyst for empowerment, independence, and academic excellence.

At the forefront of its transformative impact lies the integration of cutting-edge technologies tailored to the unique needs of MDVI students. Advanced screen readers equipped with natural language processing capabilities and context-aware algorithms provide seamless access to digital content, offering personalized reading experiences that cater to individual preferences and learning styles. Similarly, next-generation braille displays leverage tactile feedback and refreshable braille technology to deliver dynamic and interactive educational materials, empowering MDVI students to engage with complex concepts and multimedia content with unprecedented ease and efficiency.

Moreover, the advent of tactile graphics systems equipped with haptic feedback technology revolutionizes the way MDVI students interact with visual information, enabling them to explore spatial concepts, maps, and

diagrams through tactile exploration and sensory feedback. By leveraging advanced sensory substitution techniques and immersive virtual reality environments, assistive technology transcends traditional boundaries, offering MDVI students immersive learning experiences that bridge the gap between the tactile and visual domains.

In the realm of communication support, state-of-the-art augmentative and alternative communication (AAC) devices harness the power of artificial intelligence and natural language processing to provide intuitive and contextually relevant communication solutions for MDVI students. Advanced speech-generating devices equipped with adaptive predictive text algorithms and multimodal input interfaces empower MDVI students to express themselves fluently and engage in meaningful social interactions with peers and educators.

Furthermore, assistive technology extends its reach to address mobility challenges and ergonomic needs, offering innovative solutions such as intelligent navigation systems, wearable sensory augmentation devices, and personalized ergonomic workstations designed to enhance mobility, spatial awareness, and physical comfort for MDVI students.

By harnessing the transformative potential of advanced assistive technologies, educators and stakeholders can create inclusive learning environments that empower MDVI students to unlock their full potential, pursue their passions, and contribute meaningfully to society. As we embrace the possibilities afforded by technological innovation, let us strive to ensure that every MDVI student has equitable access to advanced assistive technologies that enable them to thrive and succeed in the classroom and beyond.

Assistive Technology Solutions for MDVI Students

Assistive technology solutions for students with Multiple Disabilities with Visual Impairment (MDVI) encompass a diverse range of tools and devices designed to address their unique learning needs and promote their independence. Some common assistive technology solutions for MDVI students include:⁹

Screen Readers: Screen readers convert digital text into synthesized speech or braille output, enabling MDVI students to access electronic documents, websites, and software applications.

Braille Displays: Braille displays provide tactile output of digital information, allowing MDVI students to

read and navigate text-based content on computers, tablets, and smartphones.

"Tactile Graphics": "Tactile graphics" are raised-line diagrams and images that convey visual information through touch, enabling MDVI students to interpret maps, charts, and diagrams independently.

"Augmentative and Alternative Communication (AAC) Devices": AAC devices, such as "speech-generating devices and communication boards", facilitate communication for MDVI students who have difficulty speaking or expressing themselves verbally.

Adaptive Software: Adaptive software applications, such as magnification software and screen customization tools, enable MDVI students to adjust the display settings and access digital content more comfortably.

"Assistive Listening Devices": For students with hearing loss attending MDVI, assistive listening equipment including FM systems and personal amplifiers improve auditory access, which in turn increases their participation in class discussions and activities.

Adaptive Equipment: Adaptive equipment, including ergonomic keyboards, adaptive seating, and mobility aids, supports MDVI students in navigating the physical environment and participating in hands-on learning experiences.

Impact of "Assistive Technology on Inclusive Education"

Assistive technology is essential in removing obstacles to learning and ensuring that students with disabilities are able to fully participate in regular classrooms, so it has a significant influence on inclusive education. Students with various learning requirements, such as physical, sensory, cognitive, or developmental impairments, may benefit greatly from assistive technology. It improves their access to educational resources, helps them communicate more effectively, and encourages them to become more independent¹⁰. By providing customized solutions tailored to individual students' needs, assistive technology enables them to overcome challenges, engage in learning activities, and demonstrate their abilities alongside their peers. Furthermore, assistive technology promotes inclusive practices by creating a more accessible and inclusive learning environment for all students, regardless of their abilities. Through the effective integration of assistive

technology into instructional practices and curriculum design, inclusive education becomes more achievable and meaningful, fostering a culture of diversity, equity, and inclusion in schools and society. Overall, the impact of assistive technology on inclusive education is transformative, empowering students with disabilities to reach their full potential and participate fully in the educational experience.

NEP 2020 with provisions of assistive technology solution

The National Education Policy (NEP) 2020 of India acknowledges the importance of leveraging technology to create inclusive and accessible learning environments for all students, including those with disabilities. Several provisions within NEP 2020 emphasize the integration of assistive technology solutions to support the educational needs of learners with diverse abilities:¹¹

Universal Design for Learning (UDL): NEP 2020 advocates for the adoption of UDL principles, which emphasize the use of flexible instructional strategies, materials, and assessments to accommodate the diverse learning needs of all students. Assistive technology solutions, such as screen readers, text-to-speech software, and braille displays, can be instrumental in implementing UDL practices and ensuring equitable access to educational content for students with disabilities.

ICT Infrastructure: NEP 2020 emphasizes the development of robust Information and Communication Technology (ICT) infrastructure in schools to facilitate digital learning and access to assistive technology tools. This includes providing internet connectivity, computers, tablets, and other assistive devices to support students with disabilities in accessing educational resources and participating in online learning activities.

Special Education and Support Services: NEP 2020 emphasizes the importance of providing specialized support services, including assistive technology, to students with disabilities to ensure their full participation and inclusion in mainstream educational settings. Schools are encouraged to develop Individualized Education Plans (IEPs) for students with disabilities, which may include recommendations for assistive technology solutions tailored to their specific learning needs and goals.

Teacher Training and Capacity Building: NEP 2020 highlights the need for ongoing teacher training and professional development programs to build educators'

capacity in using assistive technology effectively to support students with disabilities. Teachers are encouraged to receive training on the selection, implementation, and evaluation of assistive technology solutions, as well as strategies for integrating these tools into classroom instruction and curriculum design.

Research and Innovation: NEP 2020 emphasizes the importance of promoting research and innovation in the development of assistive technology solutions that address the unique needs of students with disabilities. Collaborative efforts between educational institutions, industry partners, and research organizations are encouraged to identify and develop innovative assistive technology tools and practices that enhance access, participation, and learning outcomes for all students.

Literature Reviews

The study investigated the physical accessibility within Aligarh Muslim University and Jamia Millia Islamia, focusing on learning-related infrastructures and facilities for students with visual, hearing, and locomotor disabilities. Using an Accessibility Audit checklist, the study aimed to identify relevant buildings and accessibility provisions. Results indicated suboptimal accessibility provisions in both universities, with AMU demonstrating slightly better accessibility than JMI. The study underscores the importance of adhering to building regulations and national policy provisions to reduce accessibility barriers. Despite increasing enrollment of students with disabilities, their experiences remain on the margins of higher education focus, highlighting a need for greater inclusion efforts. Locomotor disability was found to be the most prevalent, followed by visual and hearing impairments. Common physical barriers included inaccessible classrooms, libraries, canteens, corridors, and restrooms. The study employed a descriptive survey research design, combining field-based and document analysis methods. Challenges faced by students with disabilities were highlighted, emphasizing the impact of physical accessibility on enrollment rates. Recommendations were provided to enhance physical accessibility and suggestions for future research were proposed.¹²

The study highlights the educational challenges faced by students with visual impairments and emphasizes the effectiveness of computer assistive technologies in addressing these challenges. While students with visual impairments can generally receive successful education, their learning process is hindered by their inability to see.

Computer assistive technologies, particularly programs designed for the blind and visually impaired, offer solutions by providing access to information through sound reproduction, Braille displays, or text-to-speech functions. These technologies enable students to work independently with standard personal computers and common software applications like MS Word and Internet Explorer, thereby enhancing their user experience. Functions such as scanning, reading text aloud, and preparing printed documents offer significant compensatory effects for students with visual impairments, facilitating their access to educational materials and tasks.¹³

The study underscores the increasing importance of Assistive Technology (AT) in promoting the "inclusion of students with disabilities in education". Its main objective is to systematically review studies on the impact of AT for this purpose. Out of 216 papers discovered, 31 met inclusion requirements after reviewing empirical research published in four databases between 2009 and 2020. The results show that assistive technology is very effective in helping students with disabilities feel more included and have easier access to resources. But problems like insufficient training for educators and a lack of resources continue. In order to effectively use AT's potential in fostering inclusive education for children with disabilities, it is crucial to eliminate these limitations.¹⁴

The study highlights the growing role of technology in education, particularly in addressing the needs of individuals with special needs. Assistive technology emerges as a crucial tool facilitating the engagement and performance of tasks for people with disabilities. Within the context of inclusive education, this research examines the use of assistive technology for visually impaired pupils. It explores the fundamentals of assistive technology, visual impairment, and inclusive education before moving on to examine different types of assistive technologies and how they are used in inclusive classrooms. By exploring these aspects, the study aims to underscore the importance of assistive technologies in enabling the inclusion of students with vision impairments in mainstream educational environments.¹⁵

A child's impairment may be a defining characteristic that causes them to be excluded from social activities. Meeting the educational requirements of kids with disabilities is not always easy, but it may be particularly difficult in nations, areas, and institutions that have very few resources. Even though there are still obstacles to

implementing inclusive education systems, inclusive education has shown to be highly effective in helping all students learn. This approach to teaching ensures that all students, especially those who struggle academically, are actively involved in a rigorous course of study. For low- and middle-income nations making the transition from a segregated to an inclusive education system, this report offers recommendations for policy and system development. We focus on helping nations who are unable to meet the demands of inclusive education programs due to a lack of funding. But even in settings where inclusive education is still in its infancy, our methods and suggestions may be invaluable.¹⁶

A literature review on the topic of assistive technology for kids with special education needs is included in this research. Electronic databases, journals, and other pertinent sources were culled to produce the works pertaining to this topic. Two overarching topics guided the analysis of the relevant data presented in these sources: (a) the use of assistive technologies and (b) models for the deployment of such technologies. The study's findings demonstrate that special education makes use of a range of assistive technologies, and that these tools often benefit kids receiving special education services. In order to add to the existing literature on assistive technology implementations, the findings are examined through the lens of special education and model implementations.¹⁷

Finding out how teachers and other school personnel feel about students using assistive technology was the driving force for this survey. Concerning assistive technology, there is a strong correlation between people's beliefs and their actions. Teachers need to be aware of this connection since it has the potential to affect their students with disabilities in a significant way. Finding out how people feel about helping students with disabilities and their right to participate in regular classroom activities were the primary goals of this study. Another objective was to identify the reasons why assistive technology is not more widely used in schools. The research surveyed 28 individuals from a Midwestern University in the US; questions often asked included whether participants supported the use of assistive technology and what barriers individuals may face when trying to utilize such tools.¹⁸

This qualitative study explores teachers' perspectives on the use of assistive technology (AT) in

their interactions with children with special needs, focusing on complexities beyond the effects of AT. Conducted in Sweden, data was collected through interviews with teachers from private and public schools. Thematic analysis of the interviews revealed several important findings: AT was seen to encourage and motivate children, facilitating the presentation of information by teachers. However, concerns were raised about excessive reliance on AT, potential emotional harm to children, and insufficient training for teachers in utilizing these devices effectively. The study underscores the need for enhanced collaboration among teachers to share experiences and ideas, as well as the importance of creating an environment conducive to testing, learning, and evaluating technology use in education. Such efforts aim to improve the educational experience of children with special needs using AT.¹⁹

The concept of inclusive education emphasizes equality in education for individuals with disabilities, allowing them to demonstrate their abilities alongside their non-disabled peers. Effective integration of technology enables all learners to access the curriculum, providing multiple means to complete tasks with greater ease and independence. While public agencies are not responsible for maintaining surgically implanted medical devices, assistive technology plays a crucial role in facilitating access to the curriculum and achieving positive outcomes for students. Assistive technology should not be viewed solely within a rehabilitative context but rather as a tool for accessing the curriculum and supporting student achievement. Various technology solutions are available to support students in areas such as academics, daily living aids, communication, computer access, mobility, and vision, thereby enhancing their performance, achievement, and independence in educational settings.²⁰

Despite its good intentions, National Education Policy seems to be out of touch with reality. As a whole, the terms "inclusion," "integration," and "children with special needs" all convey the same irrational perspective on disability that permeates our culture. The National Education Policy states that private philanthropy should be prioritized as a means to enhance the standard of higher education. The recent entrance of for-profit schools and universities into the higher education sector has the potential to modify the conventional practice of denying admission to higher education to students with disabilities. By improving working conditions for general education teachers and other special educators and by

increasing government financing for special education and other types of assistance for impaired students and their families, all of these measures, along with others, can help create a more inclusive society. In order to build a fair and inclusive society, it is necessary to accomplish this.²¹

The purpose of this research was to identify ocular morbidities among students, develop a school-based approach to increase students' access to AT, and give students practical training. The vision rehabilitation (VR) team identified prevalent ocular disorders among students, including difficulties with the retina, globe abnormalities, optic nerve atrophy, and squint, via basic eye exams, assessments of best-corrected visual acuity (BCVA), and the provision of VR services. Many students had a best corrected visual acuity (BCVA) of less than or equal to 1/60 in their better eye, suggesting that visual-based assistive technology (AT) might be helpful for some, while visual substitution AT could be helpful for others. Huge print books would also help a large number of pupils whose near vision is between 18 and 24 degrees. With the help of the World Health Organization (WHO), two schools set up ATVI learning centers to test the waters and provide initial training, demonstrations, and familiarization with the technology. Results highlight the need for and promise of incorporating ATVI centers into school curricula to promote students' all-around skill development, not just in the classroom.²²

Conclusion

The integration of assistive technology (AT) for students with multiple disabilities with visual impairment (MDVI) in inclusive education settings, guided by the principles of the National Education Policy (NEP) 2020, presents a transformative opportunity to enhance their educational experiences and outcomes. NEP 2020's emphasis on inclusivity, quality, and relevance lays a strong foundation for the integration of AT solutions tailored to the unique needs of MDVI students, thereby fostering accessibility, equity, and impact in inclusive education environments. Through the provisions outlined in NEP 2020 and the utilization of AT, inclusive education becomes more accessible, equitable, and impactful for MDVI students. AT facilitates greater access to educational materials by providing alternative formats such as braille, audio, and tactile graphics, ensuring that MDVI students can engage with curriculum content effectively. Additionally, AT promotes communication and

independence among MDVI students through tools such as speech-generating devices, communication boards, and tactile interfaces, enabling them to express themselves confidently and participate actively in classroom activities.

The integration of AT fosters a supportive learning environment where all students, including those with MDVI, can thrive. By equipping educators with the necessary training and resources, fostering collaboration among stakeholders, and investing in infrastructure development, inclusive education settings can effectively implement AT solutions to meet the diverse needs of MDVI students. However, successful implementation of AT in inclusive education requires concerted efforts in teacher training, infrastructure development, research, and collaboration among stakeholders. By embracing AT and embedding its principles into educational practices, we can create more inclusive and empowering learning environments that enable MDVI students to realize their full potential and contribute meaningfully to society.

Ultimately, the integration of AT in inclusive education represents a significant step towards realizing the vision of inclusive and quality education for all, as envisioned by NEP 2020. By embracing the transformative potential of AT, we can build a more inclusive society where every individual, regardless of ability, has the opportunity to thrive and succeed.

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Self Concept and Perceived Loneliness among Non-Institutionalized and Institutionalized Students

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Abstract

The Present study is designed to understand Self Concept and Perceived Loneliness among non-institutionalized and institutionalized students. The study has been conducted on 6 schools of Amritsar city. The descriptive method was used to collect data. The technique of purposive sampling was used to select schools. Schools in which institutionalized students were available were selected. Students of age group 17-18 from private schools were taken as a sample which consisted of 59 boys and 42 girls. Data were collected using the Self-concept rating scale by Saraswat (1997) and perceived loneliness scale by Jha (1992). Results indicated that institutionalized orphans have higher physical self-concept than non-institutionalized orphans. But no difference was found in institutionalized and non-institutionalized orphans with respect to social, temperamental, educational, and intellectual dimensions of self-concept. The study also revealed that Institutionalized students have higher perception on loneliness than non-institutionalized orphans. However, no difference was found in loneliness with respect to gender. The study also revealed that social, moral and intellectual dimensions of self-concept and loneliness are related with each other. But on other dimensions of self-concept no difference was found.

Introduction

Self-concept is the term used to describe people's distinctive perceptions of who they are and what they are like. Humans can't help but think about themselves because they are the centre of their own social world. A generic phrase used to describe how someone views or thinks of oneself is self-concept. Karim (1990) revealed that the females possess more positive self-concept in comparison to the males. Pujar, Gaonkar and Sharma (1997) revealed that with the advancement of age, the level of self-concept increased among high and low achievers. Mc Clun and Merrell (1998) revealed that self-concept influences and formulates the individual's behaviour. Umadevi, Sudharani and Venkatamaiah (1998) found that majority of the urban boys and girls had high and average self-concept than rural boys and girls. "Self-concept is a person's perceptions of himself formed through experience with and interpretations of the environment. The Researchers studying the structure of self-concept found evidence that self-concept is a multidimensional construct and they used various ways to describe the complex phenomena. Huang (2001) perceptions are influenced by a number of factors such

as evaluations of significant others, reinforcements, and attributions of behavior".

Every human being experiences a lifelong yearning for closeness with others, and no one is immune to the threat posed by its loss (1959; Fromm-Reichmann). Because humans are a social animal, they benefit greatly from interacting with others in their environment. Their quality of life improves if they feel a sense of connection to their environment; else, things may go wrong. When it comes to feelings, loneliness can be defined as the absence or perceived absence of fulfilling social relationships. Younger (1995) "loneliness is the feeling of being alone in spite of longing for others. The lonely experience a sense of utter aloneness as well as aimlessness and boredom" this is a powerful, subjective description that does actually evoke how can feel if you can lonely. It gives an impression of the futility and pointlessness of your existence when you are lonely. Gierveld (1998) defined loneliness as an unwelcome feeling of lack or loss of companionship the negative, unpleasant aspect of missing certain relationships as well as missing a certain level of quality in one's relationships. Loneliness is pervasive social problem that is experienced universally,

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regardless of one's gender, age or cultural background. Spithoven (2016) investigated loneliness and depression in adolescence and its association with friendship experiences and well-being and discussed on the basis of the person-centered approach.

The terms "institution" and "institutional care" refer to a type of residential care without a parent or guardian for longer than three months that provides care for either small or large groups of children between the ages of 11 and 24 in a structure commonly referred to as a "children's home" (Mulheir & Browne, 2007). This study aims to compare the issues faced by institutionalised children with those faced by non-institutionalized kids. Youngsters of broken Homes are considered institutionalised children in this study. Non-institutionalized children have been defined as children who are living with their natural parents in a usual home atmosphere. Jayakumari and Kalanidhi (1993) found a significant positive relationship between loneliness and neuroses in institutionalized and non-institutionalized by using UCLA Loneliness Scale. Bellany (2001) conducted a study on that institutionalizing orphaned children is a model for orphan care developed aiming to strengthen the capacity of families and mobilizing and strengthening community-based responses. Further, a boy or girl who is receiving long term service or who resides in an institutional setting can be called as an institutionalized adolescent (Ainsworth & Leon, 1981). Sullivan (2003) conducted a study on orphans, including institutionalized orphans should enjoy care and support in these core areas: psychosocial support, education/vocational training, food and nutrition, legal aid protection, shelter and care, health care (GHARP, 2007). Most of the research conclusively states that institutionalization of children has an adverse impact on their development and growth. Health and mental children in institutional care were found to have greater emotional problems (Ford, 2007). They tend to be emotionally with draw and experience emotional loneliness (Han & Choi, 2006). Self-concept is a collection of beliefs about oneself which provide confidence to an individual deal with his daily life problems and complexities perceived loneliness is complex and usually unpleasant emotional response to isolation both self-concept and perceived loneliness play a role in determining the personality of an individual in case of non-institutionalized factors to the present study was intended.

Research Questions of The Study

The following research questions were framed:-

- Q1: Is there any significant difference in self-concept of institutionalized & non-institutionalized students?
- Q2: Is there any significant difference in perceived loneliness of institutionalized & non-institutionalized students?
- Q3: Is there any significant difference in perceived loneliness of institutionalized and non-institutionalized w.r.t gender?
- Q4: Is there any significant relationship between self-concept and perceived loneliness of institutionalized students?
- Q5: Is there any significant relationship between self-concept & perceived loneliness of non-institutionalized students?

Data Collection

Sampling Technique

The descriptive method was used to collect data for the present study. Purposive sampling technique was used to select schools. Schools in which institutionalized students were available were selected. The selected private schools were from Amritsar district only. Students of age group 17-18 were taken as a sample which consisted of 59 boys and 42 girls.

Tools of The Study

The following tools have been administered on the subjects in study:

Tool 1. Self-concept rating scale by Saraswat (1997). The self-concept scale provides six separate dimensions of self-concept, viz., Physical, Social, Intellectual, Moral, Educational and Temperamental Self-concept.

Tool 2. Perceived loneliness scale by Jha (1992). The scale consists of 36 five-point scale items found to be significant indicating the degree of loneliness in human nature. The test provides a valid and reliable index of loneliness.

Statistical Techniques

The following statistical techniques have been used to analyse data:

1. t-test was applied to determine the significance of difference between gender and types of school for self-concept and perceived loneliness.
2. Co-relation was calculated to see the relationship between the two variables.

Results and Discussion

Table 1: Mean, standard deviation, significant t and p values of institutionalized and non-institutionalized students with respect to self-concept

Variable	Category	N	Mean	S.D	t	p-value
Dimension (physical)	Institutionalized orphans	49	33.06	2.968	5.587	.000*
	Non-institutionalized	52	28.04	5.594		
Dimension (social)	Institutionalized orphans	49	29.82	5.776	2.677	.382
	Non-institutionalized	52	26.92	5.079		
Dimension (Temperamental)	Institutionalized orphans	49	29.61	4.915	4.496	.532
	Non-institutionalized	52	25.33	4.664		
Dimension (Educational)	Institutionalized orphans	49	31.08	4.941	2.873	.105
	Non-institutionalized	52	27.77	6.489		
Dimension (Intellectual)	Institutionalized orphans	49	29.43	5.025	1.540	.594
	Non-institutionalized	52	27.96	4.546		
Self-concept total	Institutionalized	49	183.22	16.687	4.969	.012
	Non-institutionalized	52	162.23	24.739		

To answer Q1 t- test was applied to determine the significant difference between the self-concept of institutionalized and non-institutionalized students. Table 1 shows that the calculated .012 was found to be less than .05 for self-concept (total). Table 1 also shows that, calculated p- value .000* was found to be less than

at the .05 level of significance. So, it reveals that there is a significant difference in physical dimension of self-concept of non-institutionalized and institutionalized orphans. But, on the other dimensions of self-concepts such as social, temperament, educational and intellectual no significant difference was found.

Table 2: Mean, standard deviation, significant t and p value of institutionalized and non-institutionalized students on perceived loneliness

Variable	Category	N	Mean	Standard deviation	t	p-value
Perceived loneliness	Institutionalized	49	106.00	16.717	2.136	.035
	Non- institutionalized	52	99.83	12.089		

Table 2 shows that, calculated p-value .035 was found to be less than at .05 level of significance. So, it reveals that there is a significant difference in perceived loneliness of non- institutionalized and institutionalized orphans. An examination of the means of two groups suggests that institutionalized students have higher perception on loneliness than non-institutionalized orphans.

Table 3: Mean, standard deviation, significant t and p value of perceived loneliness with respect to gender

Variable	Category	N	Mean	Standard deviation	t	p-value
Perceived loneliness	Boys	59	104.76	13.719	1.576	.221
	Girls	42	100.10	15.910		

Table 3 shows that, calculated p- value .221 was found to be more than .05 level of significance. So, it reveals that there is no significant difference in loneliness with respect to gender.

Table 4: Coefficient of correlation between self-concept and perceived loneliness of institutionalized student

Variable	Total sample (N)	D.f (N-2)	Coefficient of correlation (r)
Self-concept (physical) Loneliness	49 49	47	-.09
Self-concept (social) Loneliness	49 49	47	-.00
Self-concept (Temperamental) Loneliness	49 49	47	.36
Self-concept (Educational) Loneliness	49 49	47	-.10
Self-concept (moral) Loneliness	49 49	47	-.03
Self-concept (intellectual) Loneliness	49 49	47	.02

Table 4 shows the coefficient of correlation of self-concept (physical) and loneliness is -0.9, self-concept (temperamental) and loneliness is .36, self-concept (Educational) and loneliness is -.10 therefore insignificant at 0.05 level. Similarly. In the other dimension such as self-concept (social) and loneliness is -.001, self-concept (Moral) and loneliness -.03, and self-concept (intellectual) and loneliness .023 are significant value. Thus, it may be concluded that social, moral and intellectual dimensions of self-concept and loneliness are significantly related with each other. It means there is insignificant and negative relationship between self-concept and loneliness of institutionalized students.

Table 5: Coefficient of correlation between self-concept and perceived loneliness of non-institutionalized students

Variable	Total sample (N)	D.f (N-2)	Coefficient of correlation
Self-concept (physical) Loneliness	50 50	48 48	-.34
Self-concept(social) Loneliness	50 50	48 48	-.16

Self-concept (Temperamental) Loneliness	50 50	48 48	-.16
Self-concept (Educational) Loneliness	50 50	48 48	-.28
Self-concept (Moral) Loneliness	50 50	48 48	-.13
Self-concept (intellectual) Loneliness	50 50	48 48	-.22

Table 5 shows the coefficient of correlation of self-concept (physical) and loneliness .01, self-concept (Educational) and loneliness .04 it is significant. In the other dimension such as self-concept (social) and loneliness .24, self-concept (Temperamental) .25 and loneliness, self-concept (Moral) .35, self-concept (intellectual) .115 therefore insignificant at .05 level. Thus, it may conclude that self-concept and loneliness are insignificant related with each other. It means there is insignificant and negative relationship between self-concept and loneliness of non- institutionalized students.

Discussion

The purpose of the study was to study the significant difference in self-concept of institutionalized & non-institutionalized students. The result indicate that institutionalized orphans have higher physical self-concept than non-institutionalized orphans. But, in the other dimensions of self-concept such as social, temperament, educational and intellectual no difference was found in institutionalized and non-institutionalized orphans. The above result is contrary with the study conducted by Ubhangha & Oputa (2008) which revealed that the institutional children when compared with non-institutional children were found to be similar on all aspects of self-concept but significantly differed on academic orientation and vocational interests (Ubhangha & Oputa, 2008).

The aim of research was to study perceived loneliness of institutionalized & non-institutionalized students. The result revealed that Institutionalized students have higher perception on loneliness than non-institutionalized orphans. The above result is contrary with the study conducted by Upmanyu and Dhingra (1988). The results indicated that loneliness was correlated significantly and negatively with social preference. Rejected children were found to be the loneliest in comparison to the other sub-groups.

The purpose of the research was to study the significant difference in loneliness of institutionalized & non-institutionalized w.r.t gender. However, no difference was found in loneliness with respect to gender. The result is contrary with the result of the study conducted by Galanaki and Kalantzi-Azizi (1999) which revealed that girls had marginally substantial greater scores of loneliness than boys.

Conclusion

The importance of parents in a child's growth-physical, cognitive, social, moral, etc.-has already been emphasised. Any study into education is worthwhile if it has positive effects on education. As far as the current investigation is concerned, it can be asserted that the helpful data gathered may help to improve the pupils' academic accomplishment. According to the study's findings, institutionalised orphans have a greater physical self-concept than non-institutionalized orphans. This difference in physical self-concept is significant between non-institutionalized and institutionalised orphans. In order to address concerns with child mental health, physical self-concept, etc., non-institutionalized orphans require extraordinary child supervision and counselling programmes run by mental health professionals. Therefore, guardians should give non-institutionalized people more affection, care, and attention. In order to prevent institutionalised orphans from feeling lonely, school administrators should pay special attention to them and involve them in a variety of social activities.

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Gender Differences in Spelling Performance among Private and Government School Students

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Abstract

Spelling is an important component because it applies to many areas of life. The ability to write fluently and spell correctly gives a child the power to put their thoughts on paper and express themselves fully. Spelling is crucial for effective communication and literacy development. It is important to engage and motivate children to learn spelling by playing with words and using all their senses. In the study, the descriptive survey method was used, and the population consisted of students from elementary schools in Lucknow city. After analysing the data statistically, the hypothesis was found to be true. The findings indicate that there are no significant differences between male and female students in private and government schools.

Introduction

Spelling is an essential skill for primary school children to learn, as it helps them communicate effectively in writing and builds a strong foundation for their education. Teaching children the basics of spelling not only helps them write clearly but also boosts their confidence in their abilities. Spelling is also important for helping children develop a connection between letters and their sounds, learn high-frequency sight words, and recognize words in unfamiliar texts. Spelling is key to literacy, as we cannot recognize words or communicate effectively without it. Spelling also helps us enhance our imagination, because when we know how to spell words correctly, it can inspire us to use those words in our writing. Knowing how to spell words properly gives us confidence when we read. Spelling helps to understand grammar and sentence structure because. They can allow us to communicate properly with others because if one person spells a word wrong, the other person will not be able to understand what they are trying to say spelling helps to make sense of things that we read because if we are not sure how to spell word, we can use a dictionary to find out.

Review of Literature

Jehanzeb, Rashid Cheema (2024) Recent research in the United States suggests that the differences in student performance between private and public schools

disappear once student- and school-level characteristics are controlled for. This is an important finding, as it implies that, in the absence of such differences, the delivery of education through public means can be as effective as that through private means. However, given the significant variation in economic, social, and political systems across countries, generalizing recent U.S. results to other parts of the world may not be appropriate. The current study addresses this gap in the literature by examining differences in literacy between private and public schools in key areas such as mathematics, reading, and science, using a nationally representative sample from 61 economies.

Bijami M; Kashef H.S; Khakari.M; (2013) Since learner-centered instruction is the standard in modern educational trends, teachers must be aware of students' characteristics in order to tailor their teaching to meet the needs of learners. One area closely related to these characteristics is performance, particularly in language learning. Various studies have examined gender differences in different aspects of language learning, revealing inconsistent results. This paper aims to explore gender differences in writing performance and discusses implications for policymakers tasked with developing curricula that align with the needs of language learners.

Adams, Anne Marie; Fimmons Fiona. (2019) Boys' relatively poor progress in writing development is a particular concern in education, with both cognitive and

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social factors proposed as possible explanations for this discrepancy. This study examines factors such as handwriting, spelling, and phonological processing abilities to explore gender differences in early writing development.

Shen, Ye; Coker, David L. (2023) In the present study, we aimed to compare the reading-writing relationships between first-grade native English speakers (NES) and English language learners (ELL). Thirty-four ELL students and 35 NES students completed assessments of receptive and expressive vocabulary, lexical-level reading (word reading), and writing (spelling), as well as discourse-level reading (reading comprehension) and writing (written composition). After matching students based on receptive vocabulary, we explored differences in reading-writing connections at both the lexical and discourse levels. We also examined the role of vocabulary knowledge in reading and writing performance.

Daffern, Tessa (2017) Accurate spelling in standard English requires the efficient coordination of multiple knowledge sources. As such, spelling is a word-formation problem-solving process that can be challenging to learn. The present study uses Triple Word Form Theory as a conceptual framework to analyze the standard English spelling performance of Australian primary school students.

Veerabudren, Sathavahy; Kritzinger Alta; Graham, Marien A; Geertsema, Salome; Le Roux Mia (2023) Learners with reading and writing difficulties (RWD) are accommodated in Mauritian government schools without formal curriculum adjustments or adequate teacher support, and little is known about the extent of their RWD. The aim of this study was to describe the characteristics of Grade 4 learners with RWD. Setting: Government primary schools in both urban and rural areas of Mauritius. Conclusion: Difficulties were confirmed by all measures. Diagnostic assessments for specific learning disorders are needed to rule out intellectual disabilities and other comorbidities. There is an urgent need for intervention programs for learners with RWD in mainstream government schools in Mauritius. These programs should include speech-language therapists and focus on prevention, identification, diagnosis, and intervention.

Reilly D; Neumann LD; Andrews (2019) A frequently observed research finding is that females outperform males on tasks involving verbal and language abilities. However, there is considerable variability in effect

sizes across different samples. The gold standard for evaluating gender differences in cognitive ability is to recruit a large, demographically representative sample. In this study, we examine three decades of U.S. student achievement data in reading and writing from the National Assessment of Educational Progress (NAEP) to determine the magnitude of gender differences. The results are interpreted in the context of Hyde's (2005) Gender Similarities Hypothesis, which asserts that most psychological gender differences are small or trivial in size. Language and verbal abilities represent one exception to this general rule of gender similarities, and we discuss the educational implications of these findings.

Abdual Awal, Mohammad Rezaul Karim, Wohaj Unnisa Warda (2023) Learning the four skills of the English language is essential for pupils to use the language effectively, given its importance for both academic and professional success. Spelling, an important aspect of writing skills, is fundamental to producing clear written texts. Spelling mistakes can alter the meaning of a piece of writing, making it more difficult to understand. The research approach used for this study was a descriptive survey conducted among children attending elementary schools in the Jalpaiguri Municipal Corporation in West Bengal, India. The study found that spelling proficiency among elementary school students differs significantly depending on whether they attend government or non-government schools. However, there were no statistically significant differences based on gender or the medium of instruction they receive.

Methodology used in the study

Objective:-

1. This study aims to analyze the spelling performance of girls and boys in private schools.
2. This study aims to analyze the spelling performance of girls and boys in government schools.

Hypothesis:-

1. There will be no significant difference in spelling performance between girls and boys in private schools.
2. There will be no significant difference in spelling performance between girls and boys in government schools.

Operational Definition of Forms used

Gender: Gender refers to the socially constructed characteristics of women, men, girls, and boys.

Private School: A private school is an independent institution that is primarily funded through tuition fees. It is supported by private organizations or individuals, rather than by the state.

Government School: A government school is a public institution supported by state or central government funding.

Spelling Performance: Reading, writing, and naming speed abilities are performed by students.

Delimitation

1. The scope of the study is limited to the students of Lucknow city.

2. The study will be conducted with elementary-level students.

Method: The descriptive survey method was used in the study. The population comprised elementary-level school students from Lucknow city.

Sample: The sample for the study was drawn using

a random sampling method to select schools from different areas of Lucknow city. Students were chosen based on the research objectives. The sample consisted of 100 primary school students, with 50 students from government schools and 50 from private schools. Since one of the study's objectives is to compare the spelling performance of girls and boys in government and private schools, the sample was further divided by gender.

Tool use: In the study, the "Diagnostic Spelling Test" prepared by Dr. (Mrs.) Rai K. Gupta and Mrs. Susheela Narang will be used as a tool for collecting data.

Procedure for Scoring: The use of the Diagnostic Spelling Test is straightforward. The test contains 35 items printed on the answer sheet. Each word is announced, and the test sheets obtained from the children are then scored, with each correct item earning a score of 1.

Objective 1: The study was conducted to compare the spelling performance of girls and boys in private schools.

Table-1

Category	N	Mean	SD	S.Ed	DF	Table (t) Value	Calculated Value	Level of Significant	Significant
Boys (Pvt Schools)	25	24.2	9.67	2.895	48	2.009	1.837	0.05	Not Significant
Girls (Pvt Schools)	25	18.88	10.38						Ho=Accepted

The table shows that the critical ratio for the spelling performance of girls and boys in private schools is 1.837, which is less than the level of significance of 0.05 (1.98). Therefore, the null hypothesis is accepted.

Discussion

After analyzing the data statistically, our hypothesis was accepted. Hence, this proves that there is no significant difference between girls and boys in private schools.

Objective-2: The study was conducted to compare the spelling performance of girls and boys in government schools.

Table-2

Category	N	Mean	SD	S.Ed	DF	Table Value	Calculated Value	Level of significance	Significant
Boys (Govt. School)	25	10.76	5.12	1.663	48	2.009	0.962	0.05	Not
Girls (Govt. School)	25	9.16	6.34						Significant

The table shows that the critical ratio for the spelling performance of girls and boys in government schools is 0.962, which is less than the level of significance of 0.05 (1.98). Therefore, the null hypothesis is accepted.

Discussion of Finding

After analyzing the data statistically, our hypothesis was accepted, confirming that there is no significant difference between girls and boys in government schools. These findings align with those of Adams and Simmons (2019), who explored individual and gender differences in early writing performance. They found no associations between phonological skills and writing that were moderated by gender. However, this finding contrasts with the results of Reilly (2019), who investigated gender differences in reading and writing achievement. Their study found pronounced gender imbalances at both the lower and upper ends of the ability spectrum. These results are interpreted in the context of Hyde's (2005) Gender Similarities Hypothesis, which asserts that most psychological gender differences are small or trivial in size. Our findings also agree with the study by Abdul Awal Mohammad K.R. and Warda U.W., which showed no significant difference between the spelling abilities of boys and girls in elementary schools.

Conclusion

The results indicated that there were no statistically significant differences based on gender in acquiring spelling performance skills or attitudes toward spelling, and there was no interaction effect between group and gender.

- Spelling helps improve writing skills because, without it, we cannot write correctly.
- Spelling aids in the correct pronunciation of words.
- Without spelling, our lives would be different because we would not know how to spell words correctly, making it harder to understand what someone is trying to say.

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भारत में सामाजिक न्याय और समता की दिशा में डॉ. भीमराव आंबेडकर के योगदान का विश्लेषणात्मक अध्ययन

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सारांश

डॉ. भीमराव आंबेडकर का भारत में सामाजिक न्याय और समता के लिए योगदान अत्यन्त महत्वपूर्ण और ऐतिहासिक है। उन्होंने अपने जीवन को भारतीय समाज में व्याप्त असमानताओं और अन्याय के खिलाफ संघर्ष के लिए समर्पित कर दिया। डॉ. आंबेडकर ने भारतीय समाज में जाति व्यवस्था को सबसे बड़ा अभिशाप माना। उन्होंने इसके उन्मूलन के लिए निरंतर संघर्ष किया। उन्होंने दलितों और अछूतों के अधिकारों के लिए लड़ाई लड़ी, जो जाति व्यवस्था की सबसे निचली पायदान पर थे। डॉ. आंबेडकर ने भारतीय संविधान को तैयार करने में प्रमुख भूमिका निभाई। उन्होंने संविधान में समता, स्वतंत्रता, और न्याय के सिद्धांतों को स्थापित किया। उन्होंने जाति, धर्म, लिंग, और भाषा के आधार पर किसी भी प्रकार के भेदभाव को असंवैधानिक घोषित किया। उन्होंने समाज के कमजोर वर्गों के लिए आरक्षण की व्यवस्था की ताकि उन्हें शिक्षा और रोजगार में समान अवसर मिल सकें। यह आरक्षण नीति आज भी सामाजिक न्याय और समता की दिशा में महत्वपूर्ण भूमिका निभा रही है। डॉ. आंबेडकर का मानना था कि शिक्षा ही समाज में समता और न्याय की दिशा में सबसे महत्वपूर्ण साधन है। उन्होंने दलितों और अन्य पिछड़े वर्गों के लिए शिक्षा को सुलभ बनाने के लिए अनेक प्रयास किए। कई शैक्षणिक संस्थानों की स्थापना की ताकि दलित और पिछड़े वर्ग के लोग शिक्षा प्राप्त कर सकें और सामाजिक तथा आर्थिक रूप से सशक्त हो सकें। उनके धर्मांतरण ने समाज में एक महत्वपूर्ण संदेश दिया कि सामाजिक न्याय और समानता के लिए आवश्यक है कि व्यक्ति अपने अधिकारों के प्रति सजग और सचेत हो। डॉ. आंबेडकर ने महिलाओं के अधिकारों की वकालत की और उनके सशक्तिकरण के लिए काम किया। उन्होंने हिंदू कोड बिल का समर्थन किया, जो महिलाओं को संपत्ति के अधिकार और तलाक के अधिकार देने के लिए था। आंबेडकर का मानना था कि केवल राजनीतिक लोकतंत्र पर्याप्त नहीं है; इसके साथ सामाजिक लोकतंत्र भी होना चाहिए, जिसमें समाज के सभी वर्गों को समान अधिकार और अवसर मिले। उन्होंने संविधान में सामाजिक लोकतंत्र के लिए आवश्यक प्रावधानों को शामिल किया। डॉ. भीमराव आंबेडकर का योगदान भारतीय समाज में सामाजिक न्याय और समानता की दिशा में अद्वितीय और अपरिहार्य है। उन्होंने अपने विचारों और कार्यों से एक ऐसा आधार तैयार किया, जिस पर आधुनिक भारत की संरचना खड़ी है। उनका जीवन और उनका संघर्ष समाज के कमजोर और पिछड़े वर्गों के लिए एक प्रेरणा स्रोत है, और उनके द्वारा स्थापित किए गए सिद्धांत आज भी सामाजिक न्याय और समता की दिशा में हमारे मार्गदर्शक बने हुए हैं।

प्रस्तावना

डॉ. भीमराव आंबेडकर एक महान भारतीय समाज सुधारक, अर्थशास्त्री, राजनेता और भारतीय संविधान के प्रमुख वास्तुकार थे। उनके सामाजिक, राजनीतिक और आर्थिक विचारों ने भारत के सामाजिक ढांचे और राजनीतिक परिदृश्य को गहराई से प्रभावित किया। उनके विचार निम्नलिखित क्षेत्रों में महत्वपूर्ण थे: डॉ. आंबेडकर का मानना था कि जाति-व्यवस्था भारत की सबसे बड़ी सामाजिक बुराई है। उन्होंने जातिवाद को समाप्त करने और सभी नागरिकों के लिए समानता और सामाजिक न्याय की स्थापना के लिए संघर्ष किया। उन्होंने दलितों और अछूतों के अधिकारों के लिए लड़ाई लड़ी, ताकि उन्हें समाज में बराबरी का

दर्जा मिले। आंबेडकर ने दलितों को उनके अधिकार दिलाने के लिए उन्हें संगठित किया और उनकी शिक्षा और आर्थिक सुधार पर जोर दिया। आंबेडकर ने महिलाओं के अधिकारों और उनके सामाजिक सुधार के लिए भी काम किया। उन्होंने हिंदू कोड बिल का समर्थन किया, जो महिलाओं को संपत्ति और तलाक के अधिकार देने के लिए था। आंबेडकर भारतीय संविधान के प्रमुख वास्तुकार थे। उन्होंने एक ऐसा संविधान तैयार किया जो सभी नागरिकों को समान अधिकार देता है और धर्म, जाति, लिंग आदि के आधार पर भेदभाव को समाप्त करता है। उन्होंने राजनीतिक लोकतंत्र के साथ-साथ सामाजिक लोकतंत्र की आवश्यकता पर जोर दिया। आंबेडकर का मानना था कि सच्चा लोकतंत्र तब तक

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स्थापित नहीं हो सकता जब तक समाज में समानता नहीं होती। आंबेडकर ने सामाजिक रूप से पिछड़े वर्गों के लिए आरक्षण की मांग की ताकि उन्हें सरकारी नौकरियों और शैक्षणिक संस्थानों में समान अवसर मिल सके। आंबेडकर का मानना था कि समाज में संपत्ति का उचित वितरण होना चाहिए ताकि आर्थिक असमानता को कम किया जा सके। उन्होंने भूमि सुधार और किसानों के अधिकारों की वकालत की। आंबेडकर राज्य के नियंत्रण वाली अर्थव्यवस्था के समर्थक थे, जिसमें राज्य प्रमुख संसाधनों और उद्योगों का नियंत्रण करता है ताकि सभी नागरिकों को आर्थिक लाभ प्राप्त हो। उन्होंने श्रमिकों के अधिकारों के लिए भी संघर्ष किया और न्यूनतम मजदूरी, काम के घंटे, और श्रमिकों की सुरक्षा के लिए कानून बनाने की वकालत की। आंबेडकर ने भारतीय राष्ट्रवाद को जातिवाद और सांप्रदायिकता से मुक्त करने का प्रयास किया। उनका मानना था कि भारत तभी एक मजबूत राष्ट्र बन सकता है जब सभी नागरिकों को समान अधिकार और अवसर मिलें। उन्होंने संविधान को एक ऐसा दस्तावेज माना जो भारत के सभी नागरिकों के लिए समान अधिकार और न्याय सुनिश्चित करता है। उनका विश्वास था कि संविधान के माध्यम से ही भारत को एक समतामूलक समाज में बदला जा सकता है। डॉ. भीमराव आंबेडकर के ये विचार आज भी भारतीय समाज और राजनीति में प्रासंगिक हैं और सामाजिक न्याय, समानता, और मानवाधिकारों की दिशा में किए गए उनके प्रयासों को आज भी उच्च सम्मान से देखा जाता है।

डॉ. भीमराव आंबेडकर का जीवन

डॉ. भीमराव आंबेडकर का जीवन संघर्ष, दृढ़ संकल्प, और उत्कृष्टता की एक प्रेरणादायक कहानी है। उन्होंने अपने जीवन को समाज में समानता, न्याय, और मानवाधिकारों की स्थापना के लिए समर्पित किया। यहां उनके जीवन की प्रमुख घटनाओं और उपलब्धियों का विवरण दिया गया है: डॉ. भीमराव आंबेडकर का जन्म 14 अप्रैल 1891 को महाराष्ट्र के मध्य प्रदेश (तब मध्य प्रदेश में नहीं, ब्रिटिश भारत में) में हुआ था। उनके पिता का नाम रामजी मालोजी सकपाल और माता का नाम भीमाबाई था। वे महार जाति से थे, जो उस समय अछूत मानी जाती थी। उनका परिवार सेना में था, और उनके पिता ब्रिटिश भारतीय सेना में एक सूबेदार थे। बचपन में उन्हें जातिगत भेदभाव का सामना करना पड़ा। स्कूल में उन्हें अन्य छात्रों से अलग बैठाया जाता था, और उनके साथ शिक्षक भी भेदभाव करते थे। इसके बावजूद, उन्होंने शिक्षा को प्राथमिकता दी और अपने परिवार के समर्थन से अपनी प्रारंभिक शिक्षा पूरी की। 1907 में उन्होंने मैट्रिक की परीक्षा पास की, और 1912 में बॉम्बे यूनिवर्सिटी से राजनीति विज्ञान और अर्थशास्त्र में स्नातक की डिग्री प्राप्त की। 1913 में, उन्हें बड़ौदा राज्य के महाराजा से छात्रवृत्ति मिली, जिससे वे उच्च शिक्षा के

लिए अमेरिका गए। उन्होंने 1915 में कोलंबिया विश्वविद्यालय, न्यूयॉर्क से एम.ए. किया और 1917 में पीएच.डी. की उपाधि प्राप्त की। उनकी पीएच.डी. का विषय "द इवॉल्यूशन ऑफ प्रोविन्शियल फाइनेंस इन ब्रिटिश इंडिया" था। इसके बाद वे इंग्लैंड गए और 1921 में लंदन स्कूल ऑफ इकोनॉमिक्स से अर्थशास्त्र में मास्टर्स डिग्री प्राप्त की। 1923 में उन्होंने डी.एससी. (डॉक्टर ऑफ साइंस) की उपाधि प्राप्त की। भारत लौटने के बाद, डॉ. आंबेडकर ने दलितों और अछूतों के अधिकारों के लिए संघर्ष करना शुरू किया। उन्होंने 1924 में "बहिष्कृत हितकारिणी सभा" की स्थापना की, जिसका उद्देश्य अछूतों के सामाजिक और आर्थिक उत्थान के लिए काम करना था। 1927 में उन्होंने महाड़ सत्याग्रह का नेतृत्व किया, जो दलितों को सार्वजनिक जलाशयों से पानी लेने के अधिकार के लिए था। उन्होंने जाति व्यवस्था और अछूत प्रथा के खिलाफ आवाज उठाई और समाज में समानता और न्याय की वकालत की। 1930 के दशक में, डॉ. आंबेडकर ने दलितों के लिए राजनीतिक प्रतिनिधित्व की मांग की। 1932 में, उन्होंने ब्रिटिश सरकार के साथ बातचीत की, जिसमें दलितों के लिए अलग निर्वाचन क्षेत्र की मांग की गई थी। इसके परिणामस्वरूप गांधी जी के साथ पूना पैक्ट हुआ, जिसमें दलितों के लिए आरक्षित सीटों का प्रावधान किया गया। 1936 में, उन्होंने "इंडिपेंडेंट लेबर पार्टी" की स्थापना की, जो दलितों और मजदूरों के अधिकारों के लिए संघर्ष करने वाली राजनीतिक पार्टी थी। उन्होंने दलितों के लिए शिक्षा और रोजगार के क्षेत्र में आरक्षण की मांग की। 1947 में जब भारत स्वतंत्र हुआ, तो डॉ. आंबेडकर को स्वतंत्र भारत के पहले कानून मंत्री के रूप में नियुक्त किया गया। उन्हें भारतीय संविधान का प्रारूप तैयार करने के लिए गठित संविधान सभा की मसौदा समिति का अध्यक्ष बनाया गया। उन्होंने संविधान में समानता, स्वतंत्रता, धर्मनिरपेक्षता, और सामाजिक न्याय के सिद्धांतों को स्थापित किया। उनके प्रयासों से संविधान में अनुसूचित जातियों, जनजातियों और अन्य पिछड़े वर्गों के लिए आरक्षण की व्यवस्था की गई। डॉ. आंबेडकर ने 1956 में बौद्ध धर्म अपनाया। उन्होंने इसे जातिवाद और भेदभाव से मुक्त धर्म के रूप में देखा, जो समानता और मानवता की बात करता है। उन्होंने लाखों दलितों के साथ बौद्ध धर्म ग्रहण किया और उन्हें भी समानता और गरिमा के लिए प्रेरित किया। डॉ. भीमराव आंबेडकर का निधन 6 दिसंबर 1956 को दिल्ली में हुआ। उनकी मृत्यु के समय तक वे भारतीय समाज में समानता और न्याय के लिए एक प्रतीक बन चुके थे। डॉ. आंबेडकर का योगदान भारतीय समाज, राजनीति, और संविधान में अद्वितीय है। उन्हें भारतीय संविधान के प्रमुख वास्तुकार के रूप में याद किया जाता है। उनके विचार और संघर्ष आज भी सामाजिक न्याय, समानता, और मानवाधिकारों के लिए प्रेरणा स्रोत हैं। भारत में उन्हें "भारत रत्न" से सम्मानित किया गया है, जो देश का सर्वोच्च नागरिक

सम्मान है। उनके द्वारा स्थापित सिद्धांत और मूल्य आज भी भारतीय समाज को समानता और न्याय की दिशा में मार्गदर्शन कर रहे हैं। डॉ. भीमराव आंबेडकर का जीवन एक प्रेरणादायक कथा है, जो संघर्ष, शिक्षा, और समर्पण की मिसाल पेश करती है। उनके कार्य और विचार आज भी भारतीय समाज में प्रासंगिक हैं और सामाजिक सुधार की दिशा में अग्रसर रहने के लिए प्रेरित करते हैं।

भारत में सामाजिक न्याय और समता की ऐतिहासिक अवधारणा

भारत, एक विविधतापूर्ण देश, जहाँ विभिन्न संस्कृतियों, भाषाओं, धर्मों, और जातियों का संगम होता है, वहाँ सामाजिक न्याय और समता की अवधारणा का विशेष महत्व है। भारत का इतिहास इस बात का गवाह है कि यहाँ सदियों से सामाजिक असमानता और अन्याय की समस्याएँ रही हैं। इन समस्याओं का समाधान करने और एक समतामूलक समाज की स्थापना के लिए विभिन्न कालों में कई प्रयास किए गए हैं। इस निबंध में हम भारत में सामाजिक न्याय और समता की ऐतिहासिक अवधारणा की पड़ताल करेंगे। प्राचीन भारत में समाज को चार प्रमुख वर्णों में विभाजित किया गया था: ब्राह्मण, क्षत्रिय, वैश्य, और शूद्र। इस वर्ण व्यवस्था का आधार कर्म और धर्म पर आधारित था, लेकिन समय के साथ यह जन्म आधारित जाति व्यवस्था में बदल गई। इस व्यवस्था में शूद्रों और अछूतों को समाज की निचली पायदान पर रखा गया, जिससे उन्हें समाज में गंभीर भेदभाव और अन्याय का सामना करना पड़ा। हालांकि, इस काल में भी सामाजिक न्याय और समानता के कुछ सिद्धांत मौजूद थे। उदाहरण के लिए, बौद्ध धर्म और जैन धर्म ने अहिंसा, समानता, और करुणा के सिद्धांतों का प्रचार किया। गौतम बुद्ध और महावीर ने जातिवाद के खिलाफ आवाज उठाई और सामाजिक न्याय के लिए संघर्ष किया। मध्यकालीन भारत में भक्ति और सूफी आंदोलनों ने सामाजिक समता और न्याय के विचार को आगे बढ़ाया। भक्ति संतों जैसे कबीर, रविदास, और गुरु नानक ने जातिवाद और धार्मिक भेदभाव के खिलाफ अपनी आवाज उठाई। उन्होंने ईश्वर की एकता और सभी मनुष्यों की समानता का संदेश दिया। सूफी संतों ने भी समाज में समानता और न्याय के विचार का प्रचार किया और सभी धर्मों के लोगों को समान दृष्टि से देखा। औपनिवेशिक काल में भारत में सामाजिक न्याय और समानता की अवधारणा को नया आयाम मिला। अंग्रेजों के शासन के दौरान, समाज सुधारकों ने जाति व्यवस्था, सती प्रथा, बाल विवाह, और अन्य सामाजिक बुराइयों के खिलाफ आंदोलन शुरू किए। ज्योतिराव फुले, और सावित्रीबाई फुले जैसे समाज सुधारकों ने सामाजिक सुधार के लिए काम किया। फुले दंपति ने विशेष रूप से दलितों और महिलाओं की शिक्षा और सशक्तिकरण के लिए महत्वपूर्ण कार्य किए। इस काल में ज्योतिराव फुले ने

“सत्यशोधक समाज” की स्थापना की, जिसने जाति व्यवस्था के खिलाफ संघर्ष किया और दलितों के अधिकारों की रक्षा के लिए आवाज उठाई। इस आंदोलन ने भारतीय समाज में सामाजिक न्याय और समानता की दिशा में एक महत्वपूर्ण कदम उठाया। स्वतंत्रता संग्राम के दौरान डॉ. भीमराव आंबेडकर, और अन्य नेताओं ने सामाजिक न्याय और समानता को स्वतंत्रता आंदोलन के एक महत्वपूर्ण हिस्से के रूप में प्रस्तुत किया। डॉ. आंबेडकर ने दलितों और अछूतों के अधिकारों के लिए संघर्ष किया। उन्होंने समाज में व्याप्त असमानता और अन्याय को समाप्त करने के लिए संवैधानिक और कानूनी उपायों की वकालत की। स्वतंत्रता प्राप्ति के बाद, भारतीय संविधान का निर्माण हुआ, जिसमें सामाजिक न्याय और समानता के सिद्धांतों को महत्वपूर्ण स्थान दिया गया। डॉ. आंबेडकर के नेतृत्व में तैयार किया गया भारतीय संविधान सभी नागरिकों के लिए समान अधिकारों की गारंटी देता है और जाति, धर्म, लिंग, या भाषा के आधार पर किसी भी प्रकार के भेदभाव को असंवैधानिक घोषित करता है। संविधान में अनुसूचित जातियों, अनुसूचित जनजातियों, और अन्य पिछड़े वर्गों के लिए आरक्षण की व्यवस्था की गई, ताकि उन्हें समाज के मुख्यधारा में लाया जा सके और उनके साथ होने वाले ऐतिहासिक अन्याय का निवारण किया जा सके। इसके अलावा, शिक्षा का अधिकार, रोजगार का अधिकार, और अन्य सामाजिक और आर्थिक अधिकारों को भी संवैधानिक संरक्षण दिया गया। आधुनिक भारत में भी सामाजिक न्याय और समानता की दिशा में प्रयास जारी हैं। सरकारी नीतियों और कार्यक्रमों के माध्यम से समाज के कमजोर और पिछड़े वर्गों के लिए शिक्षा, स्वास्थ्य, और रोजगार के अवसर उपलब्ध कराए जा रहे हैं। सामाजिक न्याय के लिए बने कानूनी ढांचे के तहत भेदभाव और अन्याय के खिलाफ सख्त कार्रवाई की जा रही है। इसके बावजूद, सामाजिक न्याय और समानता के मार्ग में चुनौतियाँ भी बनी हुई हैं। जातिगत भेदभाव, लैंगिक असमानता, और आर्थिक विषमता जैसी समस्याएँ अभी भी समाज में विद्यमान हैं। लेकिन यह भी सत्य है कि सामाजिक जागरूकता और कानूनी सुधारों के माध्यम से इन चुनौतियों का सामना किया जा रहा है।

डॉ. भीमराव आंबेडकर का भारतीय समाज में सामाजिक न्याय और समता की स्थापना में योगदान

डॉ. भीमराव आंबेडकर का भारतीय समाज में सामाजिक न्याय और समता की स्थापना में महत्वपूर्ण योगदान है। वे भारतीय संविधान के प्रमुख शिल्पकार थे और उन्होंने अपने जीवन को समाज के पिछड़े और वंचित वर्गों के उत्थान के लिए समर्पित किया। उनका जीवन संघर्ष, समर्पण, और विद्वता का प्रतीक है, जिसने भारत में सामाजिक सुधार की दिशा में क्रांतिकारी बदलाव किए। डॉ. आंबेडकर ने जातिवाद के खिलाफ अपने

जीवनभर संघर्ष किया। उन्होंने जाति-आधारित भेदभाव को समाज का सबसे बड़ा अभिशाप माना और इसके उन्मूलन के लिए अनेक आंदोलनों का नेतृत्व किया। उन्होंने महाड़ सत्याग्रह (1927) के माध्यम से अछूतों को सार्वजनिक स्थानों से पानी लेने के अधिकार के लिए संघर्ष किया। डॉ. आंबेडकर ने अस्पृश्यता, बाल विवाह, और अन्य सामाजिक कुरीतियों के खिलाफ कठोर रूप से आवाज उठाई। वे दलितों के लिए समान नागरिक अधिकारों की वकालत करते थे और उनके सामाजिक उत्थान के लिए शिक्षा और राजनीतिक प्रतिनिधित्व को महत्वपूर्ण मानते थे। डॉ. आंबेडकर को भारतीय संविधान की प्रारूप समिति का अध्यक्ष नियुक्त किया गया, जहाँ उन्होंने संविधान में समानता, स्वतंत्रता, और सामाजिक न्याय के सिद्धांतों को शामिल किया। उन्होंने जाति, धर्म, लिंग, और भाषा के आधार पर किसी भी प्रकार के भेदभाव को असंवैधानिक घोषित किया। डॉ. आंबेडकर ने अनुसूचित जातियों, अनुसूचित जनजातियों, और अन्य पिछड़े वर्गों के लिए शिक्षा और रोजगार के क्षेत्र में आरक्षण की नीति का समर्थन किया, ताकि उन्हें समाज के मुख्यधारा में लाया जा सके। यह आरक्षण नीति आज भी सामाजिक न्याय की दिशा में एक महत्वपूर्ण साधन है। उन्होंने संविधान में मौलिक अधिकारों का प्रावधान किया, जिसमें सभी नागरिकों के लिए समानता का अधिकार, स्वतंत्रता का अधिकार, और शोषण के खिलाफ अधिकार शामिल हैं। इन अधिकारों के माध्यम से उन्होंने एक ऐसा समाज बनाने का प्रयास किया जहाँ हर व्यक्ति को न्याय और समानता का अवसर मिल सके। समानता और मौलिक अधिकार लोकतांत्रिक समाज की नींव हैं। ये सिद्धांत यह सुनिश्चित करते हैं कि सभी नागरिकों को कानून के समक्ष समानता और स्वतंत्रता का अधिकार मिले, चाहे उनका जाति, धर्म, लिंग, भाषा, या सामाजिक स्थिति कुछ भी हो। भारत के संविधान में इन मूल्यों को सर्वोच्च स्थान दिया गया है। समानता का अर्थ है कि सभी व्यक्तियों को समान अवसर और अधिकार प्राप्त होने चाहिए। इसका मतलब यह है कि कोई भी व्यक्ति किसी भी आधार पर भेदभाव का शिकार नहीं होना चाहिए। समानता को दो मुख्य रूपों में समझा जा सकता है:

कानूनी समानता: यह सिद्धांत यह सुनिश्चित करता है कि कानून के सामने सभी लोग समान हैं और कानून का समान रूप से पालन करना सभी के लिए अनिवार्य है। भारतीय संविधान के अनुच्छेद 14 के तहत, सभी नागरिकों को समानता का अधिकार प्राप्त है, जो किसी भी प्रकार के भेदभाव को प्रतिबंधित करता है।

सामाजिक समानता: सामाजिक समानता का मतलब है कि समाज के सभी वर्गों को समान अधिकार और अवसर मिलें। यह जाति, धर्म, लिंग, और सामाजिक स्थिति के आधार पर होने वाले भेदभाव को समाप्त करने की दिशा में काम करता है। भारतीय संविधान के अनुच्छेद 15 और 16 में इसके लिए विशेष प्रावधान किए गए हैं, जैसे कि आरक्षण की व्यवस्था, जिससे समाज के

पिछड़े और वंचित वर्गों को सामाजिक समानता प्राप्त हो सके।

मौलिक अधिकार

मौलिक अधिकार वे अधिकार हैं जो किसी भी व्यक्ति के जीवन और स्वतंत्रता की सुरक्षा के लिए आवश्यक होते हैं। भारतीय संविधान के भाग III में इन अधिकारों का विस्तृत विवरण दिया गया है। इनमें से कुछ प्रमुख मौलिक अधिकार निम्नलिखित हैं:

1. समानता का अधिकार : यह अधिकार संविधान के अनुच्छेद 14 से 18 तक विस्तारित है। इसके अंतर्गत सभी नागरिकों को कानून के सामने समानता, सार्वजनिक स्थानों पर भेदभाव का निषेध, और समान अवसर का अधिकार प्राप्त होता है। इसमें अस्पृश्यता का उन्मूलन और उपाधियों का अंत भी शामिल है।

2. स्वतंत्रता का अधिकार : अनुच्छेद 19 से 22 तक दिए गए अधिकारों में अभिव्यक्ति की स्वतंत्रता, सभा करने की स्वतंत्रता, संघ बनाने की स्वतंत्रता, आवागमन की स्वतंत्रता, निवास और बसने की स्वतंत्रता, और व्यवसाय, व्यापार, या पेशे की स्वतंत्रता शामिल हैं। ये अधिकार व्यक्ति की स्वतंत्रता और गरिमा की रक्षा करते हैं।

3. शोषण के विरुद्ध अधिकार : अनुच्छेद 23 और 24 के तहत किसी भी व्यक्ति को मानव तस्करी, बलात श्रम, और बाल श्रम से सुरक्षा प्रदान की जाती है। यह अधिकार व्यक्ति की गरिमा और स्वतंत्रता की रक्षा के लिए महत्वपूर्ण है।

4. धार्मिक स्वतंत्रता का अधिकार : अनुच्छेद 25 से 28 तक धार्मिक स्वतंत्रता से संबंधित अधिकार शामिल हैं। इसमें व्यक्ति को अपनी पसंद के धर्म को मानने, उसका पालन करने, और उसका प्रचार करने की स्वतंत्रता दी गई है। साथ ही, धार्मिक संस्थानों के मामलों में सरकार के हस्तक्षेप पर भी रोक लगाई गई है।

5. संस्कृति और शिक्षा संबंधी अधिकार : अनुच्छेद 29 और 30 में अल्पसंख्यकों को अपनी संस्कृति, भाषा, और लिपि को सुरक्षित रखने और अपने शैक्षिक संस्थान स्थापित करने और उनका प्रबंधन करने का अधिकार दिया गया है। ये अधिकार सांस्कृतिक विविधता और शैक्षिक स्वतंत्रता की रक्षा करते हैं।

6. संवैधानिक उपचारों का अधिकार : अनुच्छेद 32 के तहत, यदि किसी व्यक्ति के मौलिक अधिकारों का उल्लंघन होता है, तो वह सर्वोच्च न्यायालय या उच्च न्यायालय में जाकर न्याय पाने का अधिकार रखता है। इसे "संविधान का हृदय और आत्मा" कहा जाता है, क्योंकि यह अन्य सभी मौलिक अधिकारों की सुरक्षा करता है।

डॉ. आंबेडकर ने शिक्षा को सामाजिक सुधार का सबसे महत्वपूर्ण साधन माना। उन्होंने दलितों और अन्य पिछड़े वर्गों के लिए शिक्षा को सुलभ बनाने के लिए अनेक प्रयास किए। उनका मानना था कि शिक्षा ही वह माध्यम है जिससे समाज में समानता

और न्याय की स्थापना की जा सकती है। उन्होंने कई शैक्षिक संस्थानों की स्थापना की, ताकि वंचित वर्गों के लोग शिक्षा प्राप्त कर सकें और अपने अधिकारों के प्रति सजग हो सकें। उनके द्वारा स्थापित सिद्धांत आज भी शिक्षा के माध्यम से सामाजिक सशक्तिकरण के मार्गदर्शक बने हुए हैं। डॉ. आंबेडकर ने जातिवाद और भेदभाव से मुक्त होने के लिए 1956 में बौद्ध धर्म अपनाया। उन्होंने इसे एक ऐसा धर्म माना जो समानता, करुणा, और मानवता के सिद्धांतों पर आधारित है। उनके इस कदम ने दलित समुदाय को सामाजिक और मानसिक स्वतंत्रता की नई दिशा दी। डॉ. आंबेडकर ने धर्मांतरण को सामाजिक सुधार का एक साधन माना और लाखों दलितों के साथ बौद्ध धर्म ग्रहण किया। यह कदम समाज में समानता और न्याय के लिए उनकी प्रतिबद्धता का प्रतीक था। डॉ. आंबेडकर ने महिलाओं के अधिकारों की भी पुरजोर वकालत की। उन्होंने महिलाओं के लिए संपत्ति के अधिकार, तलाक का अधिकार, और अन्य कानूनी अधिकारों की आवश्यकता पर जोर दिया। उनका मानना था कि एक समाज तभी न्यायपूर्ण हो सकता है जब उसमें महिलाओं को समान अधिकार और अवसर मिले। डॉ. आंबेडकर ने हिंदू कोड बिल का समर्थन किया, जो हिंदू महिलाओं को संपत्ति में अधिकार और तलाक का अधिकार प्रदान करता था। यह उनके महिला सशक्तिकरण के प्रति प्रतिबद्धता का प्रतीक था।

सम्बन्धित साहित्य का अध्ययन

जोशी, आर. (2022) ने अपने अध्ययन निष्कर्ष में लिखा है कि डॉ. भीमराव अम्बेडकर “दया धर्म का मूल” सिद्धांत के प्रबल विरोधी थे, क्योंकि “दया” में दूसरों को दयनीय और दया का पात्र बना देने का एक बड़ा दोष भी है। दुःखी मनुष्य का दुःख दूर करना पुण्य का परिचायक है किन्तु उसे दया का पात्र बना देना महापाप है। दया का पात्र बनते ही मनुष्य हीन भावना से भर उठता है। इसी दया धर्म की हीन भावना ने समाज में दलित-शोषित पीड़ित मनुष्य को समाज, समुदाय को अलग-थलग किया है किन्तु आज भी दया धर्म वाले करुणा, ममता, समता के दर्शन को नहीं समझ सकते हैं और व्यवस्था में विसमता असमानता के विष ने भारतीयता और सामाजिकता को रक्तरंजित कर दिया है। इसी का परिणाम द्वेष, अस्पृश्यता, असमानता, अराजकता और अलगाववाद है जिसने सामाजिकता की हत्या का जघन्य अपराध किया है और व्यवस्था में विषमता असमानता के विष ने भारतीयता और सामाजिकता को रक्तरंजित कर दिया है जो सदियों से सामाजिक व्यवस्था के अभिन्न अंग बने हुए हैं। आत्मोद्धार और अछूतोद्धार के अनवरत प्रयासों पर्यन्त ही भारत “सत्यमेव जयते” और अहिंसा परमोधर्म के सिद्धांतों को आत्मसात कर सकता है।

बघेल, डी.के. (2024) ने शोध अध्ययन में पाया कि डॉ. भीमराव अंबेडकर ने भारतीय समाज के शोषित और वंचित वर्गों

के लिए समाजिक और आर्थिक समानता के माध्यम से श्रमिक उत्थान को प्राथमिकता दी। उनकी नीतियों और कार्यक्षमताओं ने भारतीय समाज में व्याप्त असमानता को समाप्त करने के लिए मार्ग प्रशस्त किया। उन्होंने समाज में समानता, न्याय, और सम्मान के लिए लड़ने के लिए अपने जीवन को समर्पित किया। उनकी श्रम संबंधी नीतियाँ और कार्यक्षमताएँ, जैसे कि श्रमिकों के लिए समान वेतन और उचित व्यवस्थित श्रम संबंधित कानूनी अधिकारों की गारंटी, ने उन्हें आर्थिक रूप से स्थिर बनाने में मदद की।

डॉ. पूनम भारतीय (2023) ने अपने शोध में लिखा है कि डॉ. अम्बेडकर एक श्रमिक नेता थे जिन्होंने कानून का उल्लंघन करने वाले नियोक्ताओं से श्रमिकों की रक्षा की अनुचित तरीकों से उन्होंने उनके वेतन अधिकारों की रक्षा की और कार्यस्थल को बेहतर बनाया। बहुमत मजदूर अछूत वर्ग के थे, जो अधिक कष्ट सहते थे और अवांछनीय परिस्थितियों में काम करते थे। क्षेत्र, जिनमें विभिन्न घरेलू काम-काज जैसे अस्पष्ट क्षेत्र भी शामिल हैं। डॉ. अम्बेडकर ने श्रमिक कल्याण के लिए कार्य किया, उन्होंने आधुनिक भारत की औद्योगिक नीति को आकार देने में मदद की युग और मानव संसाधन प्रबंधन का एक नया विचार प्रस्तुत किया।

धवलेश्वर, सी.यू. और बनसोडे, सी. (2017) ने अपने शोध लेखन में बताया कि बहुत कम समाज सुधारकों ने अस्पृश्यता जैसी अप्राकृतिक सामाजिक प्रथाओं के खिलाफ लड़ाई लड़ी है। पर रहने वाले वर्गों के खिलाफ अन्य भेदभाव। महात्मा बसवेश्वर, ज्योतिराव फुले, सावित्रीबाई फुले, छत्रपति शाहू महाराज, श्री नारायण गुरु, पेरियार ई.वी. रामास्वामी और बी.आर.अम्बेडकर उनमें से प्रमुख थे। अम्बेडकर का दावा है कि जाति श्रम विभाजन पर आधारित नहीं है। मजदूरों का बंटवारा है। आर्थिक संगठन के रूप में भी जाति एक हानिकारक संस्था है। उनके अनुसार, समाज तर्क पर आधारित होना चाहिए न कि जाति व्यवस्था की क्रूर परंपराओं पर। समाज के विभिन्न वर्गों के कल्याण के लिए सामाजिक जाति व्यवस्था को हटाने की प्रक्रिया में कार्य शिक्षा और पेशे की अधिक जिम्मेदारी है और सामुदायिक विकास, शिक्षा और क्षेत्र अभ्यास का हाथ-दर-हाथ समर्थन योगदान दे सकता है।

कौर, पी. (2022) ने अपने शोध कार्य में इंगित किया है कि सामाजिक न्याय का विचार गहराई से निहित है और सामाजिक असमानता की अवधारणा का दृढ़ता से विरोध करता है। भारतीय सामाजिक व्यवस्था में सामाजिक असमानता जीवन का एक तरीका था। ऐसी सामाजिक व्यवस्था में एक प्रमुख अल्पसंख्यक ने अपने प्रभुत्व को कायम रखने और अपने अधिकारों और हितों की रक्षा के लिए बहुसंख्यक लोगों को गुलाम बना लिया। लाखों लोगों को उनके बुनियादी नागरिक अधिकारों से वंचित कर दिया गया और उन्हें मानव जीवन जीने के लिए मजबूर किया गया। बाबा साहेब अम्बेडकर जो स्वयं ऐसे समुदाय से थे, समाज के

ऐसे अपमानित व्यवहार का शिकार बने। ऐसे विभाजित समाज के दर्द और घुटन को महसूस करते हुए वह समाज के दबे-कुचले और वंचित वर्गों के लिए एक प्रकाश-स्तंभ बन गए। अपने अथक संघर्ष से उन्होंने सदियों पुरानी रूढ़िवादी कठोर सामाजिक व्यवस्था और उनमें व्याप्त सामाजिक बुराइयों के खिलाफ लड़ाई लड़ी। बाबासाहेब अम्बेडकर ने हमेशा एक आदर्श समाज बनाने पर जोर दिया जो स्वतंत्रता, समानता और भाईचारे की तिकड़ी पर आधारित होना चाहिए। न्यूलाइन शोधकर्ता के काम की कल्पना बाबासाहेब अम्बेडकर के दृष्टिकोण के चश्मे से सामाजिक न्याय की अवधारणा को देखने और सामाजिक न्याय प्राप्त करने की दिशा में उनके शानदार योगदान पर प्रकाश डालने के प्रयास के रूप में की गई है। इस विषय को लेने की प्रेरणा यानी डॉ. बी.आर. सामाजिक न्याय की दिशा में अम्बेडकर का योगदान: एक अध्ययन दोतरफा था। सबसे पहले समाज के वंचित वर्गों, जिनमें अनुसूचित जाति, महिलाएं और श्रमिक वर्ग शामिल हैं, की सामाजिक-आर्थिक स्थितियों को सुधारने में डॉ. अम्बेडकर के अपार योगदान का विश्लेषण करना है। दूसरा यह पता लगाना कि बाबा साहेब अम्बेडकर की परिकल्पना के अनुसार सामाजिक न्याय प्राप्त करने का कार्य कितना पूरा हुआ है।

सिन्हा, ए. (2015) ने अपने अध्ययन में निरूपित किया है कि डॉ. अम्बेडकर सामाजिक-राजनीतिक सुधारक के दूत हैं। जिस तरह से उन्होंने बौद्ध धर्म अपनाया उससे उनका कार्याकल्प हो गया। आरक्षण की नीति ने वंचितों के लिए जगह बनाई। सार्वजनिक डोमेन, कार्यस्थल, शैक्षणिक संस्थानों में और कार्यस्थल। कई संस्थानों और सार्वजनिक स्थानों का नाम उनके नाम पर रखा गया है। 1990 के दशक में, कुछ हंगेरियाई रोमानी लोगों ने समानताएँ बनाईं। उनकी अपनी स्थिति और की स्थिति के बीच भारत में दलित लोग। अम्बेडकर से प्रेरित दृष्टिकोण, वे बौद्ध धर्म में परिवर्तित होने लगे।

सहदेवुडु, जी.आर., रेड्डी, वाई., और वेंकटेश्वरलु, सी. (2015) ने अपने शोध अध्ययन में लिखा है कि डॉ. अम्बेडकर का जीवन छोटा और फिर भी सबसे उल्लेखनीय था। वह धूल से ऊपर उठा, एक जानवर से भी बदतर व्यवहार किये जाने के बाद भारतीय संविधान के जनक बने। डॉ. अम्बेडकर वास्तव में एक बहुआयामी व्यक्तित्व थे। एक सच्चा मुक्तिदाता दलितों के एक महान राष्ट्रीय नेता, देशभक्त, एक महान लेखक, महान शिक्षाविद्, महान राजनीतिक दार्शनिक, धार्मिक मार्गदर्शक और सबसे बढ़कर एक महान मानवतावादी थे। अपने समकालीनों के बीच अम्बेडकर व्यक्तित्व में मजबूत मानवतावादी आधार थे। यह केवल खेदजनक है कि प्रेस ने अतीत में भी समकालीनों ने अम्बेडकर को मुख्य रूप से एक महान सामाजिक व्यक्ति के रूप में पेश किया है। विद्रोही और हिंदू धर्म का कटु आलोचक कहे गए। डॉ. के आलोचको अम्बेडकर

ने अपनी मूल मानवतावादी प्रवृत्ति को नजरअंदाज कर दिया। उनके हर कार्य या भाषण के पीछे मजबूत मानवीय प्रतिबद्धता थी। डॉ. अम्बेडकर आधुनिक भारत के अग्रणी निर्माता थे।

लक्ष्मी, जे. (2014) ने अपने शोध निष्कर्ष में लिखा है कि भारत का संविधान अपने सभी नागरिकों को समानता, सम्मान के साथ जीने का समान अधिकार प्रदान करता है और गरिमा, लेकिन जाति व्यवस्था और अस्पृश्यता किसी भी तरह से और अन्य अभी भी नकारात्मक भूमिका निभा रहे थे।

समाज के विभिन्न अंग: अस्पृश्यता मानवता के विरुद्ध अपराध है। मेहतर/डोम के विरुद्ध अस्पृश्यता हमारे समाज में आज भी दलितों की उपजाति प्रचलित है जो अमानवीय है। इसलिए इसे अपनाने का यह सही समय है। **डॉ. अम्बेडकर के सिद्धांत:** भारत का संविधान इस तरह से बनाया गया है कि इसके सभी नागरिक समान हैं। इससे पहले हमारा देश समाज में विभिन्न प्रकार की सामाजिक-आर्थिक, शैक्षिक और राजनीतिक बुराइयों का सामना कर रहा है। केवल संविधान का उसकी वास्तविक भावना में प्रभावी कार्यान्वयन ही उन पर काबू पा सकता है। दलित भी सामाजिक, आर्थिक, शैक्षणिक एवं राजनीतिक सभी क्षेत्रों में आगे आकर कड़ी मेहनत कर मुकाबला करें। **समाज के अन्य सदस्य:** उन्हें शक्ति प्रदर्शन से बचना चाहिए और अपने अधिकारों का समुचित उपभोग करना चाहिए। प्रत्येक दलित सदस्य को दूसरा अम्बेडकर बनने का प्रयास करना होगा। ईश्वर ने सृष्टि सहित समस्त सृष्टि की रचना की है। बिना जाति पहचान के इंसान, यह हम ही हैं जो ये सभी भेदभाव करते हैं। उन्नत लोग वर्गों को अपनी मानसिकता बदलनी होगी। उन्हें दलितों के प्रति और अधिक उदार होना होगा। अस्पृश्यता को स्वीकार कर उनकी सामाजिक-आर्थिक, शैक्षिक और राजनीतिक स्थिति का उत्थान आदि, वे अपने जैसे समान इंसान हैं। हमारे समाज की सामाजिक संरचना मुख्यतः इन्हीं पर आधारित है क्योंकि ये वे लोग हैं जो सभी प्रकार के छोटे-मोटे काम करते हैं जिनसे आमतौर पर लोग बचते हैं।

निष्कर्ष

भारत में सामाजिक न्याय और समता की ऐतिहासिक अवधारणा एक लंबी और जटिल यात्रा का परिणाम है। प्राचीन काल से लेकर आधुनिक युग तक, विभिन्न सामाजिक और धार्मिक आंदोलनों, विचारकों, और नेताओं ने सामाजिक न्याय और समानता की स्थापना के लिए संघर्ष किया है। भारतीय संविधान ने इन सिद्धांतों को सुदृढ़ किया और स्वतंत्रता के बाद के भारत में सामाजिक न्याय के लिए एक मजबूत आधारशिला रखी। आज, सामाजिक न्याय और समानता भारतीय लोकतंत्र के मूलभूत सिद्धांत हैं, जो एक समतामूलक और न्यायपूर्ण समाज की

स्थापना के लिए आवश्यक हैं। यह न केवल ऐतिहासिक महत्व रखता है, बल्कि भविष्य के भारत के निर्माण के लिए भी अत्यंत महत्वपूर्ण है। समानता और मौलिक अधिकार भारतीय संविधान के आधारभूत स्तंभ हैं। ये अधिकार हर नागरिक को स्वतंत्रता, गरिमा, और समानता के साथ जीने का अवसर प्रदान करते हैं। समानता का सिद्धांत सामाजिक न्याय की दिशा में एक महत्वपूर्ण कदम है, जबकि मौलिक अधिकार व्यक्ति की स्वतंत्रता और गरिमा की रक्षा के लिए आवश्यक हैं। इन सिद्धांतों और अधिकारों का समुचित पालन ही एक समतामूलक और न्यायपूर्ण समाज की स्थापना कर सकता है। डॉ. भीमराव आंबेडकर के विचार में सामाजिक समानताका अर्थ एक ऐसे समाज से है जहाँ सभी व्यक्तियों को जाति, धर्म, लिंग, और सामाजिक स्थिति के आधार पर भेदभाव के बिना समान अवसर, अधिकार, और सम्मान मिले। उनके विचार में, सामाजिक समानता केवल कानूनी समानता तक सीमित नहीं थी, बल्कि यह समाज के हर स्तर पर व्यावहारिक रूप से लागू होनी चाहिए थी। डॉ. भीमराव आंबेडकर का जीवन और योगदान भारतीय समाज में सामाजिक न्याय और समानता की दिशा में एक ऐतिहासिक मील का पत्थर है। उन्होंने अपने विचारों, संघर्षों, और कार्यों के माध्यम से एक ऐसा समाज बनाने की दिशा में प्रयास किया, जिसमें हर व्यक्ति को समान अधिकार और सम्मान प्राप्त हो। भारतीय संविधान में शामिल उनके सिद्धांत और नीतियाँ आज भी सामाजिक न्याय के लिए मार्गदर्शन करती हैं और उनके संघर्ष से प्रेरणा लेकर समाज में समानता और न्याय की स्थापना के प्रयास जारी हैं। इस प्रकार, सामाजिक न्याय और समता की अवधारणा भारत में संवैधानिक, ऐतिहासिक और सामाजिक दृष्टिकोण से एक गहरे और व्यापक विषय का प्रतिनिधित्व करती है। यह न केवल मौलिक अधिकारों की रक्षा करती है, बल्कि विभिन्न समुदायों की विशेष आवश्यकताओं को भी उच्च प्राथमिकता देती है। इसे बनाए रखना और सशक्त करना समाज की एक प्रमुख चुनौती बनी हुई है।

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Academic Resilience of Senior Secondary School Students with respect to Meta-cognitive Skills, Learning Style and Productive Thinking: An Empirical Study

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Abstract

In this 21st century, students faces tough challenges and competitiveness in both academic & extracurricular sectors. Resilience is the ability to bounce back after a set-back. It is one of the things that separates winners from losers. One of the most crucial components of resilience is the ability to think flexibly about difficulty and adversity and to solve issues accurately. The current investigation was done to inspect the academic resilience among students with respect to their meta-cognitive skills, learning style & productive thinking. Academic resilience has taken as dependent variable while meta-cognition (High & Low), learning style (High & Low) and productive thinking (High & Low) have taken as independent variables. In the current investigation descriptive survey method was employed. "All the sr. sec. school students studying in 11th class of all private sec. schools affiliated to C.B.S.E. of Rohtak, Bhiwani & Ch. Dadri districts constituted the target population for the present study. 600 sr. sec. school students were chosen via random sampling technique." Academic resilience scale by Mallick and Kaur (2015); Learning style scale by Balhara & Mittal; Meta-cognitive Skills Scale (MCSS) by Gupta & Suman (2017); and Productive thinking Scale by Balhara & Mittal were apply to gather the data. "The obtained data was analyzed using Three Way ANOVA with 2×2×2 factorial design. Result of the study revealed that the interaction effect of meta-cognitive skills, learning style and productive thinking on academic resilience of sr. sec. school students was found to be significant".

Introduction

Individuals are productive members of society. When we faced a task in life, the task and its resolution provide us significance since they represent a real-world productive action. If you want to become more resilient as a student, work more and be more productive. You should concentrate on developing resilience. Resilience is the ability to bounce back after a set-back. It is one of the things that separates winners from losers. One of the most crucial components of resilience is the ability to think flexibly about difficulty and adversity and to solve issues accurately. Productive thinking is a form of innovation approach that facilitates the generation of possibilities, testing of tactics, and gathering of feedback in order to produce anything. You may use productive thinking to break out of a rut and overcome the most difficult problems in your life. According to Mallick and Kaur (2016), academic resilience is crucial for overcoming problems in the classroom and boosting

students' enthusiasm and achievement. Meta-cognitive abilities have been linked to improved learning capacity for lifelong learning, according to a number of previous works of literature (Capobianco *et al.*, 2020). This includes the ability to reflect on one's own understanding, adaptation, change, control, and thought processes. Many thinkers and researchers have contended that learning styles do not depend on innate traits but rather evolve as a result of experience. Although learning styles are not constant and unalterable factors, they do require some time to alter. Because of this, choosing and organising teaching techniques, classroom environments, and instructional materials in accordance with learning styles appears to be a simpler and more successful strategy than asking the students to conform to the existing organisation. Identification of a person's chosen learning and thinking style is necessary for attempts to comprehend learning and thinking styles and learn to apply them adaptably. So, that they may maximise the learning

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possibilities for their pupils, teachers must be aware of the preferred learning styles of their students. Despite the fact that researchers emphasise that meta-cognitive competency is essential & critical in increasing mental resilience, research on instilling resilience thinking through meta-cognitive skills and productive thinking is still in its infancy & requires the research community's urgent attention.

Objective

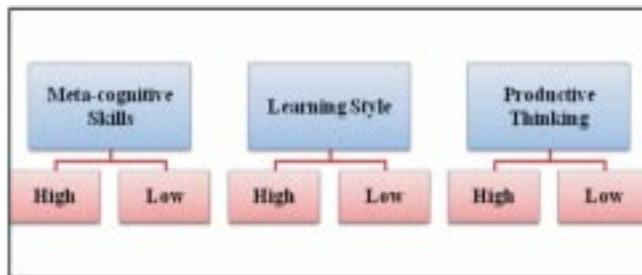
To find out the interaction effect of meta-cognitive skills, learning style and productive thinking on academic resilience of senior secondary school students.

Hypothesis

There is no significant interaction effect of meta-cognitive skills, learning style and productive thinking on academic resilience of senior secondary school students.

Design and Methodology

In the present study, descriptive survey method was used. The $2 \times 2 \times 2$ factorial randomized group design was used to analyze the data. All the independent variables i.e. meta-cognitive skills (High & Low), learning style (High & Low) and productive thinking (High & Low) were varied at the two levels as given below:



Population and Sample

All the senior secondary school students studying in 11th class of all private sec. schools affiliated to C.B.S.E.

of Rohtak, Bhiwani & Ch. Dadri districts constituted the target population for the present study. The technique for the selection of 600 students from Rohtak, Bhiwani and Ch. Dadri Districts of Haryana State was random sampling technique.

Tools Used

- **Academic Resilience Scale** by Mallick and Kaur (2015).
- **Meta-Cognitive Skills Scale** by Gupta and Suman (2017).
- **Learning style Scale** by Balhara and Mittal (2023).
- **Productive thinking Scale** by Balhara and Mittal (2023).

Statistical Techniques

The Three-Way Analysis of Variance (ANOVA) with $2 \times 2 \times 2$ Factorial Design was computed using SPSS 20 version to study the interaction effects of the independent variables i.e. meta-cognitive skills, learning style & productive thinking on academic resilience of secondary school students. Wherever F-value was found significant, 't'-test was employed for further investigation.

Data Analysis & Interpretation

The objectives of the current investigation was to examine the main & interaction effects of meta-cognitive skills, learning style & productive thinking on academic resilience of sec. school students. For this, the data was subjected to analysis of variance (ANOVA) of a $(2 \times 2 \times 2)$ factorial study with a randomized group design. Meta-cognitive skills, learning style & productive thinking were coded as A, B, C respectively & were diverse into two ways as: High (A1) & Low (A2); High (B1) & Low (B2); High (C1) & Low (C2). The summary of ANOVA ($2 \times 2 \times 2$) has also been presented in Table-1, which is analyzed in terms of main effects and interaction effects.

Table-1: Summary of Three Way ANOVA ($2 \times 2 \times 2$ Factorial Design) for Academic resilience of Senior Secondary School Students with respect to Meta-cognitive skills, Learning style and Productive thinking

DV: Academic Resilience	Df	Sum of Squares (SS)	Mean Sum of Squares (MSS)	F-ratios
Interaction Effect				
A×B×C Interaction	1	7587.753	7587.753	16.63**
Between Cells	7	83489.117	-----	-----
Within Cells	542	247199.838	456.088	-----
Total	549	-----	-----	-----

** Significant at 0.01 level

* Significant at 0.05 level

NS= Not Significant

Table-1 depicts that the F-ratio (16.63) for the interaction effect of Meta-cognitive skills x Learning style x Productive thinking on academic resilience of sr. sec. school students is found significant at 0.01 level which make it clear that Meta-cognitive skills x Learning style x Productive thinking interact with each other.

Therefore, the null hypothesis stands rejected. Further, t-test was employed to find out the difference in mean scores of academic resilience of senior secondary school students for different groups. The results for the same have been presented in the Table-2.

Table-2: 't'-values for Mean Scores of Academic Resilience of Sr. Sec. School Students for Different Groups of Meta-cognitive Skills, Learning Style and Productive Thinking (A×B×C)

Sr.No.	Groups	N		Mean		S.D.		't'-values
1	A ₁ B ₁ C ₁ vs A ₂ B ₂ C ₂	82	59	147.25	125.61	15.52	17.06	7.72**
2	A ₁ B ₁ C ₂ vs A ₂ B ₂ C ₁	55	65	123.25	145.30	19.21	21.06	7.30**
3	A ₁ B ₂ C ₂ vs A ₂ B ₁ C ₁	60	80	149.29	143.71	13.80	15.62	2.25*
4	A ₁ B ₂ C ₁ vs A ₂ B ₁ C ₂	73	76	114.69	146.06	35.95	18.38	6.67**
5	A ₁ B ₁ C ₁ vs A ₁ B ₁ C ₂	82	55	147.25	123.25	15.52	19.21	7.74**
6	A ₁ B ₁ C ₁ vs A ₁ B ₂ C ₁	82	73	147.25	114.69	15.52	35.95	7.20**
7	A ₁ B ₁ C ₁ vs A ₁ B ₂ C ₂	82	60	147.25	149.29	15.52	13.80	0.82 (NS)
8	A ₁ B ₁ C ₂ vs A ₁ B ₂ C ₁	55	73	123.25	114.69	19.21	35.95	1.73 (NS)
9	A ₁ B ₁ C ₂ vs A ₁ B ₂ C ₂	55	60	123.25	149.29	19.21	13.80	7.65**
10	A ₂ B ₂ C ₂ vs A ₂ B ₂ C ₁	59	65	125.61	145.30	17.06	21.06	7.23**
11	A ₂ B ₂ C ₂ vs A ₂ B ₁ C ₂	59	76	125.61	146.06	17.06	18.38	6.70**
12	A ₂ B ₂ C ₂ vs A ₂ B ₁ C ₁	59	80	125.61	143.71	17.06	15.62	6.41**
13	A ₂ B ₂ C ₁ vs A ₂ B ₁ C ₂	65	76	145.30	146.06	21.06	18.38	0.29 (NS)
14	A ₂ B ₂ C ₁ vs A ₂ B ₁ C ₁	65	80	145.30	143.71	21.06	15.62	0.67 (NS)
15	A ₁ B ₁ C ₁ vs A ₂ B ₁ C ₁	82	80	147.25	143.71	15.52	15.62	1.45 (NS)
16	A ₁ B ₁ C ₁ vs A ₂ B ₁ C ₂	82	76	147.25	146.06	15.52	18.38	0.43 (NS)
17	A ₁ B ₁ C ₁ vs A ₂ B ₂ C ₁	82	65	147.25	145.30	15.52	21.06	0.84 (NS)
18	A ₁ B ₁ C ₂ vs A ₂ B ₁ C ₁	55	80	123.25	143.71	19.21	15.62	6.55**
19	A ₁ B ₁ C ₂ vs A ₂ B ₁ C ₂	55	76	123.25	146.06	19.21	18.38	6.84**
20	A ₁ B ₁ C ₂ vs A ₂ B ₂ C ₂	55	59	123.25	125.61	19.21	17.06	0.69 (NS)
21	A ₁ B ₂ C ₁ vs A ₁ B ₂ C ₂	73	60	114.69	149.29	35.95	13.80	7.58**
22	A ₁ B ₂ C ₁ vs A ₂ B ₁ C ₁	73	80	114.69	143.71	35.95	15.62	6.37**
23	A ₁ B ₂ C ₁ vs A ₂ B ₂ C ₁	73	65	114.69	145.30	35.95	21.06	6.81**
24	A ₁ B ₂ C ₁ vs A ₂ B ₂ C ₂	73	59	114.69	125.61	35.95	17.06	2.29*
25	A ₁ B ₂ C ₂ vs A ₂ B ₁ C ₂	60	76	149.29	146.06	13.80	18.38	1.17 (NS)
26	A ₁ B ₂ C ₂ vs A ₂ B ₂ C ₁	60	65	149.29	145.30	13.80	21.06	1.68 (NS)
27	A ₁ B ₂ C ₂ vs A ₂ B ₂ C ₂	60	59	149.29	125.61	13.80	17.06	8.33**
28	A ₂ B ₁ C ₁ vs A ₂ B ₁ C ₂	80	76	143.71	146.06	15.62	18.38	0.85 (NS)

**Significant at 0.01 level

*Significant at 0.05 level

NS=Not Significant

A₁ = High Meta-cognitive Skills

A₂ = Low Meta-cognitive Skills

B₁ = High level of Preferred Learning Style

B₂ = High level of Preferred Learning Style

C₁ = High Productive Thinking

C₂ = Low Productive Thinking

Table-2 indicates that t-values 0.82, 1.73, 0.29, 0.67, 1.45, 0.43, 0.84, 0.69, 1.17, 1.68 and 0.85 for the groups $A_1B_1C_1$ vs $A_1B_2C_2$, $A_1B_1C_2$ vs $A_1B_2C_1$, $A_2B_2C_1$ vs $A_2B_1C_2$, $A_2B_2C_1$ vs $A_2B_1C_1$, $A_1B_1C_1$ vs $A_2B_1C_1$, $A_1B_1C_1$ vs $A_2B_1C_2$, $A_1B_1C_1$ vs $A_2B_2C_1$, $A_1B_1C_2$ vs $A_2B_2C_2$, $A_1B_2C_2$ vs $A_2B_1C_2$, $A_1B_2C_2$ vs $A_2B_2C_1$ and $A_2B_1C_1$ vs $A_2B_1C_2$ respectively have not been significant at 0.05 level.

Further, the same Table-2 demonstrated that t-value (7.72) for the group $A_1B_1C_1$ vs $A_2B_2C_2$ is significant at 0.01 level. Average scores make it clear that pupils having high meta-cognitive skills along with high level of preferred learning style & high productive thinking have significantly higher academic resilience (147.25) than pupils having low meta-cognitive skills along with low level of preferred learning style & low productive thinking (125.61). Table-2 also showed that t-value (7.30) for the group $A_1B_1C_2$ vs $A_2B_2C_1$ is significant at 0.01 level. Mean scores represents that pupils having high meta-cognitive skills along with high level of preferred learning style & low productive thinking have significantly less academic resilience (123.25) than students having low meta-cognitive skills along with low level of preferred learning style & high productive thinking (145.30). Again, the t-value (2.25) for the group $A_1B_2C_2$ vs $A_2B_1C_1$ is significant at 0.01 level. While comparing average scores it can be seen that pupils having high meta-cognitive skills along with low level of preferred learning style & low productive thinking possess significantly less academic resilience (149.29) than students having low meta-cognitive skills along with low level of preferred learning style & high productive thinking (143.71).

The t-value (6.67) for the group $A_1B_2C_1$ vs $A_2B_1C_2$ is significant at 0.01 level. In accordance to mean scores that pupils having high meta-cognitive skills along with low level of preferred learning style & high productive thinking (114.69) exhibit less academic resilience than students having low meta-cognitive skills along with high level of preferred learning style & low productive thinking (146.06). Again, Table-2 showed that the t-value (7.74) for the group $A_1B_1C_1$ vs $A_1B_1C_2$ is significant at 0.01 level. In the context of average scores it can be conclude that pupils having high meta-cognitive skills along with high level of preferred learning style & high productive thinking (147.25) have higher academic resilience than pupils having high meta-cognitive skills along with high level of preferred learning style & low productive thinking (123.25). Similarly, the t-value (7.20) for the group $A_1B_1C_1$ vs $A_1B_2C_1$ is significant at 0.01 level. Average scores

make it clear that pupils having high meta-cognitive skills along with high level of preferred learning style & high productive thinking (147.25) have higher academic resilience as compared to pupils having high meta-cognitive skills along with low level of preferred learning style & high productive thinking (114.25). An assessment of Table-2 revealed that the t-value (7.65) for the pupils having high meta-cognitive skills along with high level of preferred learning style & low productive thinking ($A_1B_1C_2$) and pupils having high meta-cognitive skills along with low level of preferred learning style & low productive thinking ($A_1B_2C_2$) is significant at 0.01 level. Average scores concluded that pupils having high meta-cognitive skills along with high level of preferred learning style & low productive thinking (123.25) possess less academic resilience as compared to pupils having high meta-cognitive skills along with low level of preferred learning style & low productive thinking (149.29).

Table-2 indicated that the t-value (7.23) for the group $A_2B_2C_2$ vs $A_2B_2C_1$ is significant at 0.01 level. While comparing average scores it can be conclude that pupils having low meta-cognitive skills along with low level of preferred learning style & low productive thinking (125.61) have less academic resilience than students having low meta-cognitive skills along with low level of preferred learning style & high productive thinking (145.30). Similarly, the t-value (6.70) for the group $A_2B_2C_2$ vs $A_2B_1C_2$ is significant at 0.01 level. In the context of average scores it can be conclude that pupils having low meta-cognitive skills along with low level of preferred learning style & low productive thinking (125.61) possess lower academic resilience than students having low meta-cognitive skills along with high level of preferred learning style & low productive thinking (146.06). The Table-2 also indicated that the t-value (6.41) for the group $A_2B_2C_2$ vs $A_2B_1C_1$ is significant at 0.01 level. In the context of average scores it can be conclude that students having low meta-cognitive skills along with low level of preferred learning style & low productive thinking (125.61) have less academic resilience than pupils having low meta-cognitive skills along with high level of preferred learning style & high productive thinking (143.71). Again, the table-2 indicated that t-value (6.55) for the group $A_1B_1C_2$ vs $A_2B_1C_1$ is significant at 0.01 level. Average scores make it clear that pupils having high meta-cognitive skills along with high level of preferred learning style & low productive thinking (123.25) have less academic resilience than pupils having low meta-cognitive skills along with high level of preferred learning style & high productive thinking (143.71).

Further, table-2 revealed that the t-value (6.84) for the group $A_1B_1C_2$ vs $A_2B_1C_2$ is significant at 0.01 level. In the context of average scores it can be observed that pupils having high meta-cognitive skills along with high level of preferred learning style & low productive thinking (123.25) have less academic resilience than pupils having low meta-cognitive skills along with high level of preferred learning style & low productive thinking (143.71). Further, the table-2 revealed that the t-value (7.58) for the group $A_1B_2C_1$ vs $A_1B_2C_2$ is significant at 0.01 level. While comparing average scores it can be observed that pupils having high meta-cognitive skills along with high level of preferred learning style & high productive thinking (114.69) showed less academic resilience than pupils having high meta-cognitive skills along with low level of preferred learning style & low productive thinking (149.29). The table-2 revealed that the t-value (6.37) for the group $A_1B_2C_1$ vs $A_2B_1C_1$ is significant at 0.01 level. In the context of average scores it can be observed that pupils having high meta-cognitive skills along with high level of preferred learning style & high productive thinking (114.69) exhibit less academic resilience than pupils having low meta-cognitive skills along with high level of preferred learning style & high productive thinking (143.71).

An examination of Table-2 indicated that the t-value (6.81) for the group $A_1B_2C_1$ vs $A_2B_2C_1$ is significant at 0.01 level. In the context of average scores it can be observed that students having high meta-cognitive skills along with high level of preferred learning style & high productive thinking (114.69) exhibit less academic resilience than students having low meta-cognitive skills along with low level of preferred learning style & high productive thinking (145.30). Similarly, the table-2 revealed that the t-value (2.29) for the group $A_1B_2C_1$ vs $A_2B_2C_2$ is significant at 0.05 level. Average scores make it clear that students having high meta-cognitive skills along with high level of preferred learning style & high productive thinking (114.69) explore less academic resilience as compare to students having low meta-cognitive skills along with low level of preferred learning style & low productive thinking (125.61). Lastly, the table-2 revealed that the t-value (8.33) for the group vs $A_2B_2C_2$ is significant at 0.05 level. In the context of mean scores it can be observed that students having high meta-cognitive skills along with low level of preferred learning style & low productive thinking (149.29) have higher academic resilience as compare to students having low meta-cognitive skills along with low level of preferred learning style & low productive thinking (125.61).



Fig. 1: Mean Scores for Interaction Effect of Meta-cognitive Skills, Learning Style & Productive Thinking (A×B×C) on Academic Resilience of Sr. Sec. School Students

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Study of Attitude of Pre-service Teachers Towards Online Learning During COVID-19 Pandemic

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Abstract

The present research work on "Study of Attitude of Pre-service Teachers Towards Online Learning During COVID-19 Pandemic". In this study, descriptive research method was employed. A sample of 150 pre-service teachers were selected by using random sampling from district of Amritsar. The objective of the research was to study the attitude of pre service teachers towards online learning with respect to gender, locale and academic stream. Data was collected by using the self developed tool by the investigator- Attitude Scale Towards Online Learning During COVID-19. For data analysis, 't' test was employed to find out the difference of Attitude of pre-service teachers towards online learning during COVID-19 on measurable variables. The findings of the study reveal that there exists significant difference between attitude towards online learning of pre-service teachers with respect to gender. Findings further show that locale and academic stream do not contribute to significant difference in attitude towards online learning of pre-service teachers.

Introduction

Quantitative changes in terms of economic growth and technological advancements and qualitative in terms of a new paradigm of a new society are governed altogether by different values and ethos. Every year new innovations and technologies hold the promise to alter the way we think and learn. Innovation in the scientific and technological methods in general and information and communication in particular, have brought remarkable changes in the pedagogical processes at all levels of education. Barley (1999) has expressed that over the past decades education was traditionally meant for bringing students to sources of knowledge, but the time has come to bring sources of knowledge to the students. So teachers have to use a broad variety of technology based instructional strategies that must be effective in delivery instructional material in a wide-range of learning environments and to diverse group of students. Effective technology can reinforce and enrich students' learning in interactive environment, which encourage the creativity through e-learning applications in different modes like visualization, simulation and modeling (Manner, 2003; Repnik and Grubelnik, 2010). Nobody can deny that technological improvements have their effect on the teaching-learning process.

Learning and education take place in many diversified forms, which make it easy to facilitate the general public in getting education. Among these diversified and facilitated forms, the most adopted and acceptable way of promoting academics in reputed educational setup across the globe is online learning. Online learning is considered as synonymous with web based learning (WBL), advanced distributed learning (ADL), Internet Based Training (IBT), Web Based Instruction, e-learning and Open flexible learning (OFL). Dahalan, Hasan and Atan stated that owing to the growing importance of lifelong learning, online learning has become a popular tool for learning. Most universities and colleges have also incorporated online learning in their teaching to accommodate diverse need in learning (Artino & Stephens, 2009; Bradford & Wyatt, 2010). Learning activity in online learning is based on learner autonomy and interactive learning actions (Liaw, Huang, & Cheng, 2007). Interaction between teachers and students leads to student' satisfaction and students learning outcome (Moore, 2002).

Online Learning

Use of computer and internet technologies for teaching purposes has increased dramatically (Cole *et al.*, 2017; Kontos, 2015; Tynan, Ryan, & Lamont-Mills,

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2015). Nichols (2003: 01) stated that online learning is a set of integration of various types of technologies solely for the purpose of promoting education.

In the view of Asabere & Enguah (2012), online learning aims to seek changes in the pattern of whole academic process. According to Berteau (2009), online learning is a way of teaching in which multiple integration of technology are sought while some were of the notions that it is substitute of distance education, which is facilitated by the application of internet considered as an effective way of rapid communications. In the view of SternOnline learning is education that takes place over the Internet. It is often referred to as "e-learning" among other terms.

Online Learning During COVID-19 Pandemic

COVID-19 pandemic was influenced almost every sector of the economy. And, the education sector is no exception. This pandemic has forced schools, colleges and universities to close and students to stay home for safety. According to the UNESCO Institute for Statistics, the COVID-19 pandemic has led to the closure of schools in 188 countries, affecting more than 1.5 billion students and 63 million primary and secondary teachers worldwide. In this situation, education of all levels and types is facing serious challenges. The global lockdown of education institutions is going to cause major (and likely unequal) interruption in students' learning (Burgess & Sievertsen, 2020). Face-to-face education has ended by numerous schools, universities, and colleges having negative impacts on educational activities, as social distance are crucial at this stage. The COVID-19 emergency changed the world and the teaching style for future generations and also changed the perspective of educators and learners. To ensure uninterrupted education, online platforms became essential tools for delivering educational content. Online education provided an effective solution to maintain the continuity of learning, allowing students to access course materials, submit assignments, and engage in virtual discussions from the safety of their homes. The COVID-19 pandemic posed health risks, making physical classrooms and crowded educational settings a potential source of virus transmission. Online education provided a safer alternative by eliminating the need for face-to-face interactions. Students could engage in virtual classrooms, video conferences, and online discussions, reducing the risk of exposure to the virus while still participating in educational activities. This safety factor significantly contributed to the rise in popularity of online education during the pandemic. The COVID-19 pandemic

accelerated the popularity of online education due to its ability to ensure continuity of learning, provide flexibility, create a safe learning environment, benefit from technological advancements, and offer global reach and access. The impact of this shift towards online education is likely to have long-lasting effects on the future of education even beyond the pandemic.

For years, we have been talking about digital transformation, but now it seems that education is about to be revamped due to the novel coronavirus. This reality has forced us to change our mindset from Thinking Digital to Being Digital. Research suggests that online learning has been shown to increase retention of information, and take less time, meaning the changes coronavirus have caused might be here to stay. This will result in the emergence of a new hybrid model of education, with significant benefits. It enables me to reach out to my students more efficiently and effectively through chat groups, video meetings, voting and also document sharing, especially during this pandemic (Amjad, 2020).

However, there are many challenges like lack of positive attitude of teachers and students towards online learning that need to be overcome. Students without reliable internet access and/or technology struggle to participate in digital learning; this gap is seen across countries and between income brackets within countries.

Teachers faced significant challenges and uncertainties when transitioning to online learning during the pandemic. Many were unfamiliar with online platforms and teaching methods, leading to feelings of apprehension and a steep learning curve. Despite the challenges, teachers demonstrated remarkable adaptability and resilience in quickly adapting their instructional strategies to the online environment. They actively sought out professional development opportunities, collaborated with colleagues, and experimented with new technologies to ensure effective online instruction.

Teaching either online or offline is an art and the quality of teaching depends on the professionalism, interest, dedication and devotion towards the pedagogy. The attitude of the teacher is very important in the noble profession of teaching which reflects in many ways on the learning experiences of the students. Teacher without stress and positive attitude becomes successful in professional practice. Positive Attitude of the teacher can significantly improve their motivational levels and strengthen teaching skills.

During COVID-19 pandemic, teachers have started sharing academic resource using online platforms.

Multiple communication modes like creating email groups, informing via Whatsapp/Telegram app, using web-based live video conferencing platforms (like WebEx, Zoom), and also teaching webs (like Moodle, Google Classrooms) are in use. No doubt, online learning offers its super flexibility on timing and delivery (India Today Webdesk). The bottom line of the success of online courses is the engagement of students. But it all depend on the attitude of teachers towards online learning as many have of them do not have clarity of tools and techniques in terms of what and how to use.

Attitude towards Online learning

The term on-learning covers a broad spectrum of pedagogical tools and approaches that meet the needs of students and educators. This approach helps the students to access diverse contents any time and from any location by giving the control over their learning experience, enabling them to gather the materials they need and study when they have time to do so. Moreover, on-learning platform based on network promote personal knowledge accumulation and group knowledge sharing, which can improve learning efficiency, facilitate the innovation of knowledge, and then enhance the core competitiveness of individual and group. As a result of this, online-learning platform appears as the efforts to make a step forward towards a more effective and quality education. But the success of any online education depends upon the attitude of teachers towards online learning to a large extent (Van Den Berg *et al.*, 2006; Van Raaij and Schepers 2008; Wasserman and Migdal 2019). Workman (2005) asserted that people favorable attitudes towards a particular technology, make them to use that technology. He also argued that people are also influenced by subjective norms; that is, one's perception of significant others' like or dislike towards a particular technology which is likely to encourage or discourage one from using that technology.

Khan (2016) & Konwar (2017) in a study of attitude of prospective teacher educators towards e-learning revealed that the prospective teacher educators showed a significantly favorable attitude towards e-learning. So the investigator analyzed attitude of pre-service and in-service teachers towards online learning at secondary level during COVID-19 pandemic.

Objectives of The Study

The main objectives of the study were:

1. To study the difference in attitude of pre-service teachers towards online learning with respect to gender.

2. To study the difference in attitude of pre-service teachers towards online learning with respect to Locale.
3. To study the difference in attitude of pre-service teachers towards online learning with respect to Academic stream.
4. To study the difference in attitude of pre-service teachers towards online learning with respect to qualification.

Methodology

Research Design of The Study: The present study falls under the domain of survey research. Descriptive survey method was used to carry the study. The data was collected through GOOGLE form.

Sample: 150 pre-service teachers of Amritsar city were randomly chosen.

Tool used: Attitude towards Online Learning Scale consisting twelve statements were developed by the investigator to measure the pre-service teacher's attitude towards online learning.

Data Analysis

The data analysis was done by scoring the responses collecting through google form. After scoring the data the appropriate statistical techniques applied to get the result.

Analyses and Interpretation of Data

Hypothesis I: There exists no significant difference in attitude of pre-service teachers towards online learning with respect to gender.

Table 1: MEAN, S.D. and t-Value of attitude of pre service teachers towards online learning

Variables		N	Mean	S.D.	df	t-value
Gender	Male	9	91.22	11.819	148	3.186*
	Female	141	81.81	8.373		
Locale	Urban	112	82.86	7.914	148	1.150
	Rural	38	80.95	11.184		
Academic Stream	Science	52	81.94	8.489	148	0.433
	Arts	98	82.60	9.078		
Qualification	Graduation	49	82.55	8.421	148	0.171
	Post-graduation	101	82.29	9.098		

*Significant at 0.01 level of confidence

Table 1 shows the mean scores of attitudes towards online learning of male and female pre-service teachers are 91.22 with S.D. 11.819 and 81.81 with S.D. 8.373 respectively. The calculated t-value is (3.19), which is more than the table value 2.58, that is significant at 0.01 level of confidence. This indicates that there exists a significant difference in mean score of attitude toward online learning of pre-service teachers with respect to gender and is in favour of male teachers. Hence hypothesis 1 stating, 'There exists no significant difference in attitude of pre-service male and female teachers towards online learning' is rejected. The result is supported by earlier studies of (Kar, 2020; and Gururaja, 2021) who found male teachers develop a more favourable attitude toward online teaching than female teachers. But the result of study of (Behera, Sao, & Mohamed, 2016; Konwar, 2017; Nachimuthu, 2020; Chandwani & Singh and Singha, 2021) found insignificant difference among male and female prospective teachers.

Hypothesis II: There exist no significant difference in attitude of pre-service teachers towards online learning with respect to locale.

Table 1 shows the mean scores of attitudes towards online learning of urban and rural pre-service teachers are 82.86 with S.D. 7.914 and 80.95 with S.D. 11.184 respectively. The calculated t-value is (1.15) which is insignificant. This indicates that there exists no significant difference in mean score of attitude towards online learning of pre-service teachers with respect to locale. Hence the hypothesis stating, "There exist no significant difference in attitude of pre-service teachers towards online learning with respect to locale" is not rejected. The result is supported by earlier studies of Konwar (2017); Thakkar & Joshi (2017) but not in accordance to the work of Gururaja (2021) who found urban teachers shows more interest towards online teaching than the rural teachers.

Hypothesis III: There exist no significant difference in attitude of pre-service teachers towards online learning with respect to academic stream.

Table 1 shows the mean scores of attitudes towards online learning of science and arts stream pre-service teachers are 81.94 with S.D. 8.49 and 82.60 with S.D. 9.078 respectively. The calculated t-value is (0.43), which is insignificant. This indicates that there is no significant difference in mean score of attitude towards online learning of pre-service teachers with respect to academic

stream. Hence the hypothesis stating, "There exist no significant difference in attitude of pre-service teachers towards online learning with respect to academic stream" is not rejected. The result is supported by earlier studies of Behera, Sao & Mohamed (2016).

Hypothesis IV: There exist no significant difference in attitude of pre-service teachers towards online learning with respect to qualification.

Table 1 shows the mean scores of attitudes towards online learning of graduated and post-graduated pre-service teachers are 82.55 with S.D. 8.42 and 82.29 with S.D. 9.098 respectively. The calculated t-value is (0.17), which is insignificant. This indicates that there is no significant difference in mean score of attitude towards online learning of pre-service teachers with respect to qualification. Hence the hypothesis stating, "There exist no significant difference in attitude of pre-service teachers towards online learning with respect to qualification" is not rejected. The result is supported by earlier studies Khan (2016).

Conclusion

In the present study, it was found that male and female shows difference between attitude towards online learning of male and female pre-service teachers. The attitude of male pre service teachers towards online learning is more than the attitude of female teachers. This is because males are more techno-savy. It is also revealed that pre service teachers teaching in urban and rural schools do not show any difference in attitude toward online learning. Stream and qualification of pre-service do not contribute to the difference in attitude of pre-service teachers towards online learning.

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Supported studies

No difference is found in the attitude of male and female Teachers towards online learning (Behera *et al.*, 2016; Nachimuthu, 2020; Konwar, 2017; Kumar, 2017; Chandwani & Singh, 2021; & Singha, 2021).

Kar, (2020) and Gururaja, (2021) found male teachers develop a more favorable attitude toward online teaching than female teachers.

No difference is found in the attitude of rural and urban teachers towards online learning (Behera, Sao & Mohamed (2016); Khan, (2016) and Konwar, (2017)

Kumar, (2017); Gururaja Cs (2021) found that urban teachers shows more interest towards online teaching than the rural teachers.

No difference is found in the attitude of science and arts teachers towards online learning (Behera, Sao & Mohamed (2016); Khan, (2016) and Konwar, (2017)

No difference is found in the attitude of graduate and post graduate prospective teachers towards online learning (Khan, (2016).



Predictive Role of Trait Mindfulness in Academic Procrastination among B.Ed. Students

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Abstract

This study investigates the predictive role of trait mindfulness in reducing academic procrastination among B.Ed. students. Academic procrastination, characterised by delaying tasks, negatively impacts academic performance. In contrast, trait mindfulness, the ability to stay present, may reduce this tendency. Data were collected from B.Ed. students (N=70), and a simple regression analysis was conducted using Statistical Package for the Social Sciences -20. Results revealed a significant moderate negative correlation between trait mindfulness and academic procrastination ($r = -0.46, p < .0001$). The analysis further demonstrated that trait mindfulness significantly predicts a reduction in academic procrastination ($t(69) = -4.332, p \leq .000$), leading to a $\beta = -0.32$ decrease in procrastination. These findings suggest that increasing mindfulness could be a strategy to combat academic procrastination. These findings suggest that enhancing mindfulness could be a strategic intervention to combat academic procrastination, aligning with National Education Policy, 2020's emphasis on holistic education.

Introduction

Academic procrastination is a prevalent issue among B.Ed. students, often exacerbated by heavy coursework, teaching practicums, and time management challenges. This behaviour adversely affects academic performance and success. While procrastination has been studied across various student populations, focusing on B.Ed. students is crucial due to their unique academic pressures, particularly in the context of the National Education Policy (NEP) 2020, which advocates for enhancing student well-being and holistic development.

Trait mindfulness, the capacity to remain present and focused, may help mitigate procrastination by fostering non-judgmental awareness. Understanding the relationship between trait mindfulness and academic procrastination is vital for developing effective strategies, to improve educational outcomes in line with NEP 2020's goals of promoting critical thinking, creativity, and emotional well-being.

Trait mindfulness, the ability to remain present and focused, may help mitigate procrastination by promoting non-judgmental awareness and reducing task delay. This study explores how trait mindfulness predicts academic procrastination specifically among B.Ed. students. Understanding this relationship is crucial for developing targeted strategies to improve academic performance in this particular educational context.

Academic procrastination remains a significant concern among college students, with nearly half acknowledging its detrimental impact on their academic lives (Steel, 2007). This behaviour is linked to poor academic performance, increased stress, and prolonged task completion times (Van Eerde, 2003; Howell *et al.*, 2006). Recent studies have identified trait mindfulness—a natural tendency to maintain present-moment awareness—as a critical factor in reducing procrastination. By enhancing self-regulation, mindfulness fosters awareness and acceptance, thereby decreasing procrastinatory behaviour (Gautam *et al.*, 2019; Sirois & Tosti, 2012).

Moreover, personality traits such as conscientiousness, which includes attributes like orderliness, industriousness, and accountability, have been consistently shown to negatively correlate with procrastination, suggesting that those high in conscientiousness are less likely to procrastinate (Jackson *et al.*, 2010; Rueter *et al.*, 2018). Recent studies further validate the importance of self-regulation and personality in addressing procrastination. For instance, a study by Svartdal *et al.* (2020) found that interventions focusing on enhancing self-regulation significantly reduced procrastination behaviours in students. In the context of NEP 2020, which emphasise the importance of mental health and well-being, integrating mindfulness practices

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into the curriculum could address procrastination and enhance student engagement and performance. Previous research supports this notion, indicating that mindfulness not only reduces procrastination but also improves academic outcomes (Yang *et al.*, 2021).

The proposed study is based on the interactive model of the cognitive subsystem and self-determination theory. The cognitive subsystem model posits that difficult tasks can trigger impulsivity and self-criticism, leading to decreased diligence. Conversely, self-determination theory highlights the role of awareness and self-endorsed autonomy in improving individual functionality and task focus (Teasdale, Segal, & Williams, 1995; Ryan & Deci, 2000).

The existing literature has shown the effectiveness of these theoretical frameworks in understanding the relationship and influence of each other between mindfulness and procrastination, with significant contributions from Teasdale *et al.* (1995) and Ryan & Deci (2000). However, there is notable lack of studies focusing specifically on B.Ed. students. This gap in the research landscape, combined with the unique academic pressures faced by these students, drew the researcher's attention. Investigating how trait mindfulness influences procrastination in B.Ed. students offers an opportunity to address this underexplored area, bridging significant research gaps and contributing valuable insights to the field.

Methodology of the Study

Participants & Procedure

The present study focused on undergraduate students enrolled in a B.Ed. program, specifically targeting individuals aged 21 years and above. The institution for this research, Dayalbagh Educational Institute in Agra, was selected using purposive sampling. Data was collection via online Google Forms, with questionnaires shared randomly to participants. Initially, two instruments: the Mindful Attention Awareness Scale (MAAS) and the Procrastination Assessment Scale for Students (PASS) were shared with 85 students. However, the final analysis was based on the responses of 70 students, as 15 responses were excluded due to incompleteness or non-responses.

Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003)

The Mindful Attention Awareness Scale (MAAS) is a self-report instrument comprising 15 items designed

to assess mindfulness as a unidimensional construct, focusing on the presence and acceptance of attention and awareness in the present moment. Respondents rate their experiences on a 6-point Likert scale, ranging from 1 (almost always) to 6 (almost never). Example items include: "I break or spill things because of carelessness, not paying attention, or thinking of something else," and "I forget a person's name almost as soon as I have been told it for the first time". The scale has demonstrated strong internal consistency, with Cronbach's alpha values ranging from $\alpha = .80$ to $.90$ (Brown & Ryan, 2003). Higher scores on the MAAS indicate a greater degree of trait mindfulness.

The Procrastination Assessment Scale- Student (PASS; Solomon & Rothblum, 1984)

The Procrastination Assessment Scale for Students (PASS) is also a self-report instrument designed to measure academic procrastination. The scale consists of two sections. Part I evaluates the "prevalence rate of procrastination" across six academic domains using a 5-point Likert scale (1 = never procrastinate to 5 = always procrastinate). These domains include: (i) writing a term paper, (ii) studying for an exam, (iii) keeping up with weekly reading assignments, (iv) performing academic administrative tasks, (v) attending meetings, and (vi) performing academic tasks in general. Part II assesses "procrastination scenarios", exploring the extent to which procrastination is perceived as a problem (1 = not at all a problem to 5 = always a problem). For the purpose of this study, only part-1 of the scale was utilised, while part-2 was intentionally excluded to maintain focus on the study's objectives. The scale has demonstrated acceptable reliability, with a Cronbach's alpha value of $\alpha = .75$ (Howell *et al.*, 2006). Higher scores on the PASS indicate a greater tendency towards academic procrastination among students.

Statistical Analysis

The collected data on trait mindfulness and academic procrastination were first examined using descriptive survey methods to provide a clear understanding about the data. This initial analysis allowed for an explicit reporting of the data's distribution and central tendencies. Subsequently, to address the research objectives, a simple linear regression analysis was conducted, ensuring that the necessary assumptions were met. This approach was employed to explore and quantify the predictive relationship between trait mindfulness and academic procrastination among B.Ed. students, aiming to

understand how mindfulness might influence procrastination behaviours in this population.

Results

Descriptive Statistics

The following table presents the descriptive statistics, including mean, standard deviation (SD), skewness, and kurtosis, for the trait mindfulness and academic procrastination scores of B.Ed. students. These metrics provide an analytical overview of the data's distribution, offering insights into the central tendency, variability, and shape of the score distributions for each variable.

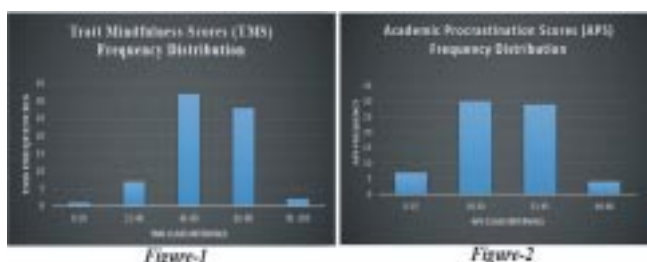
Table-1: Descriptive Statistics on Trait Mindfulness and Academic Procrastination Scores

Variables	N	Mean	Std.Dev.	Skew	Ku
Trait Mindfulness (TM)	70	57.93	14.84	-.371	-.148
Academic Procrastination (APC)	70	29.87	10.28	.138	-.605

The descriptive statistics for the study's variables indicate that the mean score for Trait Mindfulness (TM) among the 70 participants was 57.93, with a standard deviation of 14.84. The distribution of TM scores showed a slight negative skew (-.371), suggesting that scores were slightly skewed towards the higher end, and a kurtosis of -.148, indicating a distribution that is close to normal but slightly flatter. For Academic Procrastination (APC), the mean score was 29.87, with a standard deviation of 10.28. The APC scores displayed a minor positive skew (.138), implying a slight tendency towards lower procrastination scores, and a kurtosis of -.605, which suggests a slightly flatter distribution compared to a normal curve.

The descriptive statistics are further reinforced by the visual representation of the data. Below is a bar diagram illustrating the distribution of scores for trait mindfulness and academic procrastination.

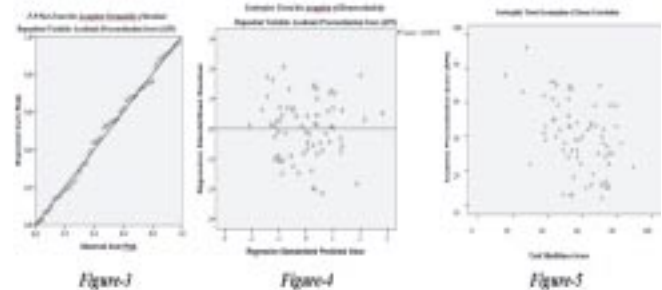
Frequency Distribution of Trait Mindfulness and Academic Procrastination Scores



The frequency distribution bar diagram reveals key insights into the descriptive statistics of Trait Mindfulness Scores (TMS) and Academic Procrastination Scores (APS). For TMS, the majority of scores fall within the 41-60 range, indicating that most individuals exhibit a moderate level of mindfulness, with fewer participants scoring at the extremes. For APS, scores are predominantly in the 16-30 and 31-45 ranges, suggesting that most individuals experience moderate levels of academic procrastination.

Assumptions of Simple Regression Analysis

The following figures present the assumptions of the simple linear regression model, used to analyse the role of trait mindfulness in facilitating academic procrastination. The assumptions include the P-P plot for normality, the scatterplot for homoscedasticity, and the scatterplot for assessing the linear relationship. These assumptions have been evaluated using graphical methods, which provide visual insights into the extent to which the data adhere to the underlying assumptions of the regression model.



The assumption testing for the simple linear regression analysis suggests that the assumptions are moderately fulfilled. The P-P plot shows that the residuals follow the 45-degree line to some extent, indicating a partial adherence to normality. The scatterplot for homoscedasticity exhibits a generally random pattern, though with some minor deviations, suggesting that the variance of the residuals is largely constant across different levels of the independent variable. The R² value is very low, implying that while the model captures some variance in the Academic Procrastination Score (APS), its explanatory power is limited. Overall, the visual methods indicate that the assumptions are almost met, though the model's fit may require further refinement.

Preliminary Estimates of Simple Linear Regression

The following table presents the preliminary estimates from the simple regression model, including key metrics such as the correlation coefficient (R), the coefficient of determination (R²), and the standard error

of the estimate. These preliminary estimates provide a foundational understanding of the model's effectiveness in explaining the variance in academic procrastination based on mindfulness levels.

Table-2: Shown Linear Regression Model Estimated in Predicting Academic Procrastination

Linear Regression Analysis Estimates			
Variables	R	R ²	Std. Error of the Estimate
TML→APC	-.465	0.216	9.166

r Significant at *p.0.000

The preliminary statistics from the simple regression analysis of trait mindfulness scores (TML) on academic procrastination scores (APC) indicate a negative relationship between the two variables. The correlation coefficient (R) of -0.465 suggests a moderate negative correlation, meaning that as trait mindfulness increases, academic procrastination tends to decrease. The R² value of 0.216 indicates that approximately 21.6% of the variance in academic procrastination scores is explained by trait mindfulness. The standard error of the estimate (9.166) reflects the average distance that the observed scores fall from the regression line, suggesting the model's predictions have a moderate level of accuracy. Overall, the analysis suggests that trait mindfulness has a significant, though not exhaustive, influence on reducing academic procrastination.

Simple Linear Regression Model

The following table presents the results of the simple regression model, which examines the influence of trait mindfulness on academic procrastination among B.Ed. students. The table includes key statistical indicators such as unstandardized coefficients, t-values, and significance levels, providing a detailed overview of how changes in trait mindfulness predict variations in academic procrastination.

Table-3: Shown Predictive Model Summary of Contributory Role of Trait Mindfulness in Facilitating Academic Procrastination of B.Ed. Students

S. No.	Model	Unstandardised Coefficients		t	Sig.
		B	Std.Error		
1	(Constant)	48.527	4.443	10.922	.000
	Trait Mindfulness Score (TMS)	-.322	.074	-4.332	.000

a. Dependent Variable Academic Procrastination

The predictive model summary for the role of trait

mindfulness in facilitating academic procrastination among B.Ed. students shows significant findings. The unstandardised coefficient (B) for Trait Mindfulness Score (TMS) is -0.322, indicating that for each one-point increase in TMS, academic procrastination decreases by 0.322 points. The t-value of -4.332, along with the significance level (Sig.) of .000, demonstrates that this negative relationship is statistically significant.

The constant value of 48.527 represents the expected academic procrastination score when the trait mindfulness score is zero. The high constant value reveals that, even in the absence of trait mindfulness (when the TMS score is zero), the baseline level of academic procrastination among B.Ed. students is relatively high. This suggests that there are other factors, apart from mindfulness, contributing significantly to procrastination behaviours.

The unstandardised coefficient (-0.322) suggests that for each one-point increase in trait mindfulness, academic procrastination decreases by approximately 0.66%, reflecting a moderate yet impactful reduction. However, the high constant value of 48.527 reveals that even in the absence of mindfulness, students exhibit a considerable baseline level of procrastination, suggesting that other factors are also at play. This finding underscores the importance of trait mindfulness in mitigating procrastination tendencies, although it highlights that a broader, multifaceted approach may be necessary to more effectively address procrastination in this student population.

The findings of the current study are consistent with those of previous research by Gautam *et al.* (2019), Sirois *et al.* (2012), Flett *et al.* (2016), and Jayaja *et al.* (2017), further substantiating the relationship between trait mindfulness and academic procrastination. These results validate the study's hypothesis, which posited that trait mindfulness contributes to the facilitation of academic procrastination tendencies among B.Ed. students. The acceptance of this hypothesis underscores the role of mindfulness in influencing procrastination behaviours, corroborating earlier findings in this area of research.

Discussion

The discussion of the current study's findings aligns with several previous studies that have demonstrated the relationship between mindfulness and academic procrastination. For instance, Sirois *et al.* (2012) found that higher levels of mindfulness were associated with lower levels of procrastination, suggesting that mindfulness helps individuals stay focused on the present

task, reducing the tendency to delay important academic work. Similarly, Flett *et al.* (2016) reported that mindfulness-based interventions could effectively decrease procrastination by fostering a greater sense of self-regulation and reducing stress, which are common triggers for procrastination. Gautam *et al.* (2019) also highlighted the role of mindfulness in promoting better academic outcomes, noting that students with higher mindfulness scores were less likely to engage in procrastination, as they were better equipped to manage time and academic pressures. Additionally, Jayaja *et al.* (2017) demonstrated that mindfulness training led to significant reductions in procrastination, particularly in populations of students prone to academic delay. These concurrent findings from various studies support the conclusion that mindfulness is a critical factor in mitigating procrastination tendencies and underscore the potential benefits of incorporating mindfulness practices into educational interventions to improve academic performance. These findings align with previous studies showing that mindfulness is a critical factor in mitigating procrastination (Sirois *et al.*, 2012; Gautam *et al.*, 2019). In the context of NEP 2020, promoting mindfulness could support students' emotional and psychological well-being, contributing to a more engaged and productive learning environment.

Conclusion, Limitations & Future Directions of the Present Study

The present study demonstrates that trait mindfulness plays a significant role in reducing academic procrastination among B.Ed. students. The findings indicate that as mindfulness increases, procrastination tendencies decrease, although the impact is moderate. Despite the influence of mindfulness, the high baseline level of procrastination suggests that other contributing factors are also at play. The study's results align with previous research, confirming the importance of mindfulness in managing procrastination behaviours in students. However, to address procrastination more effectively, a comprehensive approach that considers multiple influencing factors is recommended.

The study has several limitations also. First, the reliance on self-reported data may introduce bias, as participants' responses could be influenced by social desirability or self-perception inaccuracies. Second, the study focuses solely on B.Ed. students, which may limit the generalisability of the findings to other student population. Third, the model explains only a portion of the variance in academic procrastination, indicating that other variables not considered in this study may also play

significant roles. Finally, the cross-sectional design restricts the ability to infer causality between mindfulness and procrastination.

Future research should aim to address these limitations by incorporating a more diverse sample, including students from different educational backgrounds and programs. Longitudinal studies would help to establish causality and provide deeper insights into how trait mindfulness influences procrastination over time. Additionally, exploring other psychological and environmental factors that contribute to academic procrastination, such as motivation, time management skills, and peer influence, could provide a more comprehensive understanding. Finally, intervention studies that enhance mindfulness and evaluate their effectiveness in reducing procrastination would be valuable in developing targeted strategies for students. The present study demonstrates that trait mindfulness significantly reduces academic procrastination among B.Ed. students, aligning with NEP 2020's vision for holistic education. However, the high baseline level of procrastination suggests additional factors may be involved.

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शिक्षक-प्रशिक्षु के परिप्रेक्ष्य में सामाजिक पूँजी का अध्ययन

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Abstract

The objective of this study is to find out how social capital affects the educational experiences, professional growth, and academic success of teacher trainees. Social capital, which is made up of an individual networks, relationships, and resources, can have a big impact on an individual's job and personal growth. Understanding the role of social capital in teacher training can help educators and institutions improve the quality of programs and processes that help teachers learn and do their jobs. The area of education is always looking for ways to improve teacher training programs so that teachers are ready to meet the needs of all their students. Social capital theory gives us a way to look at how personal networks, connections, and resources affect what teacher trainees do and how their lives turn out. The another objective of this study is to look at the three parts of social capital (bonding, bridging, and linking) and how they affect the professional growth and success of teacher students. In this article, descriptive technique has been used under qualitative research. Based on the study of related literature and the opinions of educationists, it can be said that the educational experience, professional development and academic success of teacher-trainees can have a significant relationship with their social capital. That is, the social capital of teacher trainees can have significant impact on their educational experience, professional development and academic success. There are also suggestions for how teachers should be trained in current scenario of academia.

प्रस्तावना

सामाजिक पूँजी ऐसे वास्तविक और निराकार संसाधनों का योगफल है जो किसी व्यक्ति या समूह को किसी सामाजिक नेटवर्क की सदस्यता की बदौलत हासिल होते हैं (बोर्दियो)। मनुष्य एक सामाजिक प्राणी है। समाज में रहकर ही उसका विकास संभव हो पाता है। वह अपने विकास के साथ-साथ समाज का विकास कर पाता है। इस प्रकार सामाजिक प्रक्रिया द्वारा ही वह समाज में अपनी पहचान बना पाता है। मनुष्य की सामाजिक पहचान के सन्दर्भ में उसकी सामाजिक पूँजी का योगदान महत्वपूर्ण होता है। देखा गया है, कि व्यक्ति विशेष की सामाजिक पूँजी उसके विकास के साथ-साथ उसके क्षेत्र, समाज एवं राष्ट्र के विकास में सहायक होती है। किसी विशेष समाज में निवास करने वाले लोगों के मध्य सामाजिक संबंधों का जाल ही सामाजिक पूँजी होती है जो समाज को प्रभावी ढंग से कार्य करने के लिए प्रेरित करती है। सामाजिक पूँजी मानव संपर्क के सकारात्मक उत्पाद को संदर्भित करती है। सकारात्मक परिणाम मूर्त या अमूर्त कुछ भी हो सकते हैं। सामाजिक पूँजी को परिभाषित करने की पहल इस बात पर केंद्रित थी, कि संसाधन के रूप में सामाजिक पूँजी का उपयोग जनकल्याण एवं सार्वजनिक लाभ के लिए किया जाना चाहिए। रॉबर्ट पुटनाम (1993) ने

सुझाव दिया कि सामाजिक पूँजी, समुदाय और राष्ट्र के मध्य सहयोग और पारस्परिक रूप से सहायक संबंधों की सुविधा प्रदान करेगी। जेम्स कोलमैन (1988) ने संकेत दिया है, कि सामाजिक पूँजी अंततः भविष्य की पीढ़ी के लिए मानव पूँजी का निर्माण कर सकती है। महायार अरेफी (2003) ने माना कि व्यक्ति विशेष के किसी पहलू के परिप्रेक्ष्य में लोगों की आम सहमति सामाजिक पूँजी के निर्माण में प्रत्यक्ष सकारात्मक संकेतक के रूप में पहचानी जाती है। पूनम रॉस गिटेल और विडाल ने बताया है कि 1-सामाजिक पूँजी सजातीय समूहों के बीच सामाजिक बंधन के जाल के रूप में स्वीकार किया गया मूल्य है। 2-सामाजिक पूँजी को निर्मित करने में सामाजिक रूप से विषम समूहों के बीच सामाजिक संबंधों के जाल के रूप में स्वीकार किया जाता है। ठीक उसी प्रकार से डेनियल पी एल्लिच सामाजिक पूँजी के तीन तत्वों का वर्णन किया है। बॉन्डिंग कैपिटल, ब्रिजिंग और लिंकिंग कैपिटल।

बॉन्डिंग कैपिटल: इन्होंने माना है कि एक व्यक्ति के दोस्तों और परिवार के साथ संबंध उसकी सामाजिक पूँजी को मजबूत स्वरूप प्रदान करते हैं।

ब्रिजिंग कैपिटल: एक व्यक्ति के दोस्तों के दोस्त के बीच संबंध की शक्ति को ब्रिजिंग कैपिटल का माध्यम बनाती है।

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लिकिंग कैपिटल: एक व्यक्ति में सरकारी अधिकारी या अन्य निर्वाचित नेता के बीच अपने संबंधों को निर्मित कर आवश्यकताओं को पूरा करने में सहयोग प्रदान करती है। उदाहरण के रूप में एक व्यक्ति का विभिन्न पदानुक्रमित स्तरों पर लोगों के बीच संबंधों का निर्मित होना लिकिंग कैपिटल है। इस प्रकार हम कह सकते हैं, कि सामाजिक पूँजी लोगों के बीच की एक अमूर्त कड़ी है। प्रत्येक व्यक्ति में प्रेम, स्नेह, मूल्य, आदर्श, विश्वास, जिम्मेदारी, उत्तरदायित्व, सहयोग भावना, ईमानदारी एवं कर्तव्यनिष्ठ जैसे तत्वों का आधार सामाजिक पूँजी है। समृद्धशाली राष्ट्र निर्माण के लिए इन तत्वों का होना अहम माना जाता है। इनके अभाव में व्यक्तिगत एवं सामाजिक तौर पर दोनों पक्षों में असंतुलन की स्थिति को मापा जा सकता है। शिक्षा के द्वारा विद्यार्थियों में इन मूल्यों को विकसित किया जाता रहा है। शैक्षिक संस्थान सामाजिक पूँजी के लिए एक बेहतर पृष्ठभूमि प्रदान कर सकते हैं। विद्यार्थी अपने घर, परिवार, पड़ोस से निकलकर विद्यालय पहुँचता है, जहाँ पर उसे नये लोग, नये मित्र, नया वातावरण प्राप्त होता है। विद्यार्थी इन सभी के साथ अंतःक्रिया करके अपने आपसी संबंधों को स्थापित करता है। सामाजिक पूँजी निर्माण की इस प्रक्रिया में शैक्षिक संस्थान और विद्यार्थी के बीच की महत्वपूर्ण भूमिका शिक्षक निभाता है। हम पाते हैं, कि शिक्षक विद्यार्थियों के लिए सामाजिक पूँजी का एक महत्वपूर्ण स्रोत हैं। शिक्षकों के अनुकूल सामाजिक पूँजी का स्वरूप छात्रों को शैक्षिक मार्गदर्शन व्यक्तिगत एवं व्यवसायिक मार्गदर्शन प्रदान करके उनके कार्य को सुगम एवं आसान बनाने का काम करते हैं। वास्तव में शिक्षक को समाज में एक गौरवशाली व्यक्ति के रूप में स्वीकार किया जाता है, इसीलिए शिक्षक को राष्ट्र निर्माता के अलंकरण की उपमा भी दी जाती है। शिक्षक समाज के लिए उत्पादक एवं सकारात्मक सामाजिक पूँजी निर्माण करने का उपागम माना जाता रहा है। एक शिक्षक की अपने संस्थान के प्रति क्या प्रतिबद्धता है? एवं उसका विद्यार्थियों के साथ किस प्रकार का संबंध है? कर्मचारियों के साथ आपस में किस प्रकार के संबंध हैं? विद्यार्थियों के बारे में क्या राय रखता है? विद्यार्थियों के बीच उसकी कैसी लोकप्रियता है, इत्यादि प्रश्न किसी भी शिक्षक की सामाजिक पूँजी के निर्धारण में इन आयामों को देखा जा सकता है। शिक्षकों के लिये सामाजिक पूँजी उनके व्यवसायिक विकास में सकारात्मक पहलू के रूप में माना जा सकता है, जो शैक्षिक उपलब्धि में अपना अहम योगदान निभाती हैं। ऐसे कई उदाहरण हैं, जहाँ राष्ट्र के नवजागरण में (लोगों को एकत्रित करने जोड़ने और क्रान्ति लाने में) व्यक्ति विशेष की सामाजिक पूँजी ने मील के पथर का काम किया है। हमेशा से ही शिक्षक को समाज सुधारक माना जाता रहा है। ऐसे में सामाजिक पूँजी शिक्षक प्रशिक्षु के परिप्रेक्ष्य में भी महत्वपूर्ण हो सकती है।

उद्देश्य

प्रस्तुत शोध लेख के निम्न उद्देश्य हैं-

1. शिक्षक प्रशिक्षुओं के शैक्षणिक अनुभवों का सामाजिक पूँजी से संबंध का विस्तारपूर्वक अध्ययन करना।
2. शिक्षक प्रशिक्षुओं के व्यावसायिक विकास का सामाजिक पूँजी से संबंध का विस्तारपूर्वक अध्ययन करना।
3. शिक्षक प्रशिक्षुओं के शैक्षणिक सफलता का सामाजिक पूँजी से संबंध का विस्तारपूर्वक अध्ययन करना।

परिकल्पनाएं

प्रस्तुत शोध लेख की निम्न परिकल्पनाएं हैं-

1. शिक्षक प्रशिक्षुओं के शैक्षणिक अनुभवों का सामाजिक पूँजी से संबंध होता है।
2. शिक्षक प्रशिक्षुओं के व्यावसायिक विकास का सामाजिक पूँजी से संबंध होता है।
3. शिक्षक प्रशिक्षुओं के शैक्षणिक सफलता का सामाजिक पूँजी से संबंध होता है।

शोध विधि

प्रस्तुत शोध में गुणात्मक अनुसंधान के अंतर्गत वर्णनात्मक शोध विधि को प्रयोग में लाया गया है जिसके अंतर्गत साहित्य सर्वेक्षण से प्राप्त निष्कर्ष और शिक्षा शास्त्रियों द्वारा दी गई परिभाषाओं को आधार बनाकर संबंधित चरों के मध्य संबंध जानने का प्रयत्न किया गया है।

साहित्य की समीक्षा

क्रोनिगर (2021) ने अपने शोधकार्य में यह जानने का प्रयत्न किया कि कक्षा-10वीं के विद्यार्थियों की विद्यालयी सफलता हेतु आत्म विश्वास में बढ़ोत्तरी के लिए शिक्षक किस प्रकार उनके प्रयासों के लिए समर्थन करते हैं? परिणामों में पाया गया कि विद्यार्थियों की विद्यालयी सफलता एवं व्यक्तिगत निर्देशन में शिक्षकों का मार्गदर्शन महत्वपूर्ण होता है। वहीं कोलमैन (1988) के शोधकार्य के परिणामों में प्राप्त हुआ कि विद्यार्थियों की सफलता के लिए शिक्षकों और विद्यार्थियों की बान्डिंग आधारित सामाजिक पूँजी महत्वपूर्ण है जबकि क्रिस्टीना (2021) ने अपने शोधकार्य में स्पष्ट किया कि, शिक्षक की सामाजिक पूँजी को पांच श्रेणियों के परिणामों से जोड़ा है- 1. शिक्षक पेशेवर विकास 2. परिवर्तन का कार्यान्वयन 3. शिक्षक प्रतिधारण और नौकरी से संतुष्टि 4. नये शिक्षकों का सफल परिचय 5. बेहतर छात्र उपलब्धि। वहीं डेली एवं अन्य (2014) के शोधकार्यों में परिणाम प्राप्त हुए कि, शिक्षकों की मानवीय पूँजी और सामाजिक पूँजी

का विद्यार्थियों की उपलब्धि पर महत्वपूर्ण प्रभाव पड़ता है। वेन होंग चैन (2013) ने “अमेरिका में डिजिटल विभाजन के लिए सामाजिक पूँजी के निहितार्थ के लिए अध्ययन” किया और बताया कि सामाजिक पूँजी इंटरनेट की पहुँच और उपयोगिता की सुविधा प्रदान करती है। सामाजिक कनेक्टिविटी और डिजिटल कनेक्टिविटी के बीच संबंधों पर प्रकाश डालते हुए डिजिटल विभाजन को बंद करने के लिए सामाजिक पूँजी का होना आवश्यक है। फोंग जियाओं झोंग और नासिर अब्बास खान (2023) ने “कोविड-19 महामारी और डिजिटल उच्च शिक्षा इंटरनेट आत्म प्रभावकारिता और ऑनलाइन इंटरैक्शन गुणवत्ता के माध्यम से सामाजिक पूँजी पर सक्रिय व्यक्तित्व के प्रभाव की खोज पर अध्ययन” किया और पाया कि छात्रों के सक्रिय व्यक्तित्व में कोविड-19 महामारी के दौरान ऑनलाइन बातचीत की गुणवत्ता ने उनकी सामाजिक पूँजी को मजबूत किया। साथियों और शिक्षकों से प्राप्त सामाजिक समर्थन में सक्रिय छात्रों को ऑनलाइन बातचीत के माध्यम से सामाजिक पूँजी से लाभ उठाने के लिए प्रेरित किया। सी.वी. बार्टन (2013) ने “ई-लर्निंग को अपने में सामाजिक पूँजी का ढाँचा को जानना चाहिए” और परिणाम में बताया कि विशिष्ट ई-लर्निंग प्रौद्योगिकियों से संबंधित विशिष्ट सांस्कृतिक और सामाजिक कारक है। इन प्रौद्योगिकियों को अपनाने की डिग्री शिक्षकों में नई तकनीक को नया करने और अपने लिए प्रोत्साहित करती है जिसके लिए सामाजिक नेटवर्क के माध्यम से पर्याप्त सामाजिक पूँजी हो। एलिजाबेथ वोल्फे और मैडलिन पोलमेयर (2023) ने “सिविल इंजीनियरिंग छात्रों के नेतृत्व विकास में सामाजिक पूँजी की भूमिका की खोज पर जानकारी चाहिए” और पाया कि स्नातक सिविल इंजीनियरिंग छात्र कक्षा से बाहर नेतृत्व क्षमता विकसित कर रहे हैं। वह अपने साथियों, परिवार और संकाय के साथ बातचीत के रूप में सामाजिक पूँजी के विभिन्न रूपों का प्रयोग करते हैं।

सामाजिक पूँजी और शिक्षा

सामाजिक पूँजी बौद्धिक पूँजी के अवयव से कहीं अधिक जटिल हो सकती है, क्योंकि यह ज्ञान और व्यावहारिक अनुभवों के आधार पर विभिन्न क्षेत्रों के नए ज्ञान के निर्माण पर निर्भर करती है। सामाजिक पूँजी का आशय सामाजिक संस्थाओं के भीतर निहित अमूर्त संसाधनों से है। सामाजिक पूँजी मुख्यतः तीन रूपों में देखी जा सकती है। उत्तरदायित्व में अपेक्षाओं के रूप में, सूचना प्रसारण के रूप में और सामाजिक मानदंडों के रूप में, उत्तरदायित्व अपेक्षाओं में आशा की जाती है, कि लोग इसे धारण करते हैं और समय के साथ उपयोगी तरीके से प्रयोग करते हैं। इस बात के पर्याप्त प्रमाण हैं, कि व्यापक अर्थ में सामाजिक पूँजी महत्वपूर्ण है। सामाजिक पूँजी को जब शिक्षा के साथ जोड़कर

देखते हैं, तो इसके सूक्ष्म, मध्यम एवं वृहद स्तर के परिणाम सामने आते हैं। उदाहरणार्थ सूक्ष्म स्तर पर जब हम सामाजिक पूँजी का आकलन करते हैं, तो पाते हैं कि बच्चों के माता-पिता उनकी शिक्षा में शामिल हैं और उनके बच्चे बेहतर उपलब्धि हासिल करते हुए प्रतीत होते हैं। मध्यम स्तर पर जब हम सामाजिक पूँजी को आकलित करते हैं तब हम पाते हैं, कि माता-पिता अपने बच्चों की शिक्षा व्यवस्था अपनी सामाजिक पूँजी के अनुसार करते दिखते हैं। शिक्षा का प्रमुख कार्य विद्यार्थियों में विभिन्न मूल्यों के साथ-साथ समाज के आदर्श मूल्यों का समावेश करना है जिसके माध्यम से विद्यार्थियों में आदर्श छवि का निर्माण और समाज में उसकी सकारात्मक ख्याति बन सकेगी और उनकी सामाजिक पूँजी में विस्तार होगा। वहीं विद्यार्थी अपनी सामाजिक पूँजी के माध्यम से शिक्षा में नवीन सामाजिक मूल्यों को स्थापित कर सकता है और विद्यार्थियों के स्कूल के साथ उनके मजबूत संबंधों का प्रदर्शन होता है, जो बच्चों की सफलता का एक और महत्वपूर्ण कारक माना जाता है। इसी प्रकार से शिक्षक की प्रभावशीलता को उनकी सामाजिक पूँजी के संदर्भ में व्यक्त किया जा सकता है। समुदाय में जुड़ाव आपसी विश्वास और सामूहिकता की भावना शैक्षिक उपलब्धि को प्रभावित करती है। अंततः जब हम वृहद स्तर पर कई देशों के मध्य भेद और उनकी पृष्ठभूमि में अंतर पाते हैं, वहाँ भी सामाजिक पूँजी एकता की संस्कृति किसी समाज की विशेषता बताने वाले मूल्यों को काफी हद तक प्रभावित करती है। राष्ट्रीय स्तर पर सामाजिक पूँजी को बढ़ावा देने के लिए स्कूलों में शिक्षा और मूल्यों का प्रचार प्रसार किया जाता है। कई राष्ट्रों की शिक्षा व्यवस्था आपस में जुड़कर एक वृहद स्तर पर शैक्षिक समायोजन स्थापित करके वैश्विक रूप से सामाजिक संबंधों को विकसित करने का कार्य करती है।

शिक्षक-प्रशिक्षु

शिक्षक प्रशिक्षु- जब कोई व्यक्ति किसी विशेष कार्य क्षेत्र में प्रवेश करके अपनी सेवाएं प्रदान करना चाहता है, तो पहले उसे संबंधित क्षेत्र की सैद्धांतिक समझ के साथ-साथ व्यावहारिक समझ का होना अति आवश्यक होता है जिससे वह उस विशेष क्षेत्र में पहुँचकर अपनी कार्य कुशलता एवं कौशल की बदौलत गुणवत्तापूर्ण संभावित परिणाम प्रदान कर सके। ठीक उसी प्रकार से शैक्षिक जगत में अपनी सेवाएं देने के लिए जो लोग समाज से निकल कर बाहर आते हैं, तो उनको भी विशेष प्रशिक्षण की आवश्यकता होती है। जिस प्रकार चिकित्सा, विधि एवं अभियांत्रिकी इत्यादि के क्षेत्र में प्रवेश करने वाले लोगों को प्रशिक्षण की आवश्यकता होती है ताकि क्षेत्र विशेष की व्यावसायिक दक्षता को विकसित किया जा सके। उसी प्रकार शिक्षक शिक्षा के क्षेत्र में प्रशिक्षण प्राप्त करने के लिए भारत सरकार द्वारा अधिनियमित संस्था राष्ट्रीय अध्यापक शिक्षा परिशद (एन.सी.टी.ई.) द्वारा मान्यता

प्राप्त प्रशिक्षण संस्थान द्वारा मानक स्तर की भौतिक एवं मानवीय संसाधनों की उपलब्धता में प्रशिक्षण प्रदान किया जाता है। प्रशिक्षण के लिए निर्धारित समयावधि होती है, जिसमें प्रशिक्षण प्राप्त करने वाले विद्यार्थी को सैद्धांतिक ज्ञान के साथ-साथ प्रायोगिक ज्ञान या व्यवहारिक ज्ञान प्रदान करके व्यावसायिक दक्षता को विकसित किया जाता है। इस दौरान प्रशिक्षण प्राप्त करने वाले विद्यार्थी को ही शिक्षक प्रशिक्षु की संज्ञा दी जाती है। राष्ट्रीय अध्यापक शिक्षा परिषद नई दिल्ली द्वारा शिक्षक-शिक्षा को पूर्व प्राथमिक, प्राथमिक, माध्यमिक एवं उच्च शिक्षा के लिए अलग-अलग पाठ्यक्रम के रूप में निरूपित किया गया है जिसमें प्रत्येक स्तर की शिक्षक-शिक्षा के माध्यम से अध्यापकीय गुणों को समृद्ध करना आवश्यक माना गया है। शिक्षण उद्यमगत दक्षता हेतु प्रतिबद्धता और मान्यता आदि द्वारा अन्तः एवं बाह्य मूल्य विकसित करना, अधिगम साधनों का चयन, संगठन और उपयोग करना, मीडिया तथा अन्य उपयुक्त अनुदेशनात्मक तकनीक का प्रयोग करना, व्यक्तित्व विकास शोध, मूल्य प्रतिबद्धता और मूल्य संचरण के प्रति अनुभूति का विकास करना, संस्कृति और व्यक्ति तथा संस्कृति और शिक्षा के मध्य अंतर संबंध को समझना, समुदाय की महत्वाकांक्षा को समझकर शिक्षण कुशलता के द्वारा शिक्षण विधियों को सीखना, इत्यादि गुणों को इंटरनशिप के माध्यम से उद्यमगत व्यावसायिक दक्षता में सुधार करना। विभिन्न स्तर पर शिक्षक शिक्षा के लिए डी.एल.एड., बी.एड., एम.एड. में प्रशिक्षण प्राप्त कर रहे विद्यार्थी शिक्षक-प्रशिक्षु कहलाते हैं।

यूनेस्को संस्थान के द्वारा परिभाषा

मान्यता प्राप्त और संगठित निजी और सार्वजनिक शैक्षिक कार्यक्रम जिनके द्वारा भावी शिक्षकों को शिक्षा के मानक स्तर पर पेशे में औपचारिक रूप से प्रवेश करने के लिए डिजाइन किया गया है। स्नातकों को सरकार द्वारा मान्यता प्राप्त शिक्षण योग्यता प्राप्त होती है। सेवापूर्व प्रशिक्षण में वे शिक्षक शामिल नहीं हैं, जो आधिकारिक तौर पर मान्यता प्राप्त प्रशिक्षण मानकों को पूरा नहीं करते हैं और शिक्षक के रूप में अपने काम के साथ-साथ मान्यता प्राप्त करने के लिए शिक्षक प्रशिक्षण पाठ्यक्रम में नामांकित हैं।

आवश्यकता एवं महत्व

शिक्षा के बेहतर परिणामों को प्राप्त करने के लिए तीन तत्व बहुत ही महत्वपूर्ण होते हैं। शिक्षक, शिक्षार्थी एवं पाठ्यक्रम, जिनका आपस में घनिष्ठ संबंध होता है। शिक्षार्थियों और पाठ्यक्रम के बीच जीवन्त संबंध का आभास कराने का कार्य शिक्षक का होता है। शिक्षक ही पाठ्यक्रम के माध्यम से विद्यार्थियों में विश्वास, सांस्कृतिक मूल्य, सहयोग, आपसी भाईचारा, स्थानीय वातावरण एवं उनमें राष्ट्रीय मूल्यों की समझ विकसित करने का कार्य करता है। राष्ट्र में शिक्षकों के द्वारा इस कार्य को बहुत ही

सुगम तरीके से किया जा सकता है। सामाजिक पूँजी संबंधों का अमूर्त संप्रत्य है। शिक्षक में सामाजिक पूँजी के गुणों की पहचान के लिए विद्यार्थियों के मध्य संबंध, संस्थानिक वातावरण के मध्य, विद्यार्थी-अभिभावक के मध्य एवं समुदाय के मध्य संबंधों का अध्ययन करके सामाजिक पूँजी का आकलन किया जाता है। शिक्षक में व्यक्तिगत सामाजिक पूँजी और बाह्यतम सामाजिक पूँजी का होना अत्यंत महत्वपूर्ण होता है। व्यक्तिगत सामाजिक पूँजी के अन्तर्गत यह जानने का प्रयास किया जाता है, कि आप स्वयं में कितने लोगों को जानते हैं, जबकि बाह्यतम सामाजिक पूँजी में आपको आपके व्यवसाय और सामाजिक क्षेत्र से कितने लोग जानते हैं। दोनों बातें एक विशेष प्रशिक्षण के माध्यम से शिक्षकों में विकसित की जा सकती हैं। 21वीं सदी में विज्ञान और तकनीकी एवं वैश्विक अर्थव्यवस्था का तेजी से विकास हुआ। बड़ी संख्या में सृजनात्मक प्रतिभाओं को प्रशिक्षित करना दुनिया भर के कई देशों में शिक्षा के मुख्य उद्देश्यों में से एक अहम विषय बन गया। इस आवश्यकता को देखते हुए सृजनात्मकता को सिखाने वाले शिक्षकों की महती आवश्यकता है। डेविस एवं अन्य (2016) ने अपने अध्ययन में बताया कि, शिक्षक स्कूल के वातावरण में छात्रों की रचनात्मकता को सृजित करने में महत्वपूर्ण भूमिका निभाते हैं। रचनात्मक सुधार विद्यालयों से प्रारंभ होने चाहिए और शिक्षकों की जिम्मेदारी है कि वे सुनिश्चित करें कि छात्रों की रचनात्मकता के लिए क्या सिखाया और प्रोत्साहित किया जाए? शोध से यह भी पता चलता है, कि शिक्षकों का रचनात्मक शिक्षण व्यवहार विद्यार्थियों के नवीन विचारों और समस्या समाधान के साथ आने वाली क्षमता में सुधार कर सकता है। शिक्षा एक गत्यात्मक प्रक्रिया है जो सूचना को जन्म देती हैं। कुशल व्यवहार विद्यार्थियों में रचनात्मक सोच को विकसित करता है। इसीलिए आवश्यकता है, कि सेवा पूर्व शिक्षकों को प्रशिक्षण के दौरान उन्हें प्रशिक्षण संस्थान में आधुनिक सोच के शिक्षण कौशल (एन.सी.टी. ई.) के मानक के अनुसार प्रशिक्षण संसाधन, पुस्तकालय, व्यवहारिक संबंधों की अमूर्त रूपरेखा के द्वारा सकारात्मक सामाजिक पूँजी को विकसित किया जाए ताकि तैयार होने वाले प्रशिक्षु भावी दक्ष शिक्षक के रूप में शैक्षिक संस्थानों में पहुँच कर अपना बेहतर निष्पादन देकर राष्ट्र निर्माण में सहयोग करेंगे।

निष्कर्ष

सामाजिक पूँजी शिक्षक प्रशिक्षुओं में संबंधों के जाल के माध्यम से उनकी व्यावसायिक दक्षता को विकसित करने में सहायता प्रदान करेंगी। सामाजिक पूँजी शिक्षक प्रशिक्षु में विभिन्न संस्कृति एवं सामाजिक मूल्यों के बीच समझ को विकसित करने में अपना योगदान प्रदान करती है। शिक्षक प्रशिक्षकों के आपसी संबंध मजबूत होंगे जिससे चर्चा सत्र के दौरान अपने विशेष कौशलों को आपस में आदान-प्रदान करके एक दूसरे को लाभान्वित

करेंगे। शिक्षक प्रशिक्षु की बढ़ती मांग को देखते हुए प्रशिक्षण संस्थानों की एक अहम जिम्मेदारी बन जाती है, कि समाज के लिए बेहतर शिक्षक पूँजी तैयार करें। यह कार्य शिक्षक प्रशिक्षुओं में सामाजिक पूँजी अच्छे ढंग से करती है। शिक्षा के क्षेत्र में दायित्व एक कार्यवाही का तरीका होता है, जिसमें इसके प्रति कोई व्यक्ति नैतिक या कानूनी रूप से कर्तव्य या प्रतिबद्धता से बंधा होता है। सामाजिक पूँजी भावी शिक्षकों में इनको विकसित करने में अपना सहयोग प्रदान करती है। सामाजिक पूँजी भावी शिक्षकों में ईमानदारी या सत्यता के रूप में भरोसा करने की क्षमता को विकसित करती है, जिससे शिक्षा प्रणाली को सीधा लाभ पहुँचता है। भावी शिक्षकों में नवाचार आधुनिक ज्ञान के विभिन्न स्रोतों तक पहुँचने में सामाजिक पूँजी अपना सहयोग प्रदान करती है और शिक्षक-प्रशिक्षक एवं शिक्षक-प्रशिक्षु के बीच संबंधों की पहचान को सामाजिक पूँजी के द्वारा दृढ़ किया जा सकता है जिससे भावात्मक समझ, सहानुभूति एवं प्रेरणा को विकसित किया जायेगा और भविष्य में कक्षा-शिक्षण के दौरान कुशल शिक्षण संपन्न हो सकेगा। इस प्रकार कहा जा सकता है, कि सामाजिक पूँजी शिक्षण प्रशिक्षण संस्थानों के माध्यम से शैक्षिक प्रशासन में गतिशीलता प्रदान करती है और समुदाय, नीति नियंत्रणों, अभिभावकों एवं शिक्षाविदों के मध्य एक खास संबंध स्थापित करके भावी शिक्षकों को राष्ट्र के लिए कुशल नागरिक तैयार करने में अपना सहयोग प्रदान करेगी।

वर्तमान में शिक्षक प्रशिक्षुओं की सामाजिक पूँजी की आवश्यकता को देखते हुए निम्न शैक्षिक निहितार्थ प्रस्तुत हैं-

- सामाजिक पूँजी शिक्षक प्रशिक्षक के लिए तो आवश्यक है ही, साथ में शिक्षक प्रशिक्षुओं के लिए भी महत्वपूर्ण होगी क्योंकि वह प्रशिक्षण प्राप्त कर रहे हैं और भविष्य में शिक्षक होंगे। ऐसे में शिक्षक-प्रशिक्षक शिक्षक-प्रशिक्षुओं को सामाजिक पूँजी का वास्तविक सम्प्रत्यय स्पष्ट करें।
- शिक्षक प्रशिक्षक को चाहिए कि वह शिक्षक प्रशिक्षुओं को सामाजिक पूँजी के प्रति उचित दृष्टिकोण की समझ विकसित करें।
- शिक्षक प्रशिक्षक को चाहिए कि वह शिक्षक प्रशिक्षुओं को कक्षागत सामाजिक वातावरण निर्माण के साथ-साथ सामाजिक गतिविधियों पर भी पर भी जोर दें।
- पाठ्यक्रम में सामाजिक पूँजी से सम्बन्धित सैद्धान्तिक और व्यवहारिक शिक्षक प्रशिक्षण क्रियाकलापों को सम्मिलित किया जाय।
- महाविद्यालय के प्रशासक एवं प्रबन्धकों को चाहिए कि वह महाविद्यालय में समय-समय पर सामाजिक गतिविधियों का आयोजन करे जिसमें अधिक से अधिक कार्यक्रम का संचालन शिक्षक प्रशिक्षुओं से करवायें।

- वर्तमान शिक्षण प्रक्रिया में शिक्षक प्रशिक्षक ऑनलाइन शिक्षण प्रशिक्षण को सम्मिलित करे और शिक्षक प्रशिक्षु को हाइब्रिड मोड में प्रशिक्षित करने पर सामाजिक पूँजी संचार पूँजी के रूप में कार्य करेगी।
- शैक्षिक संस्थानों द्वारा संचालित किये जा रहे पाठ्यक्रम को अद्यतन बनाये रखने के लिये सामाजिक पूँजी ई-कन्टेन्ट के जरिये नयी सोच और तकनीकी गतिविधियों की पहुँच को आसान बनाने में सहयोग प्रदान करेंगी।
- शिक्षक प्रशिक्षुओं को इन्टर्नशिप के द्वारा बान्डिंग और ब्रिजिंग सामाजिक पूँजी विकसित करने का अवसर प्राप्त होता है जिससे वह अपने उद्यमगत पेशे को बढ़ा सकते हैं।

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Kumbh Mela and the Mytho-Spatial Consciousness: New Directions

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Abstract

The contours of Indian intellectual tradition are varied and encompass a vast body of knowledge. The epistemic basis of many categories in this knowledge system is oral and folkloric. This paper attempts to investigate the *Kumbh Mela* tradition, the *Mela* space and the associated myths to establish this significant tradition as a significant site of folk beliefs and knowledge production.

Varied disciplines and epistemological categories comprising the vast Indian Intellectual tradition represent as well as traverse terrains like literature, philosophy, linguistics, etc. but this tradition also encompasses the fertile and flourishing soil of folklore and folklife that has been hitherto ignored in/by the Indian academia. Folklore and folkloristics can provide a viable, rather desirable, approach to promote pedagogical and methodological innovations and interventions in experimenting with the academic norms and adherence to them. One significant site for such investigations is *Kumbh Mela* at Prayag whose relevance cuts across disciplines and categories. We propose to investigate in the present paper the *Kumbh Mela* tradition along with its most popular myth, viz. "Churning of the Milky Ocean" that renders the *Mela Kshetra* a sacred and soteriological identity. An investigation into three important axes of this tradition: space, myth, and belief systems will be attempted in the process. This paper has gained from the financial grant we received from Indian Council of Social Science Research (ICSSR) for our major project titled as 'Kumbh Mela Consciousness and its Folk Imagination'.

One's association with a particular place or space is informed by a set of complex and sedimentary layers of consciousness, awareness and experiences informed by her world and worldview. The *Kumbh Mela* Tradition (*Parampara*) of Prayag and some of its associated myths, narratives, and practices in general and the *Kumbh Kshetra* in particular highlight the idea of space that forms the world and worldview of the common pilgrims of a tradition that's rightly recognized the largest peaceful human gathering on earth. Reflecting upon what space means to us, one begins by asking, "how does one define space?" To ponder over an associated question, albeit in

a more informal and colloquial way, one may ask, "which sense organ is primarily used to perceive space?" One wonders that we can see light through eyes (visual sense organ), hear sound through ears (auditory sense organ), feel air through skin (sense organ of touch or haptics), smell fragrance of lovely flowers through nose (olfactory sense organ), and taste food through tongue (gustatory sense organ), but to pinpoint a sense organ primarily associated with space is unclear and ambiguous. Simple and perhaps the only answer to this query/ question would be: we do not have any specific and exclusive sense organ to perceive space. Needless to point here that mind is not a sense organ and, in any case, we do not perceive space through mind alone. As Keshavmurthi highlights in his *Space and Time* (1991), "We have no special (*sense*) organ for the perception of Space and Time... The nearest sense organ, if it can be so termed, that cognizes time is mind and mind is a faculty of consciousness" (Keshavmurthi, 1991, p. 8). Thus, Space is a matter of consciousness or awareness. This awareness or consciousness is informed by the worldview of particular people occupying a particular territory, space, or place. The idea of space is, thus, located in a specific context of a particular world and its worldview. Therefore, any understanding of a specific place or space depends on the world and the worldview of the community that defines it. In other words, only an emic definition of a particular place or space, more so in the context of a sacred space, can be upheld as valid. No definition of such a place from without, i.e. the etic definition, how-so-ever scholarly or eloquent, holds validity. Thus, a sacred space is sacred if it means so to a community.

In the light of the afore-mentioned observations, one finds that *Kumbh Mela* and the *Mela Kshetra* at the

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confluence in Prayag represent a synchronization of traditions in which the folk and their affairs appear to be the *je ne sais quoi*, i.e. indefinable yet the most essential elements. The world and the worldviews of the common pilgrims are significant in this regard. It won't be an exaggeration to say that the common peoples' participation and their beliefs form the basis and the sustenance of this tradition. Thus, the epistemological framework to understand the *Kumbh Mela* should necessarily involve people and their lores, with a special focus on the idea of space as perceived and believed by the common pilgrims who come to this spectacular pilgrimage-fair without any invitation or lucrative advertisements, something oft-noted and oft-quoted by critics and scholars alike.

The *Kumbh Mela* is held at the holy confluence of three rivers: Ganga, Yamuna, and the invisible and mythical Saraswati. This pilgrimage tradition, held every 12th year in an area surrounding the holy confluence of these rivers in the North Indian city of Prayag/ Allahabad, encompasses various historicities and psycho-social realities. The same space is also the site of an annual pilgrimage tradition called *Magh Mela*, albeit with a lesser degree of spectacle and participation but equally significant religiously and socio-culturally. However, the latter is not the part of the present paper.

This confluence has both symbolic meaning as well as mythical relevance. It is considered to be an amalgamation of purity, energy, and knowledge represented by the three rivers Ganga, Yamuna, and Saraswati respectively, where the pilgrims/ visitors undertake repeated journeys to take a holy dip and absolve themselves of their "sins" as well as "debts". It is a source where the "sacred histories", as described in Mercia Eliade's *The Sacred and the Profane* (1957), unite with the cosmos, and thus it represents the confluence not only of water bodies but also of self and cosmos, natural and supernatural, ideal and material, nurturance and supernurturance.

Kumbh Mela, literally "the Fair of the Urn/ Pitcher", derives its origin and meaning from certain myths, legends and narratives. The most common and popular myth in this regard is the myth of the "Churning of the Milky Ocean", known as *Sagar* or *Kshirsagar Manthan*. An entire temporary city (or Ephemeral Mega City as a Harvard University Publication titled it) is constructed for this about two months long pilgrimage-fair. We must digress to quickly mention that to call the *Kumbh Mela Kshetra* a city is simply not justified. Along with the historical connotations of the powerful pilgrimage centres

turning into cities, it also excludes and cancels the identity, status, and participation of rural and common folks coming to this pilgrimage. One can't ignore the fact that the term city quickly and easily becomes the synecdoche for the entire *Mela* and its tradition.

"The Churning of the Ocean" represents life, including its evolution, and the various elements essential for its sustenance. This myth appears in several classical Indian texts like *Puranas*, and Indian epics like *Mahabharata* and *Ramayana*. I've already mentioned that this myth is promoted as the source of the beginning of the *Kumbh* tradition. In this myth, the churning of the ocean confers various "gifts", including the most dangerous poison, i.e. *Kalkut Vish*, and concludes with the emergence of the last and the most precious of the gifts: A Pitcher (*Kumbh*) Full of "Nectar"/ "Elixir of Life", i.e. *Amrit*, that imparted immortality. As expected, gods and demons ensued a battle over its possession and Jayant, Son of the King of Gods, Lord Indra, tricks demons and flees away with this pitcher full of nectar. It is believed that during this flight drops of nectar fell at four places: Haridwar, Prayag/ Allahabad, Ujjain, and Nasik, the four venues of the *Kumbh Mela*. Some versions also mentioned that Jayant rested at these four places, and hence imparting the benefits of the coveted nectar at these places. Further, according to this myth, Jayant took 12 days to complete his journey to paradise and therefore the *Kumbh Mela* recurs every twelfth year cyclically at these four places. As we know that a divine day is equal to one human year, the cycle of 12 years is justified.

However, the textual evidence to support this account is found nowhere. Of course, the myth of the churning of the ocean is mentioned in several epics and *puranas* but the nectar falling at four places is found nowhere. It seems, as rightly pointed out by Kama Maclean in her book *Pilgrimage and Power: The Kumbh Mela in Allahabad, 1765-1954* (2008), that the scriptural or puranic validity to claim ancient origins of this tradition seems to be a modern and colonial construct; "the Puranic legend has been forcefully grafted on the Kumbha fair... Though the incident of amrita manthan (churning the nectar) has been stated in several Puranic works, 'the fall of amrita in four places' has not been stated in any of them" (Maclean, 2008, p.87). In the context of the fact that this myth resonates with the belief system of common pilgrims who come to this pilgrimage to take holy dip in the nectarine waters of the confluence, i.e. *sangam*, on a special occasion when various celestial bodies are in the conjunction mentioned earlier, one

observes the intersection of self and the trajectories of the celestial bodies representing the cosmos based on the belief system revolving around the attainment of salvation and immortality. The nectarine waters of the confluence at Prayag represent the significance of water bodies in the lives of common and rural folks in general and the reverence for rivers (Ganga being the holiest of all) in particular.

The Ganga becomes representative of all the four rivers on whose banks the *Kumbh Mela* takes place. According to D.P. Dubey, two of the four places are located on the bank of Ganga itself: One at the foothills of the Himalayas and the other in the Indo-Gangetic Plain, the most fertile part of the world. Godavari, on the banks of which is Nasik located, is called "Dakshin Ganga", and Shipra flows northwardly in Ujjain, the direction of the flow of Ganga in Kashi that's considered the holiest. Our point is that even if the rural folks haven't read the scriptures or aren't aware of their appropriation in the modern construction of the *Kumbh* tradition, the underlying philosophy that informs the insights of these doctrines is part of their belief system that draws them to such places. More importantly, to understand such traditions one needs to closely understand the folkloric traditions that are part of the daily rituals of the pilgrims in particular and their quotidian lives in general. Sadly, no one has done any significant research on the folk tradition of *Kumbh Mela* or the folk beliefs of the pilgrims coming to the *Mela Kshetra*. The documentation of folkloric traditions of *Kumbh Mela* would certainly give newer meanings and significance to this fascinating tradition.

As mentioned earlier, this pilgrimage tradition embodies many historicities and several psycho-social realities that involve significantly the patterns of interactions and associations, which further lead to the process of defining identity and belonging in the given geographical space through the narrative structures surrounding the *Kumbh Mela* tradition. Various narratives associated with this space, too, provide impetus for the sustenance of such traditions, but they are never promoted as occupying significant positions.

The analysis of scriptural, historical, and ritualistic narratives associated with the mela space, in the light of conflicts and confluences which cohabit in its physical as well as metaphysical spaces, but often either get neglected or pushed to the periphery, give significance to the pilgrims' consciousness comprising in their stride many mental, social, cultural and religious journeys. Through a

proper understanding and bringing to the fore various narratives that are marginalised one can aim to understand the social, cultural, religious, historical, political, and spiritual intertexts that define and give meaning to this popular and the so-called biggest human gathering on earth.

One shouldn't forget that the common pilgrims are generally the rural folk and simple peasants whose aspirations, practices and beliefs are never considered significant in managing the affairs of this tradition, although the pilgrims themselves are to be managed owing to their huge numbers. The modern version of the *mela* seems to be a colonial construct, but the independent India too continued this trend. As a result, it never attracted scholars, researchers, practitioners, and even policy makers to look at the *Kumbh Mela* from the lense of the folk and the lore of the people that make and sustain this tradition. What needs to be done? Is there a way out? We have been able to make a small initiative in this respect through the financial help from ICSSR in the form of a major project on 'Kumbh Mela Consciousness and its Folk Imagination'. We work through the understanding that there are no straight and easy answers to these simple yet significant questions. One can only hope that investigating one's own traditions, one's own spaces, may lead people to a better understanding of fellow human beings and the traditions they have been following for ages. Only then we may understand the significance of such places and traditions, an understanding that would enable us to attain what R.J. Johnston, a theorist on placeways, wished for the entire humanity: May the world be full of happy places.

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Project-Based Learning Approach in STEM Education

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Abstract

The 21st century is the century of science and technology that's why there is a need to strengthen the teaching-learning process of STEM Education. Here Project-based learning approach plays an important role. Integrating a project-based learning approach into STEM Education at the school level can prepare a competent human resource to meet the challenges of the 21st century. The project-based learning and STEM Education can form students into human resources who are capable of critical and creative thinking, who are systematic and logical. Project-based learning in STEM Education can enhance the interest and attitude of students in STEM subjects and make the students skilled human resources who are able to meet the standards of the 21st century and face increasingly complex global challenges. The aim of this paper is to mention the steps, importance, and challenges of the project-based learning approach in STEM Education.

Introduction

Science, Technology, Engineering, and Mathematics (STEM) are the core subjects of the 21st century. These subjects have been identified as vital to students' future success in both the classroom and the workforce. The STEM curriculum is designed to help students develop critical thinking, problem-solving, and communication skills that will be useful in any vocation they pursue. Therefore, teachers who manage learning are required to develop creative and innovative methods of teaching in order that their students to have optimal outcomes. Learning is a continuous process. The curriculum should reflect the changes in society and technology so that teachers can adapt their teaching methods to meet the needs of their students. This is important because it ensures that students get relevant skills to enable them to compete in today's job market. Students have been learning about science, technology, engineering, and math (STEM) for decades. The problem is that most of this learning took place in an education system where each subject Science, Technology, Engineering, and Mathematics are taught as a stand-alone block of instruction with no clear connection to other areas. A new approach is needed which emphasized connections among topics instead. This meant that students would learn chemistry in the context of biology and physics, mathematics in terms of logic, and so on. In this way, they could better appreciate the overall

structure of their subject area, instead of learning it as a collection of isolated facts. Smith *et al.* (2022) said that STEM Education has a focus on connecting learning across disciplines. It is not intended to replace learning in each of the STEM disciplines but rather recognizes that learning in each of these disciplines is not enough when done separately.

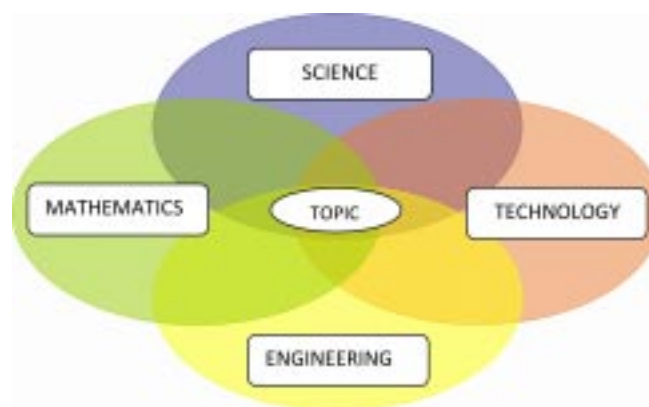


Figure 1 showing the integration of STEM Subjects

According to the study of Chang & Chen (2021), integrated STEM Education allows students to experience meaningful learning by systematically combining information from different subjects. Through the meaningful integration of knowledge, STEM aims to help students solve problems in real situations. Here Project-

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based learning (PjBL) can be used as the best platform for multi-subject learning and as a bridge to integrating different disciplines into STEM Education. According to the study of Alves *et al.* (2019), Awad (2021), Hong, Chen, Wong, Hsu, & Peng, (2012), Project-based learning facilitates STEM Education. In this way, we can understand that STEM education differs from other traditional classroom environments primarily through Project Based Learning strategies wherein information is learned through real-world applications instead of lectures or bookwork alone. Through the use of project-based learning strategies, students are able to apply their knowledge and use it in real-world applications. This not only helps them retain the information but also allows them to see how it applies to their lives. Project-based learning is a teaching method that engages students in real-world projects and problems, rather than just providing them with information from textbooks or lectures. This approach allows students to apply what they are learning to real-life situations-and helps them better retain the information.

Review of related Literature

Project-Based Learning (PjBL) is an approach to learning that involves organizing the learning process around projects. PjBL, or Project-based learning approach, is a student-centered approach organized around projects, as defined by (Thomas, 2000). In this approach, students work in groups to carry out projects, through which they can learn new skills and content (Condcliffe *et al.*, 2017; Parker *et al.*, 2013; Thomas, 2000). PjBL can help students form deeper connections to content and promote collaboration, artifacts, technological tools, problem-centeredness, and certain practices. According to (Trianto, 2014), the PjBL learning model prioritizes contextual learning through engaging in complex activities. PjBL revolves around posing challenging questions and problems, guiding students through designing solutions, decision-making, and conducting investigative activities. Additionally, it provides opportunities for independent work, empowering students to take ownership of their learning journey (Wena, 2014). Implementation of this learning model typically entails project-based work, where students actively construct knowledge to produce tangible, real-world products.

The term STEM education originated from the four disciplines—science, mathematics, engineering, and technology—outlined in the report "Undergraduate Science,

Mathematics, and Engineering Education" by the National Science Board in 1986. The primary aim of STEM education is to integrate four subjects into a unified framework (Morrison, 2006). Together, these four disciplines form a comprehensive set of subjects encompassing knowledge and skills in the sciences, applied sciences, and the digital realm (Tyler, 2020). STEM education is increasingly recognized as an interdisciplinary approach that emphasizes engineering, with a central focus on integrating subjects (Zhan *et al.*, 2022).

Theoretical Framework of the Study

PjBL, or Project-Based Learning, stands as an innovative methodology of teaching, as highlighted by (Harmer, 2014). The use of projects for educational purposes traces back to the sixteenth century (Knoll, 1997). However, it was in the early 20th century that the term "project" underwent redefinition, particularly under the influence of William H. Kilpatrick, a philosopher of education (Knoll, 1997). William H. Kilpatrick was a pragmatist philosopher and pioneer of the project method. The roots of the PjBL approach can be traced not only to Kilpatrick's work but also to the ideas of Jerome Bruner in the 1960s and subsequent educators since the 1990s (Frank *et al.*, 2003). The PjBL approach is based on the active participation of students so this approach is rooted in constructivist principles of learning, particularly social constructivism theory, which is closely associated with the work of Piaget and Vygotsky (1986). In PjBL approach, projects are distributed to small student groups who collaboratively devise solutions to complex problems and present their findings to peers, instructors, and mentors. Particularly in STEM Education, these projects often encompass disciplines within Science, Technology, Engineering, and Mathematics (STEM). In a PjBL approach setting, students are encouraged to engage with real-world problems and make connections to STEM disciplines, thereby gaining practical experience and insight into the application of STEM knowledge (Bell, 2016). This approach enables students to contextualize principles, theories, and formulas, enhancing their understanding of how these concepts can be utilized in various contexts.

Conceptual Framework of the Study

The conceptual framework of this research paper on the Project-Based Learning (PjBL) approach in STEM Education is grounded in social constructivism and the

philosophy of pragmatism. This base provides a theoretical foundation for understanding how PjBL fosters authentic, contextualized learning experiences in STEM disciplines. The framework emphasizes essential components of the PjBL approach, including characteristics, and steps of the PjBL. Drawing on existing research, this study seeks to explore the utility or applicability of the PjBL approach on student engagement, achievement, and 21st-century skill development in STEM Education. By synthesizing previous studies, and implementing a rigorous research methodology, this paper aims to contribute to the growing body of knowledge on effective pedagogical approaches in STEM Education. Through an in-depth analysis of PjBL approach implementation and its effects on student learning outcomes, this research paper endeavor seeks to provide valuable insights for educators, teachers, curriculum developers, and policymakers striving to enhance STEM education through innovative Project-based learning approach.

Objectives of the Study

- To analyze the characteristics of the Project-based learning approach in reference to Indian schools.
- To analyze the advantages of the Project-based learning Approach in comparison to the traditional approach.
- To study the applicability of Project Based Approach for the teaching-learning of STEM subjects.
- To study the process of Project Based Approach with reference to STEM education.

Characteristics of the Project-based learning approach in reference to Indian schools

The characteristics of the project-based learning approach are as follows:

I. Student-Driven Approach

Project-Based Learning (PjBL) is a student-driven approach. PjBL emphasizes the active involvement of students in the teaching-learning process. If we look there is still a dearth of such kind of student-driven approaches in India because we bluntly emphasize on traditional teaching methods. There is a need to incorporate PjBL in Indian education system because it promotes critical thinking and creativity, as students are tasked with designing, planning, and executing projects independently or in groups. This approach also aligns with the Indian education system's recent shifts towards outcome-based

education, as it emphasizes the application of knowledge and skills in practical contexts. Overall, PjBL approach in India embodies a student-centered approach that prepares learners for the demands of the 21st century.

II. Competency-based interdisciplinary work

Project-Based Learning (PjBL) is characterized by its competency-based and interdisciplinary nature, emphasizing the development of practical knowledge and skills across multiple disciplines. In the Indian context, the recently launched NEP 2020 greatly emphasizes on the interdisciplinary approach and the PjBL approach fosters interdisciplinary collaboration to solve complex problems. By engaging in hands-on projects, many skills like critical thinking, problem-solving, and communication skills can be developed in the students. PjBL approach focuses on mastery of skills rather than rote memorization. Thus, in the Indian school context, PBL serves as a powerful tool for fostering interdisciplinary learning among students.

III. Collaboration and Teamwork

The project-based Learning (PjBL) approach focuses on collaboration and teamwork, and cooperation. Within this approach, students are encouraged to work together in teams to tackle real-world challenges, fostering a sense of community and shared responsibility. This collaboration and teamwork not only enhances students' interpersonal skills but also prepares them as a responsible citizen of the nation. In Indian schools, there tends to be a greater emphasis on competition rather than collaboration. Thus, there is a need to shift the focus towards Project-Based Learning (PjBL) as an alternative approach so that it can serve as a valuable means to promote collaboration and diminish the overemphasis on competition in education.

IV. Enhancer of Social skills

The Project-Based Learning (PjBL) approach enhances students' social skills through its collaborative and cooperative nature. By working together on projects, students develop a sense of cooperation and foster a spirit of brotherhood among them. Additionally, PjBL encourages students to engage in collaborative tasks, promoting a culture of teamwork and mutual support. This collaborative effort not only benefits individual students but also contributes to the welfare of the community. Therefore, adopting the PjBL approach in Indian schools can effectively nurture students' social

skills, sense of community, and collective responsibility.

Comparison between Project-based learning approach and traditional teaching

Compared to traditional teaching methods, project-based learning is a more rigorous approach to learning that promotes active engagement and encourages hands-on exploration. In project-based learning, students engage in actual projects that allow them to explore real-world problems and find solutions via the completion of their project, unlike traditional teaching methods that may not involve such exploration. Project-based learning also encourages students to investigate complex questions, problems or challenges, whereas traditional teaching methods do not necessarily involve such investigation. Furthermore, project-based learning allows students to have some control over their projects, particularly in terms of how the project will be finished and the end product, whereas traditional teaching methods may not give students such control. Additionally, project-based learning promotes the development of critical thinking and problem-solving skills in students, which may not be prioritized in traditional teaching methods. Unlike traditional teaching methods which use rote approaches for learning, project-based learning focuses on skill and knowledge development through inquiry-based methods and active learning, allowing students to apply what they know to solve authentic problems with the intention of producing meaningful results. Moreover, project-based learning is student-centered and allows students to take ownership of their learning, which is different from traditional teaching methods where the teacher is the main authority in the classroom. Finally, project-based learning is multi-disciplinary and typically longer than problem-based learning, focusing on real-world problems and challenges and encouraging collaborative work among students. So here, the teacher should know the steps of the Project-based learning Approach with its real meaning of sense.

Applicability of Project Based Approach for the teaching-learning of STEM subjects

The applicability of the project-based approach for the teaching-learning of STEM subjects are as follows:

- Project-based learning integrates Math, Science, and Technology skills into a meaningful project. It is an inquiry approach that helps students connect facts and information to solve, evaluate, and reflect on

specific situations. It requires time for students to make connections between problems they are facing and identify and avoid misconceptions. A similar idea has been found in the study of Yen *et al.* (2021) that Project-Based learning (PjBL) about Science, Technology, Engineering, and Mathematics (STEM), which is based on engineering design, has brought enormous success in students' gaining and applying knowledge about STEM subjects.

- Students are intended to learn new skills, collaboration, patience, and content through the projects that students carry out in groups. Real-world connections help students realize the importance of what they are learning. According to the study of Markula *et al.* (2022), PjBL may specifically promote the use of collaboration, artifacts, technological tools, problem-centredness, and certain scientific practices, such as carrying out research, presenting results, and reflection within science education.
- Teachers are free to teach using any method they would like under Project-based learning. Stephenson *et al.* (2022), found that project-based STEM learning may have historically overlooked opportunities to support student and teacher learning. Here teachers split their students into groups to teach STEM subjects.
- The project-based learning approach is growing rapidly in schools and can complement STEM Education. Project-based learning is a useful approach for promoting 21st-century learning and skills in STEM Education and helps schools target rigorous learning and problem-solving in STEM Education. According to the study of Chi-Chang Chang *et al.* (2021), Project-based learning (PjBL) facilitates STEM learning. They found out that the project-Based Learning (PjBL) approach has emerged as a robust educational approach to foster Science, Technology, Engineering, and Mathematics (STEM) learning.
- There are many uses and benefits of Project-based learning in STEM classrooms which we can't count. Students learn the spirit of togetherness and team building through collaboration. Here students use the brainstorming method to solve the problem. Domenici (2022) found out that STEM project-based learning studies revealed that teamwork, critical

thinking, and communication skills were highly motivated and increased in learning chemistry.

- In project-based learning, learners create strategies to achieve a goal and develop sociocultural skills, leadership skills, and critical thinking. These are valuable qualities for both students in the classroom and the workforce of the future.
- Project-based learning increases the socio-cultural skills among students. According to the study of Volkema (2010), there is a set of sociocultural skills that are central to the effective functioning of a project management team. These include team building, meeting management, problem-solving, and negotiation/persuasion/conflict management skills. Project-based learning is based on the critical thinking process.
- In Project-based learning students/practitioners are required to use critical thinking processes throughout the assigned project. In the Project-based learning approach, Cognitive learning theory (Piaget, 1936), behavioral learning theory (Thorndike, 1905), constructivist learning (Dewey, 1910), social cognitive theory (Bandura, 1986), and behavioral cognitive theory (Brownell and Jameson, 2004) plays an important role. All the steps of the Project-based learning approach are related to the above-mentioned theories. This shows that the teacher should be aware of these theories and the process of the Project-based learning Approach.

So, we can say that PjBL can be used in classrooms or schools and is not mutually exclusive with STEM learning goals. In fact, PjBL can help meet goals for STEM learning by allowing students to connect ideas across disciplines and build questioning, thinking, and metacognitive skills.

Process of Project-based learning approach for STEM Education

Project-based learning improves problem-solving skills which is a basic need of STEM Education. Project-based learning is a learning model that meets the global demands of the 21st century. In STEM Education, project-based learning trains students to address real-world problems. The ability to solve problems is therefore very important in the implementation of the project. Problem-solving ability means engaging students in solving problems with different strategies, from multiple

perspectives, and with different modalities. Project-based learning projects can be combined by combining science, technology, engineering, and mathematics. To integrate STEM into learning, activities focused on project creation are implemented in the classroom. Topics related to project creation can teach concepts of history, science, facts, knowledge, and the nature of science, and practice problem-solving and critical thinking. Therefore, STEM-integrated project-based learning awaits to improve students' problem-solving skills. There are the following steps of the Project-based learning approach in STEM Education.

Step 1: Creating the situation

In the first step, the teacher should create a situation where students are free to observe the whole thing or problem according to their needs and interest. The purpose of the creating situation is for the teacher to discover the interests, needs, tastes, and aptitudes of students. When students indulge themselves in the situation, they can get an "idea" from the situation.

Step 2: Brainstorming/ Collective Discussion

The second step is of consists of brainstorming and collective discussion, which can take place in the class, or in the laboratory. The purpose of these activities is: (i) to collect students' opinions about the situation and (ii) to stimulate students' thinking and creativity by asking some open-ended questions. If we see, we found out that the second step of the Project-based learning approach covers the cognitive dimension from "understanding" to "creating" without a rigid hierarchy since most of these levels are closely related. In STEM project-based learning approach, students are asked to divide into groups of three/ four and decide their roles within the group according to the curriculum.

Step 3: Assign students into groups & Selection the Topic of the Project

In step 3, each group chooses a STEM-related topic as a project. Based on this choice, each group can plan laboratory work, and fieldwork according to the discussion and suggestions given by teachers and peer group members.

Step 4: Planning of the Educational Activities

In step 4, the planning of educational activities takes place. Steps 3 and 4 are very difficult for several reasons: Students should connect their knowledge with personal

experiences. At the same time, students are asked to use their creativity with the "inspiration" of the observation. Students must also search the literature and select experiences and activities from the materials provided by the lecturer as the starting point for their project. The planning of activities is the core of the project and it requires students to be prepared for further meetings with group members and/or the teacher. The main task of the teacher is to facilitate the students in their projects, to give additional information and help in planning activities, and to support in case of problems or ambiguities related to the choice of ideas and the choice of teaching strategies.

Step 5: Preparation of the educational activities

The preparation of all the educational activities represents step 5 of the STEM project-based learning methodology, followed by the implementation of the educational activities during the classroom lesson.

Step 6: Implementation of activities in the real environment

Step 6 is very useful for the teachers because they can be more aware of practical aspects, possible constraints and problems, and the timing of activities. When the plan is ready, pupils are to put it into practice. Students themselves should distribute the various items of duties among themselves according to individual interests and capacities.

Step 7: Working collaboratively on Project

In step 7, after simulating the activities, the student usually has the opportunity to carry out their projects collaboratively and to be actively involved in group work and promote a sense of belonging.

Step 8: Presentation of the Project Analysis of the student's feedback and discussion

Step 8 of the project focuses on the presentation of the project by students. In this step, feedback analysis, critical discussion of student experiences, and strengths and weaknesses of the entire learning process also happen. From an educational point of view, it is very important to share impressions about cooperation within each group.

Step 9: Reporting of the Project

In steps 8 and 9, the students are asked to explain which are the main elements of the project innovation from an educational point of view, to show the limitations

and critical aspects that appeared during the activity, and finally report on the project done by the teachers. This is the last step of the project method. Reporting of the project is useful for further future use. It represents many ideas of the project.

In this way, we can say that by following the above-mentioned steps we can smoothly implement the project method in the teaching of STEM Education in class without any hurdles. But the main thing of concern over here is teachers should be well known of the meaning and steps of the project method. The success of the project method depends on the skilled teachers who know its better implementation in the classrooms.

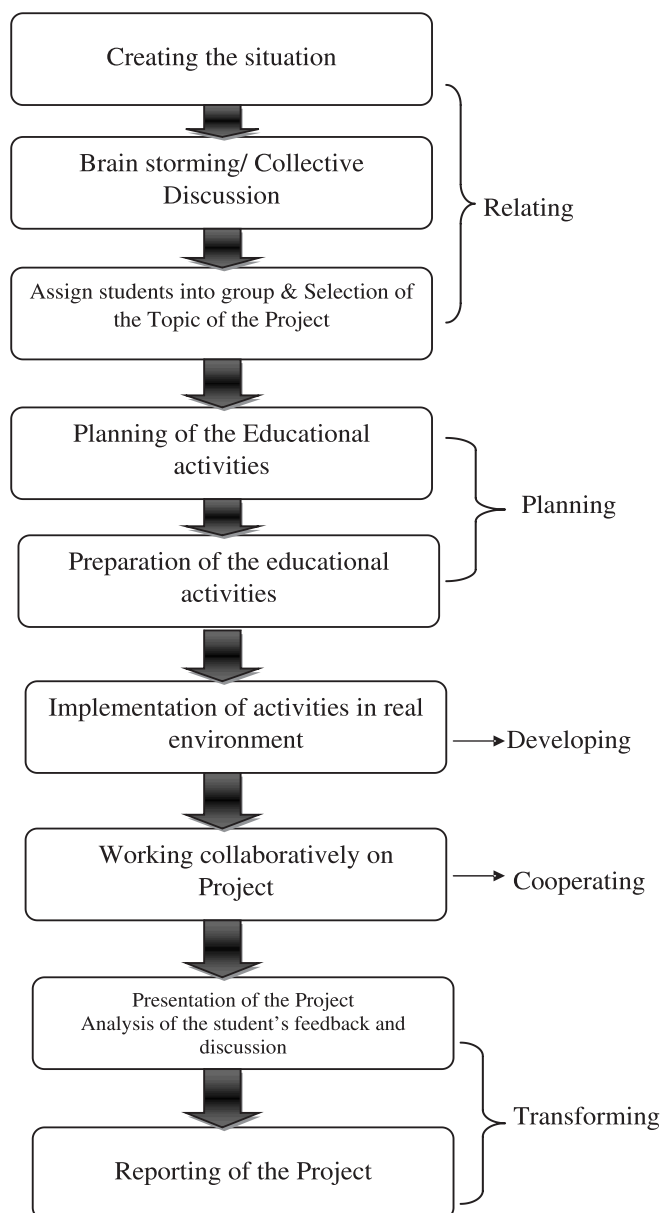


Figure 2 shows the steps of the Project-based learning approach

Benefits of using a project-based learning approach in STEM education

STEM education is an ever-evolving field that requires a dynamic approach to teaching. The use of project-based learning (PBL) in STEM education has demonstrated several benefits. These are given as follows:

- Project-based Learning emphasizes hands-on experience in real-world scenarios, which enables students to develop creativity and 21st-century skills that are crucial in STEM-based fields.
- Project-based Learning creates opportunities for collaboration, artifacts, technology, problem-centredness, and scientific practices.
- Since Project-based Learning has real-world applications, it helps in developing an innovative mind that is able to find solutions to the actual problems of the world.
- Furthermore, the development of teamwork skills is one of the most important characteristics of Project-based Learning in STEM education, as it prepares students to work effectively in a team-oriented field.
- Project-based Learning implementation in STEM education can face challenges related to technical issues and collaboration. Regardless of these challenges, the benefits of using Project-based Learning in STEM education far outweigh the drawbacks.
- Project-based Learning prioritizes real-world application of knowledge by engaging students in hands-on projects that are rooted in practicality. Therefore, it is an effective approach to teaching that equips students with real-world problem-solving skills and prepares them for STEM-related careers.

Challenges of Using Project-based learning approach in STEM Education

There are several points that act as a challenge to implementing a Projects-based learning approach in STEM Education. these points are given as follows:

- Lack of skilled teachers who know the better implementation of the Project-based learning approach in STEM Education. Teachers are not confident enough to apply a Project-based learning approach in class because they are not sure whether to assess the process of conducting the project or

the end product. They don't have experience of using project-based learning approaches in class.

- Sometimes students don't prefer to work in a group because of the feeling of competition. so, it becomes a tough task for teachers to motivate them to work as a team.
- Another challenge is related to the curriculum. the curriculum is not designed to be taught in meaningful projects. Teachers face difficulty to teach topics through a project-based learning approach in STEM Education.
- Project-based method is time-consuming. It requires more time but in schools, practically it wouldn't be possible to give so much time to teachers.
- Lack of resources is also a big challenge in implementing a project-based learning approach in STEM Education.
- Budget problem is also a major challenge because different types of projects need different types of things and facilities to be conducted and if schools are unable to fulfil the requirements to it would be tough for teachers to implement a project-based learning approach in STEM Education in class.

Conclusion

Project-based Learning and STEM education can train the skills and talents of students to meet the challenges of the 21st century. The results of many studies show that Project-based Learning linked with STEM can improve scientific literacy, motivation, understanding of materials, creative thinking, efficiency, meaningful learning, and support future careers. So it is necessary for the higher authorities in the field of Education that the culture of using a Project-based Learning approach in STEM Education should be spread among schools through workshops, seminars, and training sessions Teachers should receive in-service training on how to apply Project-based Learning approach in STEM Education and how to combines and integrates STEM subjects to create real-life problem-based learning that can train students to apply knowledge learned in school to real-world phenomena.

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Assessing the success of Current Government Policies of Assam and Incentives in Encouraging Farmers to shift towards Alternative Cropping Patterns

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Abstract

An alternate cropping pattern is suggested as an alternative way to cope up with climate change and other environmental threats facing Assam. This paper is aimed at evaluating the success rates of government initiatives and subsidies towards farmer involvement in these models, taking cognizance of the current situation, about agriculture which is now focused on sustainability. This research paper analyses available information, literature, reports and statistics relating to the agricultural state of Assam within the country. However, the study centres on the difficulties experienced by the farmers as well as benefits received by the farmers. The evaluation of current policies and incentives is aimed at giving suggestions that can improve farmers' adoption of these practices. The result indicates that the adoption of alternative crop patterns has an immense positive impact on the life and living of poor farmers. The government should address the highlighted challenges in the provision of policies that support adopting alternative crops. Consequently, this will improve the current policy and incentive programs thereby creating an enabling environment for the betterment of the farmer's livelihood, resilience as well as sustainability in income.

Introduction

The state of Assam mainly depends on agriculture due to the prevailing climate changes and the massive deforestations, together with excessive exploitation of other natural resources such as land and waterways. It stresses on improved crop production and adaptation to the present climatic changes. One way towards improving sustainability and resilience is through adopting alternative cropping patterns. This paper sets out to assess the efficacy of government interventions aimed at persuading farmers in Assam to adopt such farming models. The objective of evaluating the current policies and incentives is, therefore, to come up with suggestions on how better improve their effectiveness towards promoting the involvement of farmers into alternative cropping in Assam which has become a necessary response to the threat posed by environmental challenges today.

The objectives of this research paper are as follows:

1. To examine the current agricultural situation in

Assam with regards to the problems that are experienced by farmers and possible advantages of another cropping patterns.

2. To examine the present government policies and incentives which aimed at encouraging alternative cropping patterns by farmers.
3. To analyse how effective are these policies and incentives in inducing farmers in Assam towards alternative cropping systems.
4. To suggest ways through which these policies and incentive can be improved to enhance farmer's interest for alternative cropping.

By addressing these objectives, this research paper aims to contribute to the understanding of how government policies and incentives can effectively promote the adoption of alternative cropping patterns in Assam, ultimately leading to improved agricultural sustainability and resilience in the face of climate change and other environmental challenges.

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Methodology

Objective wise Methodology is explained below:

1. *Present Condition of Agriculture in Assam*

A detailed survey into the available literature, reports and data about Assam's agrarian scenario was undertaken as part of the research paper. The emphasis was placed upon problems experienced by farmers and possible gains associated with multiple cropping systems.

2. *Reviewing Current State Government Policies and Incentives*

The official government documents like the diversification schemes and agricultural transition plans are reviewed in order to understand the current policies and incentives for alternative cropping arrangements.

3. *Assessment of Policy Effectiveness*

Through a combination of qualitative and quantitative techniques, this study will assess the competence of government policies and inducements toward improving farming practice choices in Assam. This is carried out through a survey that seeks to establish how the current schemes affect the farmers. A regression analysis entails the study of correlation between the dependent variable (for example, crop yield) and the independent variables (such as soil characteristics, climatic conditions, or cropping methods). This may enable researchers understand the effect of different cropping practices upon crop productivity.

4. *Recommendations for Improvement*

Based on the findings recommendations are provided for improving the impact of the existing policies and incentives on farmers' adoption of alternative cropping patterns.

For achieving these objectives, a mixture of stratified random sampling and purposive sampling methods is used. Purposive sampling is used to choose important informants like the government officials, agriculture specialists, and farmers' representatives who provide information on the current policies and incentives.

In order to compute the required sample size s to estimate the proportion of the cultivators who belong to population of Assam, the method uses the Z-score formula with z being the Z-score for the confidence level, p is the estimate population proportion and e is the margin of error. The ratio of cultivators to total labour force is estimated

at about 40.97%. According to 2011 census figures. The estimated sample size required to calculate the proportion of cultivators in the population at a standard error of 5% with a 95% confidence level is about 362. Following formula is used to determine sample size for the study.

Size of Sample

The sample size for the study is determined by using the following formula:

$$\text{Sample Size } (n) = \frac{(z^2 \times p(1-P))}{E^2}$$

Here:

Z is the Z-score (standard score) corresponding to the desired confidence level.

p is the estimated proportion of the population.

E is the margin of error.

As per 2011 census of Assam the number of cultivators (118.8 million) out of the total workers (289.9 million); so, the number of cultivators to Total workers = $118.8/289.9 \approx 0.4097$

$$p = \approx 0.4097$$

Literature Review

A brief review of the literature is given below which reveals the insight:

Crop loss leads to poverty among farmers and village farms and marketing infrastructures play a significant role in the agribusiness crisis caused by the pandemic. Additionally, Hussain and Guha (2023) studied the impact of farm infrastructure on agribusiness in rural Assam in the wake of the crisis. A different report examined policy alternatives to shifting cultivation in Northeastern India (Assam). Bos *et al.* (2020) indicated that for the success of policies and incentives, it is important to understand why farmers leave one system and move to another. The MOVCDP program started in 2015 is meant to financially support agricultural extension services in adopting organic farming, providing training and creating access to markets. Studies show its weak effectiveness is attributed to low awareness and poor infrastructure (Baruah *et al.*, 2020). The RKVY provides grant-in-aid for farm mechanization, irrigation, and infrastructure works. It has also been shown that reaching and assisting smallholder and marginal farmers is a big challenge (Borgohain *et al.*, 2012). Minimum Support price schemes like MSP for pulses and oilseeds act as supportive measures to encourage production. Nevertheless, these programs have some

challenges in that not all small farmers may be accessed, and market volatility cannot be controlled. According to the review, there is a lack of studies that directly evaluate how these policies affect farm decisions and the adoption of alternative crops.

Major findings and discussion

Current Agriculture Situation in Assam

The researcher gathers the data on crop distribution area for all districts in Assam from the website of the Ministry of Agriculture and Farmers Welfare, compiles it appropriately for years 2021-2022.

After collecting data about the Assam State Land Classification of the year 2021-22, it is observed that there were 1828936 net cultivated ha. throughout all the districts, which accounted for about 23.3% of national reporting area in terms of total harvesting population (people able to work). Thus, it depicts Assam as an agrarian state with wide swatches of land devoted to crop cultivation. Again, the proportion of double or intensive-cropped land varies widely among the administrative units. For example, 14 per cent of its net sown areas are Kamrup metro and only one percent Majuli. The area of forest cover is 53605 hectares or 6.8 percent of the country's total region. The districts, however are not without their differences. Karbi Anglong's forest cover is 34,3159 hectares while that of Goalpara comes in at a mere 425. The total acreage made up by fallow land and other uncultivated land is 209748 hectares, or 2.7% of the total land. There is relatively more culturable wasteland in some districts such as Dhemaji and Lakhimpur. The land used for non-agricultural purposes such as settlements, roads and industries account for 35.1% of the total land area (274918 hectares). This indicates that more land is needed for uses other than agriculture. Barren and unculturable land covers 2.2 per cent of the nation and total 173.8 thousand hectares. There is proportionately more barren land in some districts, such as Goalpara and Sonitpur.

Analysis of Irrigation in Assam Agricultural Districts in 2021-2022

When we examined the irrigation facilities across various districts in Assam for the year 2021-2022 it is observed that a total of 424,160 hectares are irrigated, or 88.8% of the total area used for food grains. Nagaon (53,003 ha) is the district with the most irrigated area, followed by Dhubri (41,920 ha), Barpeta (54,039 ha), and

Lakhimpur (19,911 ha). With 314,172 hectares, the Kharif season predominates over Rabi's 138,873 ha in Assam. The main cereal crop, rice, covers 395,084 hectares. Jowar (82 ha) and maize (17,761 ha) are the next most common crops. Besides, 9144 hectares are irrigated under pulses overall, making up 2.06% of the total area planted to food grains. With 1,946 hectares of land under pulses, Nagaon continues to hold the top place, Nalbari (460 ha) and Kamrup (418 ha) are next in line. The two most common pulses are gram and arhar (Tur), with corresponding irrigated areas of 85 ha and 52 ha. A total of 72,043 hectares, or 15.18% of the total irrigated area, are planted with non-food crops. Assamese districts Karbi Anglong (63,980 ha), Nagaon (390 ha), and Bongaigaon (6,003 ha) have the most irrigated area dedicated to non-food crops. With 64,253 irrigated ha, fodder crops are the most important non-food crop. Oilseeds (5,561 ha) and fibres (204 ha) are the next most important non-food crops. Besides, the data also provides insights into area irrigated for various crops like Sugarcane, Spices, Fruits & Vegetables, and Other Food Crops. Some districts like Marigaon and Dhemaji primarily rely on rainfall for agriculture, with minimal irrigation usage. The data highlights the importance of irrigation in enhancing agricultural productivity and ensuring food security in Assam.

Analysis of the crop production statistics of the state of Assam in 2021-2022

Rice is the principal crop produced in the state of Assam. When we examined the horticultural crops in Assam it is found that, Arecanut is the most widely grown crop in Assam, with an area of 67,223 hectares and a production of 52,124 tonnes. This translates to an average yield of 0.78 tonnes per hectare. Banana is the second most cultivated crop, with an area of 49,445 hectares and a production of 906,683 tonnes, resulting in an average yield of 18.34 tonnes per hectare. Black pepper and coconut are also important crops, with yields of 2.25 and 71.46 tonnes per hectare, respectively. Other crops such as Arhar/Tur, Castor seed, Cotton (lint), and Dry chillies have lower production and yield compared to the top four.

District-wise analysis

When we analysed the district wise crop production statistics of the state of Assam in 2021-2022 it is observed that Tinsukia district has the highest yield for arecanut (2.78 tonnes/hectare), followed by Chirang (1.37 tonnes/hectare) and Hailakanti (1.66 tonnes/hectare). Sonitpur

district dominates in banana production, with an area of 3,624 hectares and a yield of 22.87 tonnes per hectare. Kamrup and Golaghat districts also have significant banana production. Karbi Anglong district has the highest yield for black pepper (3.68 tonnes/hectare) and coconut (4055.56 nuts/hectare).

Challenges Faced by the Farmers in the state of Assam and Potential Benefits of Alternative Cropping Patterns in Assam

During the period of the study, it is found that farmers are facing many challenges for adopting alternative Cropping Patterns in Assam. Some of the challenges are explained below:

1. Overdependence on Single Cash Crops

It is found that majority of farmers are facing the Vulnerability to price fluctuations. They heavily rely on rice and tea, making which are very vulnerable to price fluctuations. A bad harvest or a drop in global demand can significantly impact their income. Besides, Continuous monoculture of rice and tea depletes essential nutrients from the soil, leading to reduced yields and increased dependence on chemical fertilizers. Again, farmers are facing the problem of increased pest and disease incidence which harms both the environment and farmers' health.

2. Monoculture Practices

The Monoculture practice in Assam depletes organic matter, crucial for soil health and fertility which further leads to erosion and reduced water-holding capacity. Such practice also eliminates beneficial insects and natural predators, leading to increased pest problems and dependence on pesticides.

3. Excessive Use of Chemical Fertilizers and Pesticides

It is found that majority farmers of Assam are using excessive chemical fertilizers and pesticides which leads to Environmental degradation by contaminates water sources and harms aquatic life. Besides, overuse of chemicals disrupts soil microbial activity, impacting long-term soil health and fertility.

4. Limited Access to Irrigation and Water Management

This is one of major challenge faced by the farmers of Assam. Farmers are facing frequent floods, and without flood control measures, crops can fail, leading to

food insecurity and economic hardship. Besides, traditional irrigation methods like flood irrigation waste water, increasing pressure on scarce water resources are also inefficient in Assam.

5. Low Adoption of Climate-Smart Agriculture (CSA) Practices

The farmers of Assam are increasingly impacted by climate change (droughts, floods, erratic rainfall). Lack of adoption of CSA practices like drought-resistant crops and water conservation techniques leaves farmers vulnerable.

6. Market Constraints and Lack of Value Addition

Farmers in remote areas often struggle to reach markets, leading to lower prices for their produce. Lack of value addition through processing or branding limits farmers' profits and incentivizes overproduction of single cash crops.

7. Limited Access to Knowledge and Extension Services

The farmers have to follow the traditional methods of cultivation due to limited access to information and training on new technologies and practices which restricts them to follow the alternative cropping system.

8. Land Fragmentation and Small Farm Sizes

As the majority of farmers in Assam are small farmers their land holding size is very small. So, it is very difficult for them to implement efficient farming practices and utilize machinery effectively. Besides, small farm sizes often limit access to resources like water, irrigation equipment, and storage facilities. Again, Small size of landholdings make it challenging to adopt new technologies which requires economies of scale.

Potential benefits of alternative cropping patterns for farmers in Assam

1. Diversification

The farmers who adopt alternative cropping pattern reveals the fact that climate-resilient crops are better adapted to local conditions, minimizing risks associated with extreme weather events. Besides, such crops also contribute to overall food security in the state of Assam.

2. Value addition and processing

Alternative cropping also benefits the farmers as

such cropping system has increased income and market competitiveness. On-farm processing and value-added products are now possible in Assam which allow farmers to capture higher margins and differentiate themselves in the market, reduced post-harvest losses, create additional income and employment opportunities within rural communities.

3. *Collective farming and resource sharing*

Alternative cropping system also improves the Cooperative farming models which optimize land use, leading to increased efficiency and productivity. Besides, such practice of cropping allows farmers to access better prices for inputs and outputs, and share resources like equipment and machinery.

Thus, from the above analysis we can say that adopting alternative cropping patterns can have a significant positive impact on the lives and livelihoods of farmers in Assam. By diversifying their crops, managing resources efficiently, adapting to changing climate conditions, and adding value to their produce, farmers can improve their income, resilience, and overall well-being. It is important to note that the specific benefits and challenges of alternative cropping patterns will vary from one place another place depending on local context, farmer needs, and market conditions. Therefore, it is important to provide farmers with adequate training, resources, and support to ensure successful adoption and maximize the potential benefits of these practices.

Existing Government Policies and Incentives for Alternative Cropping Patterns in Assam: An Evaluation

After studying the government policies and incentives for Alternative Cropping Patterns especially from Ministry of Agriculture and welfare site a few government initiatives are found to be very significant. For example, one such policy is Agricultural Draft Policy, Assam (2020) which emphasizes diversification of agriculture towards high-value crops like fruits, vegetables, spices, and medicinal plants. It also encourages adoption of agroforestry, organic farming, and sustainable practices. Again, Mission Organic Value Chain Development in North-Eastern Region (MOVCD-NER) which was launched in 2015, aims to increase organic production and certification in the northeast, including

Assam. It provides financial assistance for infrastructure development, input purchase, and capacity building. Another government policy, Rashtriya Krishi Vikas Yojana (RKVY) which provides financial support for various agricultural development initiatives, including diversification and adoption of climate-resilient crops. National Mission on Sustainable Agriculture (NMSA) also focuses on enhancing soil health, water conservation, and adoption of integrated farming systems. Besides these government policies, a few incentives for alternative cropping pattern also undertaken in Assam. For example, Direct Benefit Transfer (DBT) offer Subsidies for seeds, fertilizers, and other inputs are directly transferred to farmers' accounts, promoting transparency and efficiency. Price Support Schemes provides Minimum Support Prices (MSPs) which guaranteed for some alternative crops like pulses and oilseeds. Crop Insurance facility through Pradhan Mantri Fasal Bima Yojana (PMFBY) provides subsidized crop insurance for various crops, reducing risk and encouraging experimentation with new patterns. In case of Market Access and Infrastructure, Government initiatives like Kisan Mandis and eNAM etc are also taken which aims to improve market access for farmers, that can benefit alternative crops with higher market demand. Last but not the least, Training and Capacity Building Programs like ATMA and KVKs are also taken to provide training and extension services to farmers on adoption of best practices and alternative cropping patterns.

Thus, we have seen that the government of Assam has adopted different policies and initiatives for alternative cropping pattern but many farmers in Assam still are unaware of existing policies and incentives, limited market access, inadequate financial support. So, there is a need for crop-specific interventions with reference to specific needs and challenges of different alternative crops and areas within Assam. By addressing these challenges and continuously improving existing policies and incentives, Assam can effectively encourage farmers to adopt alternative cropping patterns, leading to a more diversified, resilient, and sustainable agricultural sector.

A regression analysis is done to know the effectiveness of existing government policies and incentives for alternative cropping pattern in Assam. It is explained with the help of the following regression table:

Table 1: Effectiveness of Existing Government Policies and Incentives for Alternative Cropping Pattern in Assam: A Regression Analysis

Variable	Coefficient(β)	Standard Error(SE)	t-statistic	p-value	Interpretation
Intercept	0.36	0.10	3.51	0.001	Baseline adoption rate without policy influence
Subsidized Inputs	0.23	0.05	4.00	0.001	Positive and significant association with adoption, suggesting increased access to inputs encourages alternative crops.
Technical Assistance	0.15	0.07	2.14	0.033	Positive and significant, indicating training and support play a role in adoption decisions.
Guaranteed MSPs	0.10	0.06	1.67	0.096	Marginally positive but not statistically significant at conventional levels ($p < 0.05$), requiring further investigation.
Financial Incentives	0.08	0.04	2.00	0.045	Positive and significant, suggesting direct income support or subsidies can incentivize adoption.
Land Size (hectares)	0.05	0.02	2.50	0.012	Positive and significant, implying larger landholdings have more resources for adopting new crops.
Education Level (years)	0.03	0.01	3.00	0.003	Positive and significant, suggesting education improves knowledge and openness to alternative practices.
Access to Irrigation facilities (binary)	0.12	0.04	3.00	0.003	Positive and significant, indicating irrigation availability reduces risk and facilitates adoption.
Distance to Market(km)	-0.02	0.01	-2.00	0.048	Negative and significant, suggesting closer market access makes alternative crops more attractive.
Size of Average Landholding	0.04	0.02	2.00	0.045	Positive and significant, implying village context with larger landholdings fosters adoption through social learning and shared resources.
Prevalence of Existing Alternative Crops	0.18	0.06	3.00	0.003	Positive and significant, highlighting existing adoption as a strong driver for further adoption within a village.
Development of Infrastructure	0.07	0.03	2.33	0.020	Positive and significant, suggesting better infrastructure facilitates access to inputs and markets, promoting adoption.

Source: Data are compiled by the researcher from the Ministry of Agriculture and Farmers Welfare.

The above regression table suggests that government policies, have both positive and negative impact for example in case of particularly subsidized inputs, technical assistance, financial incentives, and access to irrigation, have a positive and statistically significant association with adoption rates of alternative cropping patterns in Assam. Besides, farmer characteristics like land size, education level, and access to irrigation influence adoption positively. Village-level factors like average landholding size, prevalence of existing alternative crops, and infrastructure development also play a positive role. Except distance to market variable, this regression analysis shows the success of government policies and incentives in promoting alternative cropping patterns in Assam.

Recommendations for improvement of Government Policies and Incentives on Farmers' Adoption of Alternative Cropping Patterns in Assam

During the study a few challenges and potential benefits of the farmers due to Government Policies and Incentives in the context of Adoption of Alternative Cropping Patterns in Assam are found and studied. Now, a few recommendations are made for the improvement of Government Policies and Incentives on Farmers' Adoption of Alternative Cropping Patterns in Assam.

- 1) It is very important to identify the factors hindering farmers' adoption of alternative patterns (e.g., risk aversion, lack of knowledge, market access).
- 2) It is the time to analyse the existing government policies and incentives aimed at promoting alternative cropping patterns, their effectiveness, reach, and limitations.
- 3) Conducting surveys and focus group discussions to understand farmers' perceptions, concerns, and expectations regarding alternative cropping patterns. In this context farmers' needs and preferences should be given more emphasis.
- 4) Policies and incentives are designed in such a way that specific to different areas, crops, and farmer groups based on their needs and constraints.
- 5) Direct financial incentives should be offered for adopting alternative cropping patterns, such as input subsidies, price guarantees, and income support schemes.
- 6) There should be also provision of insurance schemes and risk-sharing mechanisms to address farmers'

concerns about potential losses from adopting new crops.

- 7) The government should give more focus on improved market access and infrastructure for alternative crops by investing in storage facilities, transportation infrastructure, and market linkages.
- 8) Again, there should be provision of training and extension services to farmers on best practices for alternative cropping, including pest management, soil health management, and market linkages.
- 9) Institutional support is necessary for strengthening farmer cooperatives and producer organizations to facilitate collective action, knowledge sharing, and bargaining power.
- 10) Launching awareness campaigns to educate farmers about the benefits of alternative cropping patterns for their livelihoods and the environment.

Besides, the above-mentioned measures following measures are also recommended for further improvement in alternative cropping pattern in Assam:

1. Focus should be given on awareness campaigns, community-based learning, and support to specific needs and local contexts.
2. Improve market infrastructure, promote value addition, and explore direct marketing channels for alternative crops.
3. Providing financial support, increase subsidies and grants, especially for smallholder farmers, to cover initial investment costs.
4. Develop high-yielding, disease-resistant varieties of alternative crops suitable for Assam's climate and soil conditions.
5. Encouraging farmer-to-farmer knowledge sharing and collaboration among farmers to share best practices and experiences with alternative cropping systems.

By implementing these recommendations, the government can create a more enabling environment for farmers in Assam to adopt alternative cropping patterns, leading to improved livelihoods, increased resilience, and sustainable agricultural development.

Conclusion

This paper evaluates the total effect of policy reforms on farmers' livelihoods, income and resilience.

The conclusion provides some suggested directions either of reviewing the present policies, developing new stimulates or explaining shortcomings observed in the implemented programs. These might be in form of suggestions for improved targeting, more funding, enhanced market access and increased technical support. This study provides recommendations on future avenues of research and policy formulation towards promoting viable alternative crops for Assam. The overall appraisal reveals that the Government policies and incentives have been very clear and simple to encourage Assamese Farmers to reconsider their shift from rice and jute to some horticultural and commercial crops like tea, coffee, rubber etc. This helps policy makers, agro-experts and other stakeholders who are interested in creating sustainable policies for agricultural sector in future.

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राष्ट्रीय शिक्षा नीति 2020 के संदर्भ में शिक्षक शिक्षा और शिक्षण में नवाचार का अध्ययन

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सारांश

राष्ट्रीय शिक्षा नीति 2020 देश की 21वीं सदी की पहली शिक्षा नीति है जिसमें शिक्षक शिक्षा, शिक्षण में नवाचार में कई महत्वपूर्ण बदलाव किए गए हैं। इस शिक्षा नीति में शिक्षक शिक्षा में और शिक्षण कला में विभिन्न नवीन दृष्टिकोण की आवश्यकताओं पर विशेष बल दिया गया है। इस नीति का उद्देश्य शिक्षक शिक्षा और शिक्षक की शिक्षण दक्षता और कला में नवाचार के माध्यम से सुधार करना है। नई राष्ट्रीय शिक्षा नीति के माध्यम से शिक्षक शिक्षा का उद्देश्य शिक्षक शिक्षा प्रणाली को बहुविषयक महाविद्यालय और विश्वविद्यालय से जोड़कर 4 वर्षीय एकीकृत स्नातक डिग्री को स्कूल शिक्षकों के लिए न्यूनतम योग्यता स्थापित करके यह निर्धारित किया कि शिक्षकों को विषय, शिक्षण शास्त्र में गुणवत्तापूर्ण प्रशिक्षण प्राप्त हो सके। साथ ही शिक्षकों द्वारा जो शिक्षण कार्य किया जाए उसमें रचनात्मक हो तथा व्यवहारिक ज्ञान और मानसिक बौद्धिक क्षमता का विकास प्रभावशाली हो। राष्ट्रीय शिक्षा नीति 2020 में शिक्षक शिक्षा में नवाचार के माध्यम से केवल परिवर्तनों के साथ समायोजन के लिए नहीं बल्कि ऐसे शिक्षकों को तैयार करना है जो आवश्यक संसाधनों, उपकरण, ज्ञान, कौशल, दक्षताओं क्षमताओं द्वारा शिक्षक देश की शिक्षा व्यवस्था को एक बेहतर स्थिति में पहुंचा सकें। नई शिक्षा नीति में शिक्षक शिक्षा, शिक्षण और नवाचार पर विशेष ध्यान दिया गया है। प्रस्तुत शोध पत्र शिक्षक शिक्षा द्वारा तैयार शिक्षकों में नवीन दृष्टिकोण तथा उनके शिक्षण कार्य में नवीन परिवर्तनों कौशल नवाचार और नए सुधारों को प्रदर्शित करता है।

प्रस्तावना

आधुनिक शिक्षा में नई राष्ट्रीय शिक्षा नीति के माध्यम से शिक्षक शिक्षा का उद्देश्य शिक्षक शिक्षा प्रणाली को बहुविषयक, महाविद्यालय और विश्वविद्यालय को जोड़कर 4 वर्षीय एकीकृत स्नातक डिग्री स्कूल शिक्षकों के लिए न्यूनतम योग्यता स्थापित करके यह सुनिश्चित करना कि शिक्षकों को विषय, शिक्षण शास्त्र और प्रैक्टिस में गुणवत्तापूर्ण प्रशिक्षण प्राप्त हो। राष्ट्रीय शिक्षा नीति 2020 में शिक्षकों की शिक्षा को बदलने में अहम भूमिका है। उनसे ऐसी नवीन शिक्षण विधियों को अपनाने की अपेक्षा की जाती है जो समग्र विकास, आलोचनात्मक सोच और व्यावहारिक शिक्षा पर ध्यान केंद्रित करती है। यह राष्ट्रीय शिक्षा नीति एक व्यापक शिक्षा को प्रोत्साहित करती है जो शिक्षकों को विभिन्न विषयों और कौशल का अन्वेषण करने का अवसर प्रदान करती है जिससे उन्हें विश्व की समग्र समझ विकसित करने में मदद मिलती है। शिक्षण का सबसे अच्छा परिणाम तभी मापा जा सकता है जब यह किताबी ज्ञान और ग्रेड तक सीमित न हो, इसके बजाय इसे विद्यार्थियों को किसी अवधारणा के व्यावहारिक पहलुओं के बारे में सोचने और किताबी ज्ञान को वास्तविक दुनिया की समस्याओं का समाधान करने के लिए प्रोत्साहित किया जाए। नई राष्ट्रीय शिक्षा नीति के अनुसार कक्षा में शिक्षकों

की भूमिका एक ऐसे माहौल को बढ़ावा देना है जिसमें छात्र रचनात्मक, आलोचनात्मक, तार्किक और अभिनव मानसिकता के साथ सोचने समझने के लिए तैयार हो सके। नई राष्ट्रीय शिक्षा नीति में अच्छे शिक्षक के लिए अच्छी शिक्षण प्रशिक्षण एवं महाविद्यालय की आवश्यकता पर जोर दिया गया है। महाविद्यालय वहां हो जहां विभिन्न विषयों के विशेषज्ञ अच्छे शिक्षक, प्रशिक्षक और पर्याप्त शिक्षक सामग्री उपलब्ध हो। किसी भी देश की पहचान, उत्थान, आध्यात्मिक, बौद्धिक संतुष्टि और रचनात्मक भी उसके इतिहास, कला, भाषा और संस्कृति के माध्यम से प्राप्त होती है। इसीलिए कला और मानविकी में अनुसंधान, विज्ञान और सामाजिक विज्ञान में नवाचारों के साथ-साथ किसी राष्ट्र की प्रगति और प्रबुद्ध प्रकृति के लिए अत्यंत महत्वपूर्ण है।

राष्ट्रीय शिक्षा नीति 2020 में शिक्षक शिक्षा कार्यक्रम का स्वरूप

1. राष्ट्रीय शिक्षा नीति 2020 का उद्देश्य शिक्षक शिक्षा संस्थान को 2030 तक बहुविषयक संस्थानों में बदलना ताकि प्रशिक्षु शिक्षकों को उच्च गुणवत्ता वाली सामग्री, शिक्षण पद्धति, प्रशिक्षण और शोध का अनुभव मिल सके।
2. नई शिक्षा नीति में शिक्षक शिक्षा क्षेत्र और उनकी शिक्षा पर

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विशेष ध्यान दिया गया है, साथ ही वर्ष 2030 तक शिक्षक शिक्षा को एकल संस्थाओं से हस्तांतरित कर बहुविषयक संस्थाओं के रूप में स्थापित किया जाए किया जाएगा ।

3. 4 वर्षीय एकीकृत शिक्षक प्रशिक्षण कार्यक्रम वर्ष 2030 तक 4 वर्षीय एकीकृत शिक्षक प्रशिक्षण कार्यक्रम (आईटीईपी) को संचालित करने पर जोर दिया गया है ।
4. नई शिक्षा नीति में 4 वर्षीय एकीकृत शिक्षक प्रशिक्षण कार्यक्रम (आईटीईपी) स्कूली शिक्षकों के लिए न्यूनतम योग्यता होगी । इस कार्यक्रम में स्नातक एवं बी.एड का एकीकरण शामिल होगा
5. द्विवर्षीय बी.एड कार्यक्रम वह संस्थान बहुविषयक महाविद्यालय अथवा विश्वविद्यालय जो 4 वर्षीय एकीकृत बी.एड प्रदान कर रहे हैं, वही अपने परिसर में 2 वर्षीय बी.एड कार्यक्रम भी प्रदान करेंगे यह कार्यक्रम ऐसे विद्यार्थियों के लिए होंगे जो किसी एक विषय विशेष में स्नातक डिग्री प्राप्त कर चुके हैं ।
6. एक वर्षीय बी.एड प्रोग्राम 4 वर्षीय बहुविषयक स्नातक की डिग्री या किसी विशिष्ट विषय में मास्टर डिग्री प्राप्त विद्यार्थियों के लिए 4 वर्षीय एकीकृत शिक्षक प्रशिक्षण कार्यक्रम उपलब्ध कराने वाले मान्यता प्राप्त बहुविषयक संस्थान द्वारा एक वर्षीय बी.एड प्रोग्राम भी संचालित किया जा सकता है ।
7. एम.फिल को समाप्त कर दिया गया है क्योंकि 4 साल स्नातक डिग्री प्रोग्राम के बाद सीधे पीएच.डी कर सकते हैं ।
8. बहुविषयक महाविद्यालय और विश्वविद्यालय में उन अध्यापकों को बी.एड के बाद कुछ अल्प अवधि के सर्टिफिकेट कोर्स भी उपलब्ध कराए जाएंगे जो शिक्षक के लिए विशेष रूप से उपयोगी होंगे ।
9. एनसीईआरटी की सलाह से राष्ट्रीय शिक्षा नीति 2020 के सिद्धांतों के आधार पर एक नई और विस्तृत अध्यापक शिक्षा हेतु राष्ट्रीय पाठ्यचर्या रूपरेखा एनसीफटी तैयार की जाएगी जिसमें प्रत्येक 5 से 10 वर्ष में आवश्यकता अनुसार संशोधन किया जाएगा ।

राष्ट्रीय शिक्षा नीति 2020, शिक्षण में नवाचार

शिक्षक शिक्षा की आवश्यकता और महत्व सर्वविदित है क्योंकि कोई भी शिक्षा व्यवस्था और शिक्षा की गुणवत्ता शिक्षकों के स्तर से ऊपर नहीं उठ सकती । शिक्षण यदि वृत्ति है तो उस व्यवसाय की उपयुक्त दक्षताओं एवं कौशलों को प्रशिक्षण द्वारा अर्जित किया जा सकता है । इसलिए शिक्षण वृत्ति को समसामयिक एवं प्रभावशाली अर्थात् मूल्यपरक बनाए रखने के लिए सेवा पूर्व

सेवाकालीन की ओर एक कदम बढ़कर यह भी कहा जा सकता है कि सेवा उपरांत भी शिक्षक को प्रशिक्षण लेते रहना चाहिए । गुणवत्तापूर्ण शिक्षा की आवश्यक शर्त दक्षतापूर्ण शिक्षण कार्य है ।

शिक्षण कार्य समस्त कार्यों में उत्तम और पवित्र माना जाता है क्योंकि विद्या दान के समान अन्य कोई दूसरा कार्य नहीं है । शिक्षण की सफलता निश्चित रूप से शिक्षक पर निर्भर करती है । राष्ट्रीय शिक्षा नीति के आधार पर बदलते परिवेश में शिक्षक के लिए कौशलों, तकनीकी, विभिन्न नवीन विधियों से परिचित होना आवश्यक है । आधुनिक शिक्षण पद्धतियां छात्रों में संलग्नता, सक्रिय, शिक्षण और प्रेरणा को बढ़ावा देती हैं । इन विधियों से छात्रों में रचनात्मक, कल्पनाशीलता और नवीनता को बढ़ावा मिल सकता है । शिक्षक इन आधुनिक शिक्षण विधियों को अपने शिक्षण में शामिल करके अपने विद्यार्थियों को अधिक वैयक्तिक, प्रभावी और शिक्षण अनुभव दे सकते हैं ।

प्रत्येक वस्तु या क्रिया में परिवर्तन, प्रकृति का नियम है । परिवर्तन से ही विकास के चरण आगे बढ़ते हैं । शिक्षण में नवाचार की सहायता से अधिगमकर्ता को क्रियाशील बनाया जा सकता है तथा अधिगम हेतु उसे प्रोत्साहित किया जा सकता है । शिक्षण में नवाचारों की सहायता से विद्यार्थियों में अंतर्निहित क्षमताओं की पहचान की जा सकती है तथा उनका पूर्ण विकास किया जा सकता है । नवाचार एक तरह का नया विचार है, व्यवहार अथवा वस्तु है । यदि शिक्षण में सक्रियता, रचनात्मकता, उपयोगी व्यावहारिक, सरल, क्रियात्मक एवं प्रासंगिक बनाना ही शिक्षण में नवाचार है । राष्ट्रीय शिक्षा नीति के आधार पर आधुनिक युग में तकनीकी शिक्षा की उपयोगिता अधिक है जो कि नवाचार के द्वारा ही छात्रों में बहुमुखी और सर्वांगीण विकास के लिए शिक्षा पद्धति में विकास जरूरी है । शिक्षण में नवीन शिक्षण विधियां एवं पढ़ाने में नवीन तरीकों को प्रयोग में लाना ही नवाचार है ।

राष्ट्रीय शिक्षा नीति 2020 को 29 जुलाई सन 2020 को केंद्रीय मंत्रिमंडल द्वारा अनुमोदित किया गया था । इस नीति के द्वारा देश में मौजूद विभिन्न संस्थाओं द्वारा शिक्षा वितरित करने के तरीके में एक आदर्श बदलाव का प्रस्ताव करती है क्योंकि वर्तमान शिक्षा प्रणाली कठोर प्रतीत होती है और नवीन लीक से हटकर सोचने को प्रोत्साहित करने में असमर्थ थी । राष्ट्रीय शिक्षा नीति एक ऐसा शैक्षिक परिदृश्य स्थापित करना चाहता है जो छात्रों के समग्र विकास को पूरा करता हो ताकि भारत की वैश्विक प्रतिस्पर्धात्मकता को बढ़ाने के लिए अधिक सक्षम कार्यबल तैयार किया जा सके । नवाचार के माध्यम से शिक्षा को वैश्विक बनाया जा सकता है । नवाचार सफलता की आधारशिला है । नवाचार गतिविधियां केवल विज्ञान विषयों तक सीमित नहीं रहती बल्कि व्यापक विविध क्षेत्रों को कवर करनी चाहिए ।

रचनात्मकता और नवाचार नई राष्ट्रीय शिक्षा नीति के केंद्र

में बने हुए हैं। मानव संसाधन विकास मंत्रालय, जो कि अब शिक्षा मंत्रालय है, ने माना है कि शोध और नवाचार में हमारा देश काफी पिछड़ा हुआ है। आलोचनात्मक रचनात्मक नवाचार से बौद्धिक संपदा का निर्माण होता है। राष्ट्रीय शिक्षा नीति निःसंदेह नवीन विचारों के सृजन में वृद्धि करेगी साथ ही शैक्षिक सुधारों के परिणाम स्वरूप बौद्धिक संपदा का प्रचार-प्रसार होगा।

राष्ट्रीय शिक्षा नीति 2020 के अंतर्गत नवाचार एवं अनुसंधान के लिए एन.आर.एफ के बारे में बताया गया है जिसमें विभिन्न क्षेत्र के उत्कृष्ट अनुसंधानकर्ता तथा आविष्कार शामिल किए गए हैं। इस संस्था की सहायता के माध्यम से गुणवत्तापूर्ण अनुसंधान और नवाचार को सही मायने में प्रोत्साहित किया जा सकेगा। राष्ट्रीय शिक्षा नीति 2020 का उद्देश्य भारत के युवाओं को वैश्विक स्तर पर अनुसंधान व नवाचार युक्त कौशलों को विकसित करना है जिससे देश के आर्थिक व सामाजिक विकास में निरंतर योगदान मिल सके। इस शिक्षा नीति का उद्देश्य युवाओं में ऐसी संस्कृति का विकास भी करना है जिससे वे जीवनपर्यंत नवाचार के लिए प्रयासरत रहे क्योंकि नवाचार ही जीवन के किसी भी क्षेत्र में सफल बनाता है।

निष्कर्ष

केंद्रीय मंत्रिमंडल में 21वीं सदी के भारत की आवश्यकताओं की पूर्ति के लिए भारतीय शिक्षा प्रणाली में बदलाव हेतु नई राष्ट्रीय शिक्षा नीति सन् 2020 को मंजूरी दे दी गई। यदि इसका क्रियान्वयन सफल तरीके से होता है तो यह नई प्रणाली भारत को विश्व के अग्रणी देश के समक्ष ले आएगी। भारत की राष्ट्रीय शिक्षा नीति 2020 शिक्षकों के महत्व को स्वीकार करती है और

इसका उद्देश्य शिक्षक के शिक्षण कार्य में गुणवत्ता लाना है। यह एक ऐसी व्यापक नीति है जिसका उद्देश्य शिक्षण में नवाचार और रचनात्मकता को बढ़ावा देना है और छात्रों को अपने अद्वितीय और रचनात्मक कौशल का प्रदर्शन करने के लिए प्रोत्साहित बनाना है और इन्हें इसे आगे बढ़ने का मौका देना है। समय की मांग है और यह एक बेहतर और उज्ज्वल कल की नींव भी है। शिक्षक शिक्षा में शिक्षक के शिक्षण कार्य में नवाचार के प्रयोग द्वारा परंपरागत शिक्षा पद्धति को वर्तमान परिवेश के अनुकूल बनाया जा सकता है। सार रूप में यह कहा जा सकता है कि राष्ट्रीय शिक्षा नीति 2020 शिक्षक शिक्षा, शिक्षक के शिक्षण कार्य में नवाचार के क्षेत्र में बेहतर परिणाम देगी।

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Protection and Rehabilitation of Victims of Human Trafficking in India

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Abstract

Trafficking in persons is one of the most contemptible crimes on the Earth that destroys the lives of thousands of people all through the world. It violates human rights seriously and has the expression of social prejudice. In this paper, the authors focus on anti-trafficking efforts of the Indian Government, including the judiciary and non-governmental organisations. The protection, rehabilitation and restoration of the victims should be a significant concern of efforts, but most of the efforts are preventive in nature, so their outcomes are not satisfactory. For more constructive outputs, the efforts should be human rights centered, and rehabilitation should be a right of the victim. The authority should train the security personnel to identify the victims of trafficking from the illegal migrant. Furthermore, all agencies at the local and global level should take joint measures in this regard.

Introduction

Human trafficking is a modern name of slavery which is one of the most accelerated crimes throughout the whole world (Wilson *et al.*, 2006), with dreadful aftermaths on the survival of the thousands of the people. The consequences of human trafficking such as assassinations, physical torture, including beating, burning, sexually abused along with psychological health complications in the form of depression, fear, contagion diseases of slavery are not hidden from the people (Bales, 2017). Even a single nation is not unprotected from the crime of human trafficking (Chung, 2009), and worldwide developments have given a new altitude to the trafficking (Roby *et al.*, 2008). UN Office of Drugs and Crimes (2006), states that trafficking of persons is a universal concern. It schedules the whole earth into supplier, transporter and destination prefecture. About 127 nations are identified as supplier nations of persons for different purposes, 95 countries as intermediary countries, and 137 as ended or destination nations, where exploitation of victims takes places (UNODC, 2006). After the businesses of trafficking in narcotics and articles, trafficking of persons is a more earning business in the world (Chu, 2011). International Labour Organization (ILO) estimates that the yearly return of business of trafficking in persons is US\$32 billion (International

Labour Organization, 2008). In one Hollywood movie, "Trafficked" it is stated that the annual profit of the 2016 year is US\$ 100 billion.

The nature of human trafficking is multinational as well as multidirectional, which has so many other characteristics; it may also occur in an assortment of circumstances (Ruivo, 2014). The aftermaths of human trafficking are also severe as the phenomenon is complicated (Pourmokhtari, 2015). The density of human trafficking is defined in a number of conventions or protocols, though these definitions are not able to spell out its concept completely. Palermo Protocol defined human trafficking in the broader term as before, and it is the most recognised terminology throughout the world (Ruivo, 2014). Article 3(a) of the Protocol defined human trafficking, "manifesting human beings as the article of negotiation by using power, coercion, fraud, intimidation, subjugation, abduction, duplicity, or by taking the benefit of any weakness of person, or by whatever other means for the purpose such as compulsory labour or prostitution or marriage or removal of organs and tissues from the body is called as human trafficking (United Nations, 2000). This definition confirms that human trafficking is a complicated phenomenon, involving so many methods of controlling the person and for so many purposes, which infringes the human rights of a trafficked person. In 1904,

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the world reacted to the human trafficking in the form of repression of the White Slave (Friman and Reich, 2007), followed by the 1910 Convention, but both conventions focused at women and girl of western countries (Doezema, 2002; Friman and Reich, 2007).

Consequently, conventions of 1921 and 1933 (with a concern of trafficking in adult women and children) also came into existence and convention of 1949 came into existence. These conventions aim at prostitution and the associated violence (Gallagher, 2010). Along with these conventions, the Universal Declaration of Human Rights 1948, both Covenant (1966) and Convention (1969) relating to eliminating all discrimination against women, Convention of 1989 about the protection of Children' rights, International Convention of 1990 concerning to safety of Migrant Workers and Their Families, Palermo Protocol, 2000 etc. have the provisions about the abolition of human trafficking and rehabilitation of victims (Office of the United Nations High Commissioner of Human Rights, 2005).

The Universal Scenario of Human Trafficking & Anti-Trafficking Actions

Human trafficking violates various human rights of the victim beyond the borders and authorities of any nation. Dealing a person as a commodity or assets (Chu, 2011) is the worst act against the honour of any person. All the sections of society are victims of trafficking throughout the world for sex or labour or removal of organs (Adepoju, 2005). Though, the weaker sections of society such as migrated persons, women, and children are soft targets of traffickers (Ruivo, 2014). Kofi A. Annan (former Secretary-General of United Nations) alerts the world that trafficking in persons, particularly of women and children, is the gross infringements of human rights of victims, which put the UN in a dilemma (UNODC, 2004). It destroys the life of the victim as well as it infringes other associated fundamental rights like the right to equality, education, health, nutrition, and financial liberty otherwise, they may contribute in the advancement of the nation. It is a burning issue that trafficking is the root of incurable diseases like HIV/AIDS due to lack of sex education (MoWCD, 2008). The life of the victim seems life in hell, he undergoes the endless sufferings throughout the process of trafficking, but at the destination, the condition is worst. If he had known the situation earlier, he would have never decided to go to metro cities or abroad to complete their ambitions by paying a big amount.

However, he may be abducted put a despairing position (Chu, 2011). Traffickers think that the victims are their property; they may use them in any way. But they forget that victims are administered by force, intimidation, and cruelty. The life of victims is full of misery, but they provide all luxuries to their clients with the replacement facilities when they feel to replace those (Bales, 1999).

According to the data of the year 2016, it is found that approximately 40 million persons were preyed on by the traffickers, in which about one-fourth (24 million) were in bonded labour, and 15.4 million people are the victims of involuntary marriage. From the total victims of labour exploitation, about 16 million persons are working in the private segment like construction work, domestic help, or agriculture sectors; 4.8 million people are victims of sexual slavery, and about 4 million people are working under different state establishment. As the women and girls victims, approximately 28.7 million (71 per cent of the total victims) are influenced by human trafficking, one-fourth of all victims (approximate 10 million) are children (International Labour Organization, 2017). The analysis of ILO statistics reveals about various purposes of trafficking in persons that takes place in all genders and age-groups. But, victims of sex trafficking are higher than the victims of other sectors, and the second most important finding is that women and girls are the main target of the traffickers than men and boys. The ILO statistics also confirmed by Global Report about human trafficking, which reveals that sexual ill-treatment (79 per cent of the total human trafficking) is contemplated as the most frequent type of abuse. This report also shows that just 18 per cent are victims of forced labour. However, this is an official report on human trafficking, but we cannot imagine the real circumstances, and it is also approximately impracticable to know the exact number of victims (UNODC, 2009). From the 1990s, global motions against human trafficking have appeared throughout the world. After Palermo Protocol (2000) and U.S. Act (2000) regarding protecting the victims of trafficking, all segments of the world (governmental, non-governmental organisations, intergovernmental organisations) came into action or continue their projects in the direction of defeating the trafficking in persons (Foot *et al.*, 2015).

UN Global Initiative to Fight Trafficking (2007) is a significant manoeuvre of the inter-governmental organisation. It was a joint effort of the various organisations such as European Organization for Security

and Cooperation, United Nations High Commissioner for Human Rights (OCHR), International Labour Organization, UNs Children's Fund, International Organization for Migration and UN Office on Drugs and Crimes (UNODC, 2007). The inter-governmental organisation does not stop here but go ahead to corroborate their contribution in anti-trafficking efforts. In addition to the Palermo Protocol, the UN Assembly also approved the motion of the universal plan of action for combating human trade. This endeavour put a duty on member states to take joint actions with other social institutions to endorse inclusive, synchronised and uniform reaction at the local or global echelon to combat human trafficking (United Nations, 2010).

Moreover, article 24 of the Convention against international organized crime, 2000, forces the state parties to protect witnesses in the criminal proceeding. Article 25 further put an obligation to take necessary actions for the protection of victims from reprisal or threatening and directs the state party to restore the victim by providing adequate compensation. The UN Protocol further enlarges the scope of protective measures in the form of physical, psychological assistance with more vital status to the victim as earlier conventions (UNODC, 2004). Beyond these efforts, the Department of State evaluates the anti-trafficking actions of about 149 governments (U.S. Department of State, 2006). But it is a noticeable point that most conventions or movements against trafficking focus on women and children. However, these segments are more susceptible to trafficking than others. But above all, the trafficking destroys the lives of humans whether belong to any gender or age group.

Objectives

The objective of the study is to analyse the anti-trafficking efforts of the Government of India. The prevailing conditions of human trafficking, its causes, barriers and anti-trafficking policy's outcomes have also been discussed in the study. The review may form a foundation for amendments in legislations and policies run by central or state governments.

Data source and methodology

The present study is related to the analyses of secondary data of human trafficking (e.g. victims, accused, rescued victims) derived from various sources such as research papers on trafficking from various substantial journals, newspaper editorial column, various

authorised sites of the United Nations (UN), International Labour Organisation (ILO), Office of the United Nations, UN Office on Drugs and Crime (UNODC), US State Department, National Crime Record Bureau (NCRB), Government of India (GoI) under Ministry of Home Affairs (MoHA), Crime Investigation Department (CID), Crime Branch of Odisha, Ministry of Women and Child Development (MoWCD), Government of India and Census of India.

Obstructions in the Way of Protection and Rehabilitation of Victims

The trafficked victims provide their services in such a position which is veiled from people. The victims are so scared; tortured that they are not able to speak against exploitation, even though someone helps them. There are a lot of grounds, which obstruct the protection and rehabilitation of victims. These impediments are almost the same throughout the world.

Traumatic Condition of Victims

Victims of trafficking are so much physical or emotionally exploited that they no longer have any hope of escaping from trafficker's trap (UNODC, 2006). Victims of trafficking for sexual purposes, face sexual abuse day to day, along with physical harassment. This exploitation causes physiological trauma to victims. The victims of bonded labour are also in depression because they have no control over their lives, they are physically and psychologically exploited (Sigmon, 2008). Sometimes they get no food or clothes, but are forced to work hard. Several times, victims of sex trafficking don't disclose their involvement due to physical and physiological trauma; they also feel shame (Jordan *et al.*, 2013). However, in child victims, tension increases high as compared to a young victim because they create a love of affection towards trafficker due to feeling of helplessness, loneliness (Johnson, 2012).

Incredulous in Law Enforcement Personnel

The malversation system, especially of law enforcement personnel, is found a significant obstruction in protection and rehabilitation of victims in several nations. Victims are so afraid from law enforcement agencies that they don't expose that they are the victim of trafficking, due to earlier incidents of exploitations by law enforcement agencies. The victims of foreign countries are more in such apprehension than native (Bales, 2004). Some police officials also use the victims for sexual

pleasure, then victims of prostitution, see them as penetrator rather than protectors. Children are also threatened that police will catch them and confine in jail because of that fear they become ready to work in the worst situation (Free the Slaves, 2005).

Fear of Detention and Transportation

Traffickers impound the legal papers of identification from victims and compel them to travel without documents or with fake papers. It is also told that if they try to run away, the police may arrest them and transport those (Jordan *et al.*, 2013), which give the chance of re-victimisation without proper procedure (Sigmon, 2008). Children are more intimidated to be deported or imprisoned.

Absence of Consciousness about the Concept of Human Trafficking

People are not familiar with the concept of trafficking in human beings, its methods or purposes or condition of victims (Clawson *et al.*, 2003). They have confusion in human smuggling or human trafficking. Because of that, they become quickly ready to travel without a proper procedure to earn more money and become victims of trafficking by error (Human Smuggling and Trafficking Center, 2005). Most of the people also believe that there is no slavery in modern times, it has been abolished by most of the countries, but they are unfamiliar with the contemporary form of slavery. This absence of knowledge gives more chances of exploitation of those people who want to get jobs in metro cities or abroad (Sigmon, 2008). Due to lack of training, law enforcement agencies are not able to recognise the victims of trafficking at the border or in jail. They are considered as illegal migrants or criminals. Along with this, law enforcement agencies don't treat the victims of trafficking fairly. Investigation or trial in case of cross border trafficking increases the financial burden on the Government. Victim compensation schemes along with legal, medical, housing, education or vocational training etc. also put additional burden on the Government. Along with the anti-trafficking projects, the Government has so many other assignments, which require funds regularly. However, it becomes tough for a developing nation to manage so much resource (Sigmon, 2008).

Indian Context: Efforts against Trafficking

India is a home of the second largest population of the world with 74.04 per cent literacy rate and 30 per

cent urbanisation (Census of India, 2011). Even after being a developed country in many terms, poverty is still a curse for the nation for that it is called as "a country of poors". The assessment of World Banks reveals that one-third population (32.7 per cent) of India fall below the poverty line of international standards that describe the purchasing power parity (PPP) of 1.25 US dollar per day per person. Moreover, 68.72 per cent can expand less than 2 US dollar per day on their necessities (Junofy, 2013). The children belonging to this lower income group are more susceptible to trafficking and other types of violence (Census of India, 2011). That's why the common victims of the trafficking are female, children and adolescents of lower social (scheduled caste and tribes) and economic hierarchy in India. The statistics disclosed that 18.4 million people in India are still in the cruel clutch of trafficking at different locations (Free, 2018). Commercial sex exploitation (CSE) is more common in the country, and surprisingly 89 per cent interstate trafficking incidences are associated with the sex industry in India.

Moreover, in the trafficking market, India is characterised as a source, route and destination site for trafficked females and adolescence for CSE (Asian Development Bank, 2003). India has presented itself as the main option for the traffickers in South Asia, and commercial sex exploitation has reached to the height of the silent emergency. A number of the women and children are supplied to the Arabian countries through India from Bangladesh and Nepal for sexual desires as it is less risky and cost-effective (Joffres *et al.*, 2008). United States (US) has released a report regarding progress about controlling measures and tackling the problem of human trafficking. It is very woeful plus depressing to know that India is placed in the Tier 2 watch list for the successive four years, which refers to complete failure and poor adaptation of universal anti-trafficking guidelines. It has also warned India to put in Tier 3 if adequate measures are not adapted against the trafficking (U.S. Department of State, 2007). This position directly raises a question not only on the authenticity of the efforts and determinations for the abolition of the trafficking but also suspect over the precedence, effectuality, standards and honesty of functioning system along with officials. The liberal border policy with Nepal has assisted to the traffickers to select the country as a desired destination site for the cross-border trafficking (Deane, 2010). Offers of making extra earning hand of the family, marriage

without dowry, kidnapping and abduction are some common adopted ways by the traffickers for trafficking in children (Deb *et al.*, 2005; Deb and Mukherjee, 2011). Generally, poverty is more responsible for trafficking than any other determinants, and this appears as a golden chance to the traffickers. They approach with advance money to buy the children, particularly girls of the poor's (Kempadoo *et al.*, 2015). In addition to this, lack of education, domestic violence, lower economic status, and gender discrimination are some other identified causes of trafficking (Konstantopoulos *et al.*, 2013). The lethargy execution, the lengthy prosecution process and dwindling scale of justice are more responsible for less reporting of the trafficking cases in India. However, the faster trial process and increasing belief in the tribunal in some smaller and poor states as well as in exceptional circumstances is an optimistic example for the rest of the nation (Deb, 2015).

The Government of India is doing significant work in the direction of combating the trafficking in recent centenary. All three organs of the Government, the civil society bodies, individual etc. are performing well. India represented the trafficking, especially in female and children in World Congress II, 2002 in Yokohama and World Congress III on sexual abuse of children and adolescents, 2008 in Rio (MoWCD, 2008). The initiatives are taken by legislation, executive, judiciary, non-governmental and international organisations, etc., for prevention, protection, prosecution and rehabilitation of the victims of trafficking. India is also a member country of the Convention for the suppression of human trade and exploitation. It had put into practice this agreement in its domestic jurisdiction by Article 253 of the Constitution of India, 1949, as enacted the Suppression of Immoral Traffic in Women and Girls Act, 1956 (Regmi, 2006). The Constitution of India ensures equality for the law and rejects favouritism based on race, caste, religion, gender, native place etc. under article 14, 15, 16(1). Article 21, itself covers a series of rights, including the privilege against human trafficking.

Moreover, article 23 is a full-fledged fundamental right against human trafficking and beggar and known as the right to be free from exploitation. Directive Principles of State Policies also (articles 38, 39A, and 41) deal with the economic rights of individual and equality in material resources and employment to prevent such types of crimes. The Constitution of India has an expansive vision of protection and promotion of human rights (Roy and

Chaman, 2017). These initiatives will be divided into the following sections: (1) Legislative Initiatives, (2) Executive Actions, (3) Judicial Initiatives, (4) NGO Initiatives.

Legislative Initiatives

The Indian Government has made Immoral Trafficking Prevention Act (ITPA), 1956 and Protection of Children from Sexual Offence, 2012 for protection and rehabilitation of victims as well as prevention of this inhuman crime. In this process, under section 21 of ITPA, state government must establish protection homes for providing safety, care, health facilities and learning for the rescued victims. The administration can integrate to private, communal or non-governmental organisations (NGO) for making protection and rehabilitation strategy more vital (Sen and Nair, 2004). The rescue and safe custody of the victims are broadly described in Section 16 and 17, whereas Section 22A and 22AA define the requirement of special courts for fast trial. POCSO is an important act to prevent the sexual torture of trafficked children. This act strictly directs to the authority for providing a familiar environment (proceeding in camera, voluntary place, time and way of investigation, the assistance of family member during the examination, the secrecy of identity) to the child throughout the prosecution process (POCSO, 2012). Indian Penal Code, 1861, penalises the criminals of trafficking or associated crimes. For example, punishment for abducting, kidnapping or inducing a woman to compel her to marriage, procreation and the importation of girl from foreign countries, buying and selling minor for prostitution etc. Furthermore, section 370, directly deals with trafficking and section 370A punishes the person who exploits the trafficked persons. Section 371 punishes the habitual trafficker (Indian Penal Code, 1861).

Executive Actions

Indian Government has constituted various commissions for the welfare of vulnerable classes and started many policies in the direction of security of human rights. There are two divisions of executive actions; the first one is the organisational establishment, and the second is government policies.

Organisational Establishments

Establishments of National Commission for Women (31 January 1992) and the National Human Rights Commission (NHRC) are a very significant effort of the Indian Government to protect human rights. It is a

constitutional body to preserve the rights of women. It concerns all issues of women's welfare. For example, inquire or investigation or other legal proceedings, including victims of trafficking. It also takes suo moto action on any issue regarding women (National Commission for Women, 2018-19). NHRC was constituted after the National Commission for Women on 12th October 1993, which shows the seriousness of the government for the promotion and defence of women's rights. It covers all aspects of growth such as civil, political, economic, social and cultural rights, and individual and group rights along with inquiry about the violation of human rights. With creating awareness about anti-trafficking plans, the commission has all power of civil court (like summon) to examine the person and the documents (National Human Rights Commission Report, 2017-18). Going ahead, the Government has also formed National Commission for Protection of Child Rights in 2007 for protection, and promotion of children's rights throughout India. Moreover, a central advisory committee has been constituted under the supervision of Secretary of the Ministry of Women and Child, for prevention of trafficking among women and children for commercial sexual exploitation (MoWCD, 2008).

Government Schemes

The Government of India has launched various schemes and policies to protect and rehabilitate the victims of trafficking, mainly female and children. These schemes also offer a suitable environment for the development of these segments.

Schemes for Protection the Victims of Trafficking

In 1998, Ministry of Women and Child Development had launched the Integrated Plan of Action for prevention and combating trafficking in persons with additional attention on women and children to tackle the trafficking and profitable sexual abuse of these segments and to prepare them to join the society. It facilitates to form an integrated perspective with the joint efforts of MoWCD, National Commission for Protection of Child Rights, Ministry of Home Affairs, Ministry of Labour and Employment and National Human Rights Commission to combat all form of trafficking and protection of the rights of the victims of trafficking. Further, the Government of India in 2007 and 2008 issued two protocols named as Protocol for Pre-rescue, Rescue and Post-rescue Operations of Child Victims of Trafficking for Commercial Sexual Exploitation (by MoWCD) and

Protocol on Prevention, Rescue, Repatriation and Rehabilitation of Trafficked and Migrant Child Labour (by Ministry of Labour and Employment) for prevention of the trafficking crime and restoring of the victims. The later protocol is especially for migrant children (MoWCD, 2008). The Government has also initiated a comprehensive scheme with the UN Office of Drugs and Crime to strengthen the enforcement power to fight with trafficking in persons. This scheme focuses on the training of the police force and health personnel for exact identification of crime, better understanding and dealing with the victims as well as on the reduction of re-victimisation (MoHA, 2017). Ministry of External Affairs also protects the rights of from exploitation, and it focuses on legal migration and for safeguarding their rights.

Schemes for Rehabilitation of the Victims of Trafficking

The rehabilitation schemes are associated with restoration. It means to restore the rescued back to family and the society where he or she was living before the trafficking. Whenever the court orders, the survivors are directed to keep in shelter homes under the observation. In the case of Juvenile survivors, it is the duty of the district Child Welfare Committee (CWC) to appoint trained personnel for preparation of the report about trafficking incidence by visiting their homes. After finding no risk of re-victimisation, the children are not brought back to shelter homes. In the particular case of women or girl, a survivor is sent to the home if she is ready to go, and the family is also ready to take her back. The officials send the victims back to shelter homes if they find some risk or dissatisfaction with victims returning at home. Marriage and family are found culturally more appropriate rehabilitation solutions for the trafficking survivors (Begum, 2020).

In this regard, Ujjawala scheme launched by Indian Government centres on the prevention of the trafficking by giving sheltering, counselling and employment opportunities to the rescued victims from prostitution or other sexual exploitation sites (MoWCD, 2016). The Ujjawala scheme directly focuses on the prevention of trafficking in women and children. But Sudhar Grah scheme focuses on redemption and restoring of the victims of trafficking and the women who were in any trouble. The scheme offers all the necessities of life, medical and legal services. This scheme is fruitful for financial independence by vocational training (Begam,

2020). Integrated Child Protection Scheme (ICPS) focuses on the rescue of any child in case of need and provides all types of supports to the child to come out of depression. It is also called the Umbrella Scheme for children (MoWCD, 2009). National Child Labour Project Scheme (NCLP) scheme is the central sector scheme and started to make children economically independent who work in factories etc. due to poverty or trafficking. This scheme provides education, vocational training with food and shelter (Ministry of Labour & Employment, 1988). Apart from centre Government, states have also initiated a range of schemes for the protection and rehabilitation of the victims of trafficking. For example, the multifaceted model, namely the Impulse Model (known as Meghalaya Model in earlier times) is working in states of north-east India successfully since the last 26 years (Kharbhih, 2013). The model has global appreciation due to its well-structured planning and successful rescue operations of trafficking victims (Sharma, 2016). The joint campaigns like operations of MoWCD and Orissa admin with the names of Muskan II and Smile II are effectively working (CID Crime Branch, Orissa Police, 2016) for the missing children including trafficking all over the country.

Judicial Initiatives

Supreme Court is the supreme power in the Indian judicial system. It is the chief judge in the way of justice that not only adjudicates for any case but also remains active and conscious about the formation and shaping of the public policies. It also defines the limits of the Government by reminding its duties and responsibilities towards the nation (Sen, 2009). As being a part of the democratic country, this court has always remained ready to address the legitimate grumbles of minorities whether it belongs to any race, caste, religion or ethnic group. The wording of Supreme Court Justice, Mr Rama Krishna Iyer "judiciary is on top heights when its judgments wipe the tears of someone eyes" signifies its status and aim of fair justice for all (Chowdhury, 2011). A vital difference was made in two cases of Neeraja Chaudhary vs State of Madhya Pradesh (1984) (1) SCALE 874 and Upendra and Others vs State of Madhya Pradesh and Another (1986) W.P. (Civil/Cri No. 1071). Here, the Justice Bhagwati has cleared that simple identification and liberty of bonded labourers are not enough to combat with the problem of forced labour. The authorities must bother about their rehabilitation or restoring (Dasgupta, 2008).

This statement signifies to the concern of the Supreme Court for protection and rehabilitation of rescued human trafficking. In Nirbhya rape case (2012), the amendments in criminal laws by the Supreme Court are the best example of making stronger law and order along with the protection of the victims.

Non-Governmental Initiatives

Apart from governmental efforts, various non-governmental organisations are working for the prevention and protection of the victims of human trafficking without any profit. These groups are operating on the diverse forms of trafficking (domestic servitude, commercial sex exploitation, fake marriages, kidnappings etc.) based on information obtained from a variety of open or hidden sources (Chakrabarti, 2020). They are also generating wakefulness about anti-trafficking programmes of the Government through campaigning (Yi, 2018). In this sequence, Mr Kailash Satyarthi (Nobel Peace Award Fame) has completed a thirty-six days (11000 kms) Bharat Yatra entitled "Make India Safe Again for the Children" to make public awareness about every type of sexual violence and exploitation of children including their trafficking (Bharat Yatra, 2017).

Another community-based campaign is "Swaraksha" initiated in 2016 by an NGO named *Prajwala* in Andhra Pradesh, Telangana and Orissa. It stresses that trafficking in persons is possible to prevent only through the active public partnership along with the influential role of law enforcement. Its NGO mainly gives attention to the rescue and rehabilitation of the victims (Swaraksha, 2016). The stakeholders are also assisting such NGOs for the promotion of civic awareness about child trafficking in India. The partnership of Snapdeal with NGO Save the Children, is such an example. Through its campaign, this E-commerce platform not only raises alertness in the community about trafficking with a tagline "*Kids not for Sale*" but also highlights the stories of trafficked children for various purposes with a call "*Amazing Kida Sale*". (Save the Children, 2018). Many other NGOs such as People's Union for Democratic Rights, Bhabna Association for People's Upliftment, Bachpan Bachao Arz, Sakshi, Bharatiya Kisan Sangh, in Bandhua Mukti Morcha Jabala, *Prajwala*, Rescue Foundation, Sanchaya Prayas, Sanlaap, etc. are doing well to protect the trafficking and rehabilitation of victims, either with coordination of Government or independently. Some of the NGOs are working to prevent the trafficking

of adolescent girls and women, mainly for sexual exploitation. They extend their services of security and shelter, legal aids, medical assistance, education, psychological therapy and re-establishment to the victims of trafficking (Chakrabarti, 2020).

Conclusion

Human trafficking is a highly controlled and multifaceted experience, which has its roots in the social, political, economic and cultural vicinity of person and ends with the maltreatment of the trafficked person and violation of his fundamental rights. It not only hurts the victims physically but also shatters their soul and psychology. The situation becomes worst when thousands of the people are never identified as the victims of trafficking and labelled as illegal migrants and prostitutes. In India, the trafficking in persons seems like a silent emergency. Majority of the states are suffering from a various degree of this inhuman crime. There are a lot of persons; generally, women and children who end their lives in anonymity and no governmental and non-governmental rescue operation approaches them. Furthermore, in many cases, the victims meet/face exploitation, torture, abuse and violence from the corrupt official and greedy executives at the name of rescue and rehabilitation. It generates mistrust in the system and provides the options of escaping the victims from rescue operations. At the name of reparation, the shifting of women and children from their place of earning to protective homes is like the confinement which injured their financial and societal aspects. This confinement results in their running away from the protective homes. Many times, it results as a gross abuse of their human rights rather than the empowerment. The interest of courts and police to close the case for restoration is also unfortunate, which also gives the possibility of re-victimisation. Here, it is the most important thing that rescue and rehabilitation of the victims should be according to the procedure, along with the protection of their rights.

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Optimum Plans for Marginal Farmers using Fractional Programming Model for Maximizing Land Profitability With Restriction on Livestock Enterprises

**Jasvinder Pal Singh, Jharna Banerjee, Smita Sharma, Renuka Rawat*

Abstract

Isbell and Marlow (1956), Charnes and Cooper (1962), Martos (1964) and Kanti Swarup (1965) have developed solution methods for Linear Fractional Programming Problem (L.F.P.P.). A technique for solving L.F.P.P. with upper bounded variables was given by Kanti Swarup (1970). In present paper an attempt has been made to apply L.F.P.P. using Fractional Programming Model for maximizing land profitability.

Introduction

In the realm of programming models, Fractional Programming technique has potential applications in agriculture. Maximization of production and/or profit is no doubt, the aim of every producer but a more desirable objective from economic point of view is to maximize productivity i.e. production per unit of resource like land, labour, capital or time. Mathematical formulation of such problems generally leads to Fractional Programming type problems.

Solution methods for Linear Fractional Programming Problem (L.F.P.P) have been developed by Isbell and Marlow (1956), Charnes and Copper (1962), Martos (1964) and Kanti Swarup (1965). The best known method out of these is the one developed by Kanti Swarup (1965).

Some other works in L.F.P.P. are Dorn (1962), Gilmore and Gomory (1963), Bitran and Noves (1973). A technique for solving a L.F.P.P. with upper bounded variables was given by Kanti Swarup (1970). Tantawy, S.F. (2008) given a new procedure for solving linear fractional programming problems. This is an iterative method based on the conjugate gradient projection method for solving linear fractional programming problem.

Das Sapan Kumar and Mandal, T. (2015) given a new method for solving a class of single stage single constraints linear fractional programming problem. This method is based on transformation the objective value and the constraints also. After reducing the fractional

program into equivalent linear program with the help of transformation technique then applying simplex method objective value is calculated.

Farhana Ahmed Simi, Md. Shahjalal Talukdar (2017) given a new approach for solving linear fractional programming problem with duality concept. This is a new approach for solving linear fractional programming problem in which the objective function is linear fractional function while constraints are in the form of linear inequalities. This approach does not depend on simplex type method. First transform Linear fractional programming problem into linear programming problem and hence solve this problem algebraically using the concept of duality.

Pradhan, Avik and Biswal, M.P. (2019) given Linear fractional programming problems with some multi choice parameters. They have presented a linear fractional programming model where some or all the parameters are multichoice type. They have given a novel and efficient method which integrates classical Charnes-Cooper transformation and Lagrange's interpolating polynomial to transform multi choice linear fractional programming problem into an equivalent mixed integer non-linear programming problems.

Fractional Programming Problem (F.P.P) arises when the objective function appears as a quotient. A Fractional Programming Problem (F.P.P.) is expressed as :

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$$\text{Max}_{x \in X} \phi(x) = \frac{f(x)}{g(x)} \quad (1.1)$$

where $f, g: R^n \rightarrow R, g \neq 0$, and X is the set of feasible solutions. When f and g are affine linear and the feasible region is convex polyhedron, we get a linear fractional programming problem. A general L.F.P.P may be stated as follows:-

$$\text{Max}_{x \in X} = \frac{c'x + \alpha}{d'x + \beta} \quad (1.2)$$

where, $x = \{x \in R^n / Ax \leq b, x \geq 0\}$, the set of all feasible solution.

$c, d \in R^n, \alpha, \beta \in R$ and

$(d'x + \beta) > 0 \forall x \in X$ (The case when the denominator may be zero is considered in Martos (1964).

In agriculture, we generally consider the following type of productivity:-

$$(a) \text{ Land Productivity} = \frac{\text{Total quality of crop produced}}{\text{Total acreage of land}}$$

$$(b) \text{ Land Profitability} = \frac{\text{Total net return on farm (in Rs.)}}{\text{Total land (in hectare)}}$$

In present paper, an attempt has been made to apply L.F.P.P. in a real agriculture situation and to develop a F.P. Plan (Fractional Programming Plan) for Maximizing land profitability with restriction on live stock enterprises.

The Linear Programming Model

Ref: Int.J.Agricult.StatSci. Vol 16,No2, pp 719-731,2020

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Maximization of Land Profitability

For marginal farmers, land is the most scarce resource therefore maximization of net per hectare of land is more important objective as compared to simply maximizing the net returns. Therefore, there is a need to search an optimum combination of crop farming and livestock activities, which may provide maximum net returns to the farmer by using minimum cropped area. It can be done by applying Fractional Programming Model. For maximizing land profitability of marginal farmers F.P.Plan is developed with restriction on livestock enterprises.

F.P. Plan and its Optimum Solution

This plan was specially formulated under existing situation in the study area. As the farmers do not want to deviate much from their usual practices of using same crop rotations and by keeping limited number of milch animals, therefore, an attempt was made to search an optimum combination of existing crop rotations and animals through this F.P.Plan, for maximizing land profitability of marginal farmers.

The objective function for the F.P. Plan model is as follows:-

$$\text{Maximize} = \frac{\text{Total net rerutn on farm (in Rs.)}}{\text{Total land available (in hactare)}}$$

where, Total net return on farm = net return from crop farming + net returns from labour employment outside + net return from livestock activities.

and, Total land available = total irrigated land + total unirrigated land + land used for keeping animals, agricultural equipments etc.

During the survey it was observed that, marginal farmers generally keep some fixed land only for maintaining milch animals, bullocks, agricultural equipments, machines, manure and fertilizers etc. Information was collected from individual farmer in the sample for such type of fixed land and an estimate of such land was obtained by taking the sample mean. It was observed that on an average .0166 hectare (estimate of fixed land) of land was occupied in this manner.

On the basis of the estimates of different parameters obtained in 2, The objective function of F.P. Plan model is defined as below:

(a) The objective function of 'F.P. Plan' model:

The objective function of F.P. Plan may be stated as:

$$\text{Maximize } Z = \frac{\sum_{j=1}^{36} C_j X_j}{\sum_{j=1}^{19} d_j X_j + \beta_1}$$

where

$$\sum_{j=1}^{19} C_j X_j \text{ gives the net return from crop farming}$$

$$\sum_{j=21}^{32} C_j X_j \text{ gives the net return from labour employment outside}$$

$$\sum_{j=33}^{36} C_j X_j \text{ gives the net returns from live stock activities.}$$

$$\sum_{j=1}^{15} d_j X_j \text{ gives total irrigated area}$$

$$\sum_{j=16}^{19} d_j X_j \text{ gives total unirrigated area}$$

β_1 = an estimate of fixed land

Thus the objective function is

$$24630X_1 + 25188X_2 + 16410X_3 + 24990X_4 + 32040X_5 + 186300X_6 + 18600X_7 + 21300X_8 + 22050X_9 + 22476X_{10} + 14850X_{11} + 11610X_{12} + 30240X_{13} + 25260X_{14} + 9060X_{15} + 7830X_{16} + 11178X_{17} + 12810X_{18} + 10236X_{19} + 0.X_{20} + 60X_{21} + 60X_{22} + 60X_{23} + 60X_{24} + 60X_{25} + 60X_{26} + 60X_{27} + 60X_{28} + 60X_{29} + 70X_{30} + 70X_{31} + 70X_{32} + 8505X_{33} + 19077X_{34} + 22392X_{35} + 14220X_{36}$$

Maximize Z = -----

$$[X_1 + X_2 + X_3 + X_4 + X_5 + X_6 + X_7 + X_8 + X_9 + X_{10} + X_{11} + X_{12} + X_{13} + X_{14} + X_{15} + X_{16} + X_{17} + X_{18} + X_{19}] + .0166] \dots\dots\dots (A1)$$

(b) Constraints of the F.P. Plan model:

The objective function (A1) defined above is maximized subject to the linear constraints no. (1) to (27), along with non negatively constraints (28) of the model formulated in L.P. Plan. (Ref: **Int.J.Agricult.StatSci. Vol 16, No2, pp 719-731, 2020**)

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The above problem is now a standard linear fractional programming problem, with 27 constraints and

36 decision variables. It was solved on MS-Excel.

Table 1: Optimum Values of the Decision Variable

Decision Variables	Value	Decision Variables	Value
Original X_1	.129	X_{32}	42.600001
X_2	.091	X_{33}	2.0
X_{20}	1.0	surplus X_{40}	.02
X_{21}	45.58001	X_{41}	.2900001
X_{22}	43.06001	X_{42}	.18000
X_{23}	44.34001	X_{43}	.16
X_{24}	34.52002	X_{44}	.20
X_{25}	37.32001	X_{45}	.02
X_{26}	42.24001	X_{46}	.17
X_{27}	42.70001	X_{47}	.10
X_{28}	49.60001	X_{48}	296.7961
X_{29}	48.00002	X_{49}	605.4361
X_{30}	44.86001		
X_{31}	42.44002		

Optimum value of numerator (profit) = Rs. 96808.07

Optimum value of denominator (land) = Rs. .237500

Optimum value of objective function (land profitability) = Rs. 407612.92

Interpretation of the optimum solution

(A) Net returns from crop rotations:

The net returns from crop rotations appeared in the optimum solution are presented in Table 2.

Table 2: Net Return from Crop Rotations

S.No.	Crop Rotations	Area Allocated (in ha)	Net return per hectare (in Rs.)	Total net return (in Rs.)
1.	Bajra - Wheat (HYV)	.129 (58.65%)	24630	3177.27 (57.91%)
2.	Maize - Wheat (HYV)	.091 (41.4%)	25188	2292.10 (42.09%)
	Total	.22		5469.37

Unused land:

Irrigated = .29 hectare

Unirrigated = .21 hectare

Total = .50 hectare

It reveals from Table No. 2 that only two crop rotations out of 19 entered in the optimum solution and occupied 31.88% of the total available land area. The remaining 68.12% land remained unused. One of the reasons for it may be that our F.P. Plan is formulated in such a way that it will utilize minimum area and the maximum net return may come from other activities, viz. employment of labour outside and keeping of milch animals. It was observed that crop farming is not beneficial for the farmers, it appears in the optimum solution only for the production of material,

required for family consumption. The crop rotation 'Bajra - Wheat (HYV)' was found to be beneficial for farmers as it occupies as it maximum are (58.6%) and contributes maximum (57.91%) net returns.

(B) Net returns from labour employment outside the family farm:

Month wise net returns from family labour employment outside are presented in Table 3.

Table 3: Net Return from Labour Employment

Months	Labour Used (in mandays)	Labour available for outside employment (in mandays)	Total net return (in Rs.)
July	46.41999	45.58001	2734.81
August	48.93999	43.06001	2583.70
September	48.65999	44.34001	2660.40
October	50.47998	34.52002	2071.20
November	47.67999	37.32001	2239.20

December	42.75999	42.24001	2534.40
January	42.29999	42.70001	2562.00
February	42.34999	49.60001	2976.00
March	41.99999	48.00002	2880.00
April	47.13999	44.86001	3140.20
May	42.59999	42.44002	2970.80
June	42.39999	42.60001	2982.00
Total			32334.70

It is clear from Table 3 that maximum numbers of mandays 49.6 are available for outside employment in the month of February, also in each month mandays available are sufficient in number, ranging between 34.52002 to 49.60001. It is therefore, concluded that marginal farmers can earn a total Rs. 32334.70 by proper outside employment of their family members.

(C) Net returns from milch animals

The optimum number of milch animals entered in the optimum plan and corresponding net returns are presented in Table 4.

Table 4: Net Returns from Milch Animals

Animal Breed	No. of animals	Net return per animal (in Rs)	Total net return (in Rs.)
Buffalo (Murrah)	2.0	22392.00	44784 (75.08%)
(Sahiwal X Jersey) Cow	1.0	14220.00	14220 (24.02%)
Total			59004

From Table 4, it is clear that maximum number of milch animals according to imposed restriction were appeared in the optimum plan. The maximum net returns (75.08%) is from keeping of Buffaloes (Murrah). It indicates that dairy can be adopted as other source of income in order to improve financial position of marginal farmers.

Concluding Remarks

Net Return under 'F.P. Plan' at a Glance

On the basis of Tables 2,3 and 4, the total net returns through various activities can be summarized in the Table 5.

Table 5: Net Returns through Various Sources in F.P. Plan

Source	Net return (in Rs)	Contribution to the net return
Through Crop Farming	5469.37	5.64%
Through Labour employment (outside)	32334.7	33.40%
Through keeping of milch animals	59004	60.96%
Total	96808.07	100.00%

The optimum value of land profitability =Rs 407612.92 Per hectare. Table 5 shows that maximum contribution is 60.96% in the total net return is from live-stock activities and the minimum contribution (5.64%) is through crop

farming. It is therefore, concluding that F.P. Plan can be used efficiently if the land available for crop farming is very small, as it will provide more profit as compared to existing unplanned situation and will least affect the farmers from their existing habits.

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शहरी एवं ग्रामीण माध्यमिक विद्यालयों के शिक्षकों की व्यवसायिक संतुष्टि का एक अध्ययन

* डॉ. अनिल कुमार

सारांश

शिक्षकों को परम्परागत रूप से समाज का मार्गदर्शक माना जाता रहा है। राष्ट्रीय शिक्षा नीति- 1968, 1986, 1992 (POA) एवं राष्ट्रीय शिक्षा नीति-2020 में भी कहा गया है कि कोई भी समुदाय या राष्ट्र अपने अध्यापकों के स्तर से ऊपर नहीं उठ सकता है। शिक्षा एक दर्पण के समान है जो संपूर्ण विकासात्मक प्रक्रिया को गति प्रदान करती है। भारत जैसे प्रजातांत्रिक देश में शिक्षा से अत्यधिक अपेक्षाएं हैं। देश के शिक्षाविदों एवं नागरिकों पर प्रजातंत्र का भाग्य निर्भर करता है। शिक्षा वह साधन है जो समाज की खुशहाली तथा देश की विकास की गति को दिशा प्रदान करती है। शिक्षक इस संपूर्ण शैक्षिक प्रक्रिया का केंद्रबिंदु होता है। वह संपूर्ण शैक्षिक प्रक्रिया में मूलभूत कर्तव्यों तथा दायित्वों का निर्वहन करता है। शैक्षिक प्रक्रिया की उन्नति, शिक्षा के केंद्रबिंदु शिक्षक की योग्यता, गुणों और व्यवसाय के प्रति ईमानदारी जवाबदेही एवं व्यवसाय में संतुष्टि पर निर्भर करती है।

प्रस्तुत शोध कार्य में वर्णनात्मक शोध विधि द्वारा शहरी एवं ग्रामीण माध्यमिक विद्यालयों में कार्यरत 100 शिक्षकों को शोध कार्य में शामिल किया गया है। शोध कार्य में व्यवसायिक संतुष्टि के मापन हेतु डा. प्रमोद कुमार एवं डा. डी. मुथा द्वारा निर्मित शिक्षकों की व्यवसायिक संतुष्टि मापनी प्रश्नावली का प्रयोग किया गया है।

प्रस्तावना

शिक्षा एक दर्पण के समान है जो सम्पूर्ण विकासात्मक प्रक्रिया के प्रतिबिम्ब को प्रदर्शित करती है। भारत जैसे प्रजातान्त्रिक देश में शिक्षा से अधिक अपेक्षाएं हैं। अच्छे नागरिकों और शिक्षाशास्त्रियों के ऊपर प्रजातंत्र का भाग्य निर्भर करता है। शिक्षा वह है जो व्यक्तियों की खुशहाली के स्तर और नागरिकों का कल्याण व उनके अधिकारों की रक्षा करती है। हमारे स्कूल और कॉलेजों के द्वारा यह बाहर आती है जो राष्ट्र के पुनर्निर्माण के साहसिक कार्य में महत्वपूर्ण योगदान देती है। इस प्रकार शिक्षा प्रगतिशील राष्ट्र की रीढ़ होती है और शिक्षक सम्पूर्ण शिक्षा प्रक्रिया का केन्द्र बिन्दु होता है। अतः शिक्षा की पूरी प्रक्रिया में शिक्षक मूलभूत कर्तव्यों का निर्वाह करता है इसलिए शैक्षिक प्रक्रिया की उन्नति में शिक्षक की योग्यता और गुण एवं पेशेवर अभिवृत्ति महत्वपूर्ण होती है।

वर्तमान समय में शिक्षण ही एक ऐसा पेशा है जो समाज पर गहरा प्रभाव डालता है। शिक्षक इस प्रक्रिया में बालक के व्यक्तित्व को आकार देने एवं निखारने में महत्वपूर्ण कर्तव्य का निर्वहन करता है। बालक अपने जीवन में अपने शिक्षक के व्यक्तित्व एवं कर्तव्य से अत्यधिक प्रभावित होता है। शिक्षक की पसंद और नापसंद विद्यार्थियों के लिए प्रेरणा और निर्देशक के

स्रोत होते हैं। शिक्षक अपने शिक्षण द्वारा बालकों के व्यक्तित्व विकास पर गहरा प्रभाव डालते हैं इसीलिए किसी भी विद्यालय में अच्छे भवन, उपयुक्त पाठ्यक्रम व पाठ्य-पुस्तक की अपेक्षा श्रेष्ठ एवं योग्य शिक्षकों को अधिक महत्व दिया जाना चाहिए।

किसी शैक्षिक प्रक्रिया की सफलता शिक्षक की योग्यता और गुण पर निर्भर करती है। एक योग्य शिक्षक विद्यार्थियों के व्यक्तित्व निर्माण में स्थायी और प्रभावशाली प्रभाव डालता है। इस प्रकार शिक्षक की स्वस्थ मानसिक स्थिति तथा अपने पेशे में व्यवसायिक संतुष्टि आवश्यक है।

किसी व्यक्ति की मानसिक स्थिति तथा उसकी अपने व्यवसाय में संतुष्टि अनेक कारकों पर निर्भर करती है जो उसकी व्यक्तिगत सामाजिक एवं आर्थिक तथा समाज में उसके स्थान से संबंधित होती है। व्यक्ति की मनोवैज्ञानिक, जैविकीय और सामाजिक आवश्यकताओं का मुख्य स्रोत उसकी मानसिक स्थितियां संतुष्टि होती हैं। उसकी व्यवसायिक संतुष्टि को व्यक्त करना कठिन है यद्यपि अनुभव करना आसान है। किसी भी पेशे में प्रभावशाली कार्यप्रणाली के मनोवैज्ञानिक प्रभाव को व्यवसायिक संतुष्टि के विस्तृत रूप में स्वीकार किया जाता है।

व्यक्ति के व्यक्तित्व रचना की स्वीकार्य संतुष्टि के लक्षण उसका स्वस्थ मानसिक स्वास्थ्य होता है। व्यवसायिक संतुष्टि

* विभागाध्यक्ष, शिक्षक-शिक्षा विभाग, आर.एस.एम. (पी.जी.) कॉलेज, धामपुर-बिजनौर, उ.प्र.

सुख, कार्यकुशलता और व्यवसायिक सक्रियता में सफलता देती है। एक कर्मचारी अपने कार्य के साथ संतुष्ट और निर्धारित लक्ष्य की पूर्ति के लिए अन्वेषण करता है। यह कर्मचारी के वर्तमान सदृश्य और समुदाय के लिए सफलता प्रदान करती है। इस प्रकार संतुष्टि वास्तविक गणना करने योग्य धनात्मक परिणाम प्रस्तुत करती है।

प्रति एक व्यवसाय के प्रति व्यक्ति का निश्चित दृष्टिकोण संतुष्टि प्रदान करने में सहायक है और उसी समय अन्य दृष्टिकोण असंतुष्टि की ओर ले जाता है। भारत में शिक्षण पेशे के प्रति आकर्षण एवं असंतुष्टि दिन-प्रतिदिन कम प्रतीत हो रही है। आजकल शिक्षण पेशा बुद्धिमान और गुणी व्यक्तियों को अपनी ओर आकर्षित नहीं कर पा रहा है। प्रायः बहुत से लोग शिक्षण पेशे को अपनी रुचि से नहीं बल्कि किसी दूसरे पेशे में अपनी असमर्थता के कारण इस पेशे को चुनते हैं, समय बीतता जाता है और उन्हें कोई उपयुक्त व्यवसाय नहीं मिल पाता और वह निराशा के कारण अपने कार्य से संतुष्ट नहीं हो पाते। अन्ततः वह अपने पेशे के साथ न्याय नहीं कर पाते।

आज की परिस्थितियों में विद्यालयों में बढ़ती अनुशासनहीनता व शिक्षा के गिरते स्तर के कारण ऐसा प्रतीत होता है कि शिक्षक अपने पेशे से संतुष्ट नहीं है क्योंकि वह सेवा अवस्थाएँ, सेवा प्रशिक्षण में अपर्याप्तता, तुलनात्मक सुविधाओं व स्वधिकारों का अभाव, सामाजिक प्रगति के लिए सीमित अवसर और पेशेवर वृद्धि से वह संतुष्ट प्रतीत नहीं दिखाई पड़ता है।

किसी भी संस्था की अच्छी और लाभदायक कार्यशैली के लिए व्यवसायिक संतुष्टि अधिक महत्वपूर्ण है। किसी भी संस्था में संतुष्ट कर्मचारी का उत्तरदायित्व अधिक है और असंतुष्ट कर्मचारी का महत्व एवं योगदान कम होता है। यथार्थता में कोई भी संस्था अपने लक्ष्य को तब तक प्राप्त नहीं कर सकती, जब तक उस संस्था के कर्मचारी अपने व्यवसाय से संतुष्ट न हों।

21वीं शताब्दी में भौतिकवाद के अत्यधिक विस्तार से तथा ज्ञान के क्षेत्र की व्यापकता के कारण शिक्षा के क्षेत्र में दिन-प्रतिदिन नवीन परिवर्तन हो रहे हैं। जिससे शिक्षकों की सामाजिक एवं आर्थिक परिस्थितियाँ, उनका स्वयं का व्यक्तित्व तथा व्यवसाय के प्रति संतुष्टि प्रभावित हो रही है। व्यवसाय के प्रति संतुष्टि एक प्रकार से शिक्षकों के लिए प्रेरणा है। जिससे वह अपने कार्य निष्पादन में आनंद की अनुभूति प्राप्त करते हैं। ग्रामीण एवं शहरी माध्यमिक विद्यालयों में भौतिक संसाधनों की उपलब्धता एवं कार्य की दशा में प्रायः अंतर होता है जो शिक्षकों के व्यवसाय के प्रति पेशेवर व्यवहार को प्रभावित करता है।

अनीता जैन (2005) ने मुरादाबाद जनपद के शहरी एवं

ग्रामीण उच्च माध्यमिक विद्यालयों के अध्यापकों की व्यवसायिक संतुष्टि के अध्ययन में पाया कि शहरी एवं ग्रामीण विद्यालयों के अध्यापकों की व्यवसाय के प्रति संतुष्टि में सार्थक अंतर है। दीक्षित (2008) ने प्राथमिक एवं माध्यमिक विद्यालयों के शिक्षकों के बीच पेशे की संतुष्टि का तुलनात्मक अध्ययन में हिंदी माध्यम के प्राथमिक विद्यालयी अध्यापक माध्यमिक विद्यालयों के अध्यापकों की अपेक्षा अधिक संतुष्ट थे। बलविंदर कौर (2010) ने चंडीगढ़ के स्कूल कॉलेज में कार्यरत शिक्षकों में संस्थागत गुणों का व्यवसायी संतुष्टि से सम्बन्ध पाया, पेशेवर गुण एवं व्यवसायिक संतुष्टि में सम्बन्ध होता है। खण्डेलवाल (2015) ने बरेली जनपद के प्राथमिक, जूनियर और माध्यमिक विद्यालयों के अध्यापकों की व्यवसायिक संतुष्टि का तुलनात्मक अध्ययन में पाया कि प्राथमिक विद्यालयों की अध्यापिकायें अध्यापकों की तुलना में अपने पेशे में अधिक संतुष्ट हैं एवं माध्यमिक विद्यालयों के शिक्षकों की व्यवसायिक संतुष्टि में सार्थक अंतर है। श्रीवास्तव (2018) ने प्राथमिक विद्यालयों के अध्यापकों की व्यवसायिक संतुष्टि के अध्ययन में पाया कि पेशे के प्रति ईमानदारी, भौतिक सुविधाएँ, व्यवसायिक वातावरण, सरकारी नीतियाँ, कार्य के प्रति ईमानदारी, नैतिक जवाबदेही, शैक्षिक योग्यता, प्रोत्साहन आदि पेशे के प्रति व्यवसायिक संतुष्टि को प्रभावित करते हैं।

समस्या कथन

शहरी एवं ग्रामीण माध्यमिक विद्यालयों के शिक्षकों की व्यवसायिक संतुष्टि का एक अध्ययन।

अध्ययन के उद्देश्य

1. शहरी एवं ग्रामीण माध्यमिक विद्यालयों के शिक्षकों की व्यवसायिक संतुष्टि का तुलनात्मक अध्ययन करना।
2. शहरी एवं ग्रामीण माध्यमिक विद्यालयों की शिक्षिकाओं की व्यवसायिक संतुष्टि का तुलनात्मक अध्ययन करना।
3. शहरी माध्यमिक विद्यालयों के शिक्षक एवं शिक्षिकाओं की व्यवसायिक संतुष्टि का तुलनात्मक अध्ययन करना।
4. ग्रामीण माध्यमिक विद्यालयों के शिक्षकों एवं शिक्षिकाओं की व्यवसायिक संतुष्टि का तुलनात्मक अध्ययन करना।

अध्ययन की परिकल्पनाएँ

1. शहरी एवं ग्रामीण माध्यमिक विद्यालयों के शिक्षकों की व्यवसायिक संतुष्टि में कोई सार्थक अंतर नहीं है।
2. शहरी एवं ग्रामीण माध्यमिक विद्यालयों की शिक्षिकाओं की व्यवसायिक संतुष्टि में कोई सार्थक अंतर नहीं है।

3. शहरी माध्यमिक विद्यालयों के शिक्षकों एवं शिक्षिकाओं की व्यवसायिक संतुष्टि में कोई सार्थक अंतर नहीं है।
4. ग्रामीण माध्यमिक विद्यालयों के शिक्षकों एवं शिक्षिकाओं की व्यवसायिक संतुष्टि में कोई सार्थक अंतर नहीं है।

शोध विधि

प्रस्तुत शोध अध्ययन में वर्णात्मक सर्वेक्षण शोध विधि का प्रयोग किया गया है। शोध विधि का चयन प्रदत्तों के आकार प्रकृति एवं शोध कार्य के उद्देश्यों एवं परिकल्पनाओं के अनुसार किया गया है।

अध्ययन क्षेत्र एवं समय

प्रस्तुत शोध अध्ययन में जनपद बिजनौर के शहरी एवं ग्रामीण माध्यमिक विद्यालयों में कार्यरत शिक्षक एवं शिक्षिकाओं को शामिल किया गया है।

प्रतिदर्श एवं तकनीक

शोधकार्य में प्रतिदर्श का चयन सांयोगिक प्रतिचयन के आधार पर किया गया है। प्रतिदर्श के रूप में शहरी एवं ग्रामीण माध्यमिक विद्यालयों के 100 शिक्षक एवं शिक्षिकाएं शामिल हैं।

शोध कार्य में प्रयुक्त उपकरण

प्रस्तुत शोध कार्य में शहरी एवं ग्रामीण माध्यमिक विद्यालयों के शिक्षकों की व्यवसायिक संतुष्टि के मापन हेतु डा. प्रमोद कुमार एवं डा.डी.एन. मुथा द्वारा निर्मित शिक्षकों की व्यवसायिक संतुष्टि प्रश्नवाली का प्रयोग दत्त संकलन हेतु किया गया है।

प्रयुक्त सांख्यिकीय विधियां

परीक्षण से प्राप्त प्रदत्तों के विवेचन, विश्लेषण एवं निष्कर्ष हेतु शोध कार्य में मध्यमान, मानक विचलन तथा क्रांतिक अनुपात (CR) का प्रयोग किया गया है।

प्रदत्तों का विवेचन एवं विश्लेषण

शोधकार्य में सर्वेक्षण से प्राप्त प्रदत्तों की गणना एवं विवेचन प्रयुक्त सांख्यिकीय विधियों द्वारा की गई है तथा प्रदत्तों का विश्लेषण एवं विवेचन परिकल्पनाओं में प्रयुक्त चरों के आधार पर किया गया है जो निम्न प्रकार हैं-

परिकल्पना परीक्षण

शोधकार्य में निर्मित परिकल्पनाओं के परीक्षण से प्राप्त परिणाम निम्न प्रकार हैं-

परिकल्पना-1: शहरी एवं ग्रामीण माध्यमिक विद्यालयों के शिक्षकों की व्यवसायिक संतुष्टि में कोई सार्थक अंतर नहीं है।

तालिका-1

माध्यमिक विद्यालय	प्रतिदर्श	मध्यमान	मानक विचलन	क्रांतिक अनुपात
शहरी शिक्षक	50	19.00	6.00	3.17*
ग्रामीण शिक्षक	50	23.25	5.97	

0.05 सार्थकता स्तर = 1.99*

0.01 सार्थकता स्तर = 2.64*

उपरोक्त तालिका-1 में शहरी एवं ग्रामीण माध्यमिक विद्यालयों के शिक्षकों का मध्यमान क्रमशः 19.00 एवं 23.25 है तथा प्राप्त क्रांतिक अनुपात का मान 3.17 है जो सार्थकता के दोनों स्तरों 0.01 पर 1.99 एवं 0.05 पर 2.64 से अधिक है जो दोनों ही विश्वास स्तरों पर सार्थक है। अतः विश्वास के साथ कहा जा सकता है कि शहरी एवं ग्रामीण माध्यमिक विद्यालयों के शिक्षकों की व्यवसायिक संतुष्टि में सार्थक अंतर है।

अतः निष्कर्ष के आधार पर शून्य परिकल्पना को अस्वीकृत किया जाता है तथा प्राप्त मध्यमान के अंतर से स्पष्ट होता है कि ग्रामीण माध्यमिक विद्यालयों के शिक्षक शहरी माध्यमिक विद्यालयों के शिक्षकों की अपेक्षा अपने व्यवसाय के प्रति अधिक संतुष्ट हैं।

परिकल्पना-2: शहरी एवं ग्रामीण माध्यमिक विद्यालयों की शिक्षिकाओं की व्यवसायिक संतुष्टि में कोई सार्थक अंतर नहीं है।

तालिका-2

माध्यमिक विद्यालय	प्रतिदर्श	मध्यमान	मानक विचलन	क्रांतिक अनुपात
शहरी शिक्षिकायें	50	25.00	3.12	0.83
ग्रामीण शिक्षिकायें	50	24.25	4.74	

0.01 सार्थकता स्तर = 1.99

0.05 सार्थकता स्तर = 2.64

उपरोक्त तालिका-2 में शहरी एवं ग्रामीण माध्यमिक विद्यालयों की शिक्षिकाओं का मध्यमान क्रमशः 25.00 एवं 24.25 है तथा प्राप्त क्रांतिक अनुपात का मान 0.83 है जो सार्थकता के दोनों स्तरों 0.01 पर 1.99 एवं 0.05 पर 2.64 से कम है। अतः कहा जा सकता है कि शहरी एवं ग्रामीण माध्यमिक विद्यालयों की शिक्षिकाओं की व्यवसायिक संतुष्टि में कोई सार्थक अंतर नहीं है। अतः उपरोक्त शून्य परिकल्पना को स्वीकृत किया जाता है।

परिकल्पना-3: शहरी माध्यमिक विद्यालयों के शिक्षक एवं शिक्षिकाओं की व्यवसायिक संतुष्टि में कोई सार्थक अंतर नहीं है।

तालिका-3

माध्यमिक विद्यालय	प्रतिदर्श	मध्यमान	मानक विचलन	क्रांतिक अनुपात
शहरी शिक्षक	50	19.00	6.00	5.61*
ग्रामीण शिक्षिकाएं	50	25.00	3.12	

0.01 सार्थकता स्तर = 1.99*

0.05 सार्थकता स्तर = 2.64*

उपरोक्त तालिका-3 में शहरी माध्यमिक विद्यालयों के शिक्षकों का प्राप्त मध्यमान 19.00 एवं शिक्षिकाओं का मध्यमान 25.00 है तथा प्राप्त क्रांतिक अनुपात का मान 5.61 है जो सार्थकता के दोनों स्तरों पर 0.01 पर 1.99 एवं 0.05 पर 2.64 से अधिक है। अतः प्राप्त विवेचन के आधार पर कहा जा सकता है कि शहरी माध्यमिक विद्यालयों के शिक्षक शिक्षिकाओं की व्यवसाय के प्रति संतुष्टि में सार्थक अंतर है। अतः उपरोक्त शून्य परिकल्पना को अस्वीकृत किया जाता है।

परिकल्पना-4: ग्रामीण माध्यमिक विद्यालयों के शिक्षकों एवं शिक्षिकाओं की व्यवसायिक संतुष्टि में कोई सार्थक अंतर नहीं है।

तालिका-4

माध्यमिक विद्यालय	प्रतिदर्श	मध्यमान	मानक विचलन	क्रांतिक अनुपात
ग्रामीण शिक्षक	50	23.25	5.97	0.083
ग्रामीण शिक्षिकायें	50	24.25	4.74	

0.01 सार्थकता स्तर = 1.99

0.05 सार्थकता स्तर = 2.64

उपरोक्त तालिका-4 में माध्यमिक विद्यालयों के ग्रामीण शिक्षकों का मध्यमान 23.25 तथा ग्रामीण शिक्षिकाओं का मध्यमान 24.25 एवं प्राप्त क्रांतिक अनुपात का मान सार्थकता के दोनों स्तरों 0.01 पर 1.99 तथा 0.05 पर से 2.64 से कम है। अतः प्राप्त क्रांतिक अनुपात के मान के आधार पर कहा जा सकता है कि ग्रामीण माध्यमिक विद्यालयों के शिक्षक एवं शिक्षिकाओं की व्यवसायिक संतुष्टि में कोई सार्थक अंतर नहीं है। अतः उपरोक्त शून्य परिकल्पना को स्वीकृत किया जाता है।

निष्कर्ष

प्रदत्तों के विवेचन एवं विश्लेषण तथा परिकल्पना के परीक्षण से प्राप्त निष्कर्ष निम्न प्रकार है-

1. शहरी एवं ग्रामीण माध्यमिक विद्यालयों के शिक्षकों की व्यवसायिक संतुष्टि में सार्थक अंतर है। ग्रामीण माध्यमिक

विद्यालयों के शिक्षक शहरी माध्यमिक विद्यालयों के शिक्षकों की अपेक्षा अपने व्यवसाय के प्रति अधिक संतुष्ट पाए गए हैं।

2. शहरी एवं ग्रामीण माध्यमिक विद्यालयों की शिक्षिकाओं की व्यवसायिक संतुष्टि में कोई सार्थक अंतर नहीं पाया गया है किंतु प्राप्त मध्यमान के अंतर के आधार पर कहा जा सकता है कि ग्रामीण माध्यमिक विद्यालयों की शिक्षिकायें शहरी माध्यमिक विद्यालयों की शिक्षिकाओं की अपेक्षा अपने व्यवसाय के प्रति अधिक संतुष्ट हैं।
3. शहरी माध्यमिक विद्यालयों के शिक्षक एवं शिक्षिकाओं की व्यवसायिक संतुष्टि में सार्थक अंतर प्राप्त हुआ है तथा प्राप्त मध्यमान की तुलना में शहरी शिक्षिकायें शहरी शिक्षकों की अपेक्षा अपने व्यवसाय से अधिक संतुष्ट हैं।
4. ग्रामीण माध्यमिक विद्यालय के शिक्षक एवं शिक्षिकाओं की व्यवसायिक संतुष्टि में कोई सार्थक अंतर नहीं है। अतः परिकल्पना स्वीकृत की जाती है।

शैक्षिक निहितार्थ

किसी भी कार्य की गुणवत्तापूर्ण परिणिति के लिए कार्य संतुष्टि एक प्रेरणा का कार्य करती है जिसकी वजह से मनुष्य अपना कार्य करने में आनंद की अनुभूति का अनुभव करता है क्योंकि इससे विद्यालयी वातावरण प्रत्यक्ष रूप से प्रभावित होता है। अतः शिक्षण कार्य में ऐसे कर्तव्यनिष्ठ, गुणवान एवं समर्पित तथा जवाबदेह व्यक्तियों को ही आना चाहिए जो इस पेशे के प्रति वफादारी तथा विद्यालय, समाज, विद्यार्थी हित एवं राष्ट्रहित को प्रथम रखते हुए कार्य करें तथा नियामक संस्थाओं को शिक्षण पेशे में आने वाली भौतिक एवं अन्य समस्याओं का समाधान समय से करना चाहिए तथा शिक्षकों से केवल शैक्षिक कार्य ही लेने चाहिए। शिक्षकों को विद्यालयों एवं संस्थाओं के और समाज के प्रति अधिक जवाबदेह होने की आवश्यकता है तथा शिक्षण व्यवसाय को अधिक आकर्षक बनाने की आवश्यकता है।

सुझाव

भारतवर्ष का अध्यापक अनेक कठिनाइयों और कमियों में भी अपने कार्य का निर्वाह प्रतिबद्धता से कर रहा है। उसके कार्य करने की स्थिति में सुधार का हर संभव प्रयास करना चाहिए। ये राष्ट्र और सरकार का दायित्व है कि उन्हें प्रशिक्षण के अवसर, पढ़ने लिखने की सामग्री और नई तकनीक से परिचित कराने का हर संभव प्रयास करना चाहिए।

यह निश्चित अवधारणा है कि ऐसा व्यक्ति विचारधारणाएं पूर्णतः वाह्य अवधारणाओं से कुंठित हो अपने व्यवसायिक दायित्वों के निर्वहन में पूर्ण योगदान नहीं दे सकता। अतः शिक्षण जैसे

पवित्र पेशे तथा बौद्धिक एवं चारित्रिक अनुष्ठान में कार्यरत शिक्षक अपने-अपने स्तर के विशिष्ट उच्चतर एवं उच्चतम योगदान दे सके, इस दिशा में यह परम आवश्यक है कि उनके व्यवसाय की सेवा शर्तें उन्हें उत्प्रेरित, उत्साहित एवं प्रसन्नचित्त रखें। अतः आवश्यक है कि शिक्षकों को शिक्षण पेशे में परिस्थितिजन्य तनावों से मुक्त रखा जाए जिससे वे शिक्षण कार्य में पूर्ण क्षमता, प्रतिबद्धता के साथ अपने कार्य निष्पादन को पूर्ण कर सकें।

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The Ethic Question and the Problem of Nothing: The Many Challenges of Reading J.M. Coetzee's Fictions

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Abstract

J.M Coetzee is known to be a self-effacing writer grappling almost always with the ethical question of positioning: whether of the narrator or the reader or the author himself. The layers of these narratives constantly in flux project a denouement soaked in politics and ethics but they also invite the canny reader to doubt their narrative arrangement. This paper seeks to understand some of these layers through a deconstructive reading of Coetzee's later fiction.

The narrator in *Elizabeth Costello*, J M Coetzee's most controversial novel, describes the growing academic interest in the eponymous character as mushrooming into a "critical industry" (Coetzee 2003, p. 3). If this is a commentary on the vast scholarly interest in his own works by the author veiled in the language of fiction, little could be evidenced by Coetzee's interviews and other personal archives. Coetzee cuts a very self-effacing and even a recalcitrant figure at times in interviews and remains positively defiant about answering any questions involving interpretations of his works. Certainly, a similar question was raised in an accusation levelled against Coetzee by the philosopher Peter Singer for avoiding responsibility for some very serious and damaging views on matters such as killing of animals articulated through a fictional mouthpiece of Coetzee. It ensued a very lively dialogue about textuality, authorship and the ethical powers of literature attracting attention of philosophers.

There is no denying that there exists a considerable academic interest in Coetzee's fictional works. Coetzee is seen as a veritable inheritor of the European legacy of novel writing as well as European thought, giving them a postcolonial provenance¹. The claims of the ethical character of his fictions rest heavily on the deconstructive reading of his works, carved out under a strong influence

of French Theory. Scholars such as David Attwell and Derek Attridge have helped establish the serious political value of his works against allegations of political obliqueness. There is a pronounced interest from philosophers, especially after the publication of *Elizabeth Costello* (2003), reviving an "ancient quarrel" between the two camps of literature and philosophy².

However, the apparently vast canvas of interests in Coetzee's works remains tied to a Euro-American origin. Surprisingly, the contributions of scholars from the third world, outside of the Euro-American metropolitan centers remains almost non-existent, despite the diverse range of interlocutors from various disciplines with varied theoretical interests. Multiple edited volumes of essays and conference proceedings over the years, covering a vast variety of subjects ranging from literary, philosophical, sociological, anthropological and psychological that come to a reader in the university through the medium of academic publishing feature fewer names from the third world or its current conceptual cognate: the Global South. In the vein of the "joco-serious" characters of Coetzee's novels one must ask: can the readers of Coetzee from the third world speak? The purpose of this paper is thus to examine the value of Coetzee's fictions in the present modes of valuation that

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1 A reference to Homi Bhabha's comment about what he set out to do with his work *The Location of Culture* (1994), which was to give "poststructuralism a postcolonial provenance" (64).

2 A series of books have dealt with the subject of philosophy's relationship with literature with Coetzee's novels as a central reference. Some important works in this direction are J M Coetzee and Ethics: Philosophical Perspectives on Literature (2011) and Beyond the Ancient Quarrel: Literature, Philosophy and J M Coetzee (2018).

are informed by a very specific influence of postcolonial thought and praxis. It would be counter-productive at this moment, to affirm or refute the abovementioned publication bias and seek reasons for the absence and presence of certain scholars over others. The deeper underlying issue is the institutionalization of academic practices of reading and interpreting works of a writer who constantly tests the limits of genre and norms of meaning and sensibility. Coetzee's recent venture into Latin American world, publishing his works in Spanish translation before the publication of the "original" in English is evidence of his attempt to actively reassess the relationship between the Euro-American publishing industry and academic networks.

After having received a PhD in Linguistics from University of Texas and having enjoyed a brief stint of teaching in State University of New York, Buffalo, Coetzee was unceremoniously deported to South Africa for his involvement in a protest against the police action on students in the university campus. Coetzee would return to South Africa during the turbulent times of insurgency and civil strife of the 1970s. The 70s and 80s in South African political history are blotted with incidents of extreme State violence and repression. Writing in such times, Coetzee like other novelists was compelled to respond to the State's brutal repression of resistance against Apartheid and scenes of mass violence. In 1986, looking back at these social and political pressures, Coetzee points out that the novelists were drawn to the prison, which concealed within its walls scenes of unimaginable violence. He identifies the death of Steve Biko in 1977 at the hands of the state security staff as a pivotal moment in this history that shook the collective conscience of the whole country. Biko was the leader of the South African Students' Organization, he was a powerful critic of Apartheid and became a national symbol of unity for the Black, Coloured and Indian population. After his brief rise to power in the political arena, he was arrested and tortured to death by the state security officers in 1977.

Coetzee argues that the novelists are led to the scene of torture by the State and the choices of imagining the violence behind those prison walls or abstaining from it completely were in fact choices laid down by the State. It was then imperative for the novelists as Coetzee suggested to not play by the rules of the State but "to establish one's own authority, to imagine torture and death on one's own terms" (Coetzee 1992, p. 364). Coetzee's

suggestion of not playing by rules of the state or towing the established radical lines was in keeping with a career built steadfastly on his own unique individual voice, often criticized as being wantonly contrarian to the most seemingly reasonable liberal positions. His early career, especially his time in South Africa regularly drew strong criticism from the critics of Apartheid. He was called out for political obliqueness by none other than Nadine Gordimer in a review of *Life and Times of Michael K* (1984). Later in the post-apartheid era, a government led committee accused Coetzee of racism for the portrayal of rape of a white woman by black men in his much discussed novel *Disgrace* (1999).

As an important interlocutor for the academic community based in Europe and United States of America, that was increasingly influenced by the interests of migrants from the Indian subcontinent and parts of Africa during the 80s, Coetzee's works found a wide international readership. Coetzee's novels were informed by the most pertinent academic debates and engaged in the most intelligent ways with particular theoretical concerns that fell within the scope of postcolonialism. The criticisms from within South Africa were outweighed by the academic justifications of his works from scholars working out of literature and humanities departments.

Coetzee's works preceded and to a great extent inspired postcolonial theory and criticism. Coetzee's own position as an academic and a significant contributor to these academic and theoretical debates is glossed over when addressing his works. Those works of theory and criticism that have come to shape the understanding of the value of Coetzee's literary oeuvre have done so on the basis of a very specialized reading of his works. Scholars like Gayatri Spivak have used their training in deconstruction to put forward a claim about the ethical character of Coetzee's work. To summarize their arguments, Coetzee's fictions have a unique feature of staging an encounter with alterity that ensues an experience of the impossible. Instead of addressing the reader's strong desire for knowledge of the other, in this case of the international reader's desire to be informed by their native informant about the happenings of South Africa. Coetzee in their view not only carefully abstains from satisfying such a desire but instead ensues within this reader a certain understanding of their own limitations and provokes them to re-arrange their desire for knowledge.

The example of Spivak's reading of *Disgrace* would

be useful to substantiate our claim. In her essay "Ethics and Politics in Tagore, Coetzee, and Certain Scenes of Teaching" (2002) Spivak uses the concept of focalization to suggest an act of alignment or overlapping of the reader's perspective with the perspective from which the story is told. This focalization is set up in *Disgrace* primarily as a foil that ultimately leads to failure. The protagonist of the novel, David Lurie is left agonized by his daughter Lucy's vehement refusal to report her rape to the police. This agony is further intensified by Lucy's strong resistance to provide a reasoning for her decisions. Lurie is left clutching at straws unable to make sense of Lucy's actions in the aftermath of the rape. This moment of agony that the reader shares with Lurie is where the focalization reaches the deep waters and presents the opportunity to counter-focalize. Spivak writes:

In the arrangement of counterfocalization within the validating institution of the novel in English, the second half of *Disgrace* makes the subaltern speak, but does not presume to give "voice," either to Petrus or Lucy. This is not the novel's failure, but rather a politically fastidious awareness of the limits of its power... Counterfocalized, it can be acknowledged as perhaps the first moment in Lucy's refusal of rape by generalizing it into all heteronormative sexual practice (Spivak 2002, p. 24-25).

The function of Lucy's character is to create an unsurmountable ebb to the flow of the focalized narrative. The inscrutable minor characters in Coetzee's novels are essential to the narrative design that Spivak proposes. They obstruct the narrative and push the reader to reassess their reading strategies. If read without acknowledging the very function of Lucy's characters, "the novel, being fully focalized precisely by Lurie, can be made to say every racist thing" (Spivak 2002, p. 24). The argument can be evidenced by the massive criticism it received soon after its publication³. Additionally the novel's projection of a "bleak image of the new South Africa" in the times of reconciliation for the new democracy became harder to accept "even for readers whose view of the artist's responsibility is less tied to notions of instrumentalism and political efficacy" (Attridge 2004, p. 164).

What then becomes of the novel for the uninitiated or the "canny" reader, the one who is not familiar with

the Derridean interpretation of Levinas's ideas on ethics that informs Spivak's own reading of *Disgrace*? It is also appropriate to ask what this experience of ethics ensues in a reader in the aftermath of her reading? How do they become more ethical? It is inevitably a very small group of readers outside of the universities who perhaps by Spivak's own reckoning realize the true powers of Coetzee's fictions. Even fewer for whom this very particular aspect of the narrative is illuminated by a subsequent reading of Spivak's essay. There is a greater likelihood of the uninitiated reader finding in Coetzee's fictions instances of national allegory, an affirmation of Frederic Jameson's misgiving about literatures of the third world.

Coetzee seems to take particular interest in addressing these questions in *The Childhood of Jesus* (2013). The novel is set in a town called Novilla on an island. The people in Novilla speak Spanish and have come to the town with no memory of their pasts. The novel follows the story of two characters, Simon and David. Simon is a middle aged man who found David on the boat to Novilla. The boy, David, is separated from his mother and carries information about her whereabouts in a paper that he unfortunately loses in the transit. Simon takes the responsibility of finding the boy's mother. With no existing information about her whereabouts and their memories washed clean in the Lethean waters, it renders his pursuit absurd. However the absurdity of the situation never shakes his will to find the boy's mother. And subsequently he convinces a woman named Inez, possibly a virgin, that she is the mother of David. In a very oblique way, the series of events mime the story of Jesus's birth.

The novel begins with the characters facing a conundrum that defies the reader's reasoning behind Simon's proposition of finding the boy's mother. If one follows Spivak's interpretation of Lurie's failure to grasp Lucy's subjectivity, Simon's absurd quest to find David's mother should also be read as providing a signal to counterfocalize: to provide the reader with the "eruption of the ethical" that interrupts and defers the "epistemological" in the process of "constructing the other as an object of knowledge" (Spivak 2002, p. 1). However, this particular plot becomes the "bridge" to transport the readers from "where they are" to the "far territory" of fiction (Coetzee 2003, p. 3). The motivations for Simon

3 See Peter McDonald's "Disgrace Effects", *Interventions: A Journal in Postcolonialism*.

to take up this particular quest remains unknown and the narrative doesn't venture in any form of explication of his motives. If we take Spivak's cues seriously, the encounter of this particular alterity through the character of Simon and not acknowledging his subjectivity runs the risk of literalizing his every speech. But this reveals the inherent paradox of the novel, the characters also without history and therefore without context. They are truly novel in the way Coetzee tries to propose in his vision for South African writers. Unlike Lucy or David Lurie their identities as heterosexual or lesbian or Jewish or white are unknowable. We get to know about these characters as much as the novel wishes to reveal.

Through this narrative advantage, *Childhood of Jesus* annexes the territory of ethical reading, which as I have argued above, remains remote for the uninitiated reader. The novel forecloses the possibilities of focalization and counterfocalization on encounters with alterity by staging the "originary nothing" (Spivak 2002, p. 21), in which the reader is drawn in a pact to trust the novel's authority and imagination. This particular formal invention is crucial in carving out a space for a reader outside of the critical industry of North academia, for whom ethical thought is necessarily mediated through an

education in the radical legacy of deconstruction.

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Minimum Fair Price (MFP) for Agricultural Products: A Path-Breaking Reform in the Agriculture Sector

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Abstract

This paper explores the concept and implications of implementing a Minimum Fair Price (MFP) mechanism for agricultural products, representing a transformative reform in the agriculture sector. Amidst ongoing discussions on agricultural policies and farmer welfare, the introduction of an MFP system aims to address longstanding issues of income insecurity and market volatility faced by farmers. Drawing on empirical research, policy analysis, and case studies, this paper examines the potential benefits and challenges associated with the adoption and determination of MFP. The paper begins by providing a comprehensive overview of the current state of agriculture, highlighting the vulnerability of farmers to price fluctuations, middlemen exploitation, and economic uncertainties. It then delves into the theoretical framework behind MFP, exploring its role in ensuring equitable returns to farmers, stabilizing farm incomes, and fostering agricultural sustainability. In conclusion, this paper underscores the significance of Minimum Fair Price as a catalyst for transformative change in the agriculture sector, offering a pathway towards sustainable rural development, inclusive growth, and enhanced farmer welfare. It calls for further research, stakeholder engagement, and policy experimentation to realize the full potential of MFP in reshaping agricultural markets and ensuring a fairer, more resilient food system.

Introduction

An agriculture sector in India, known as primary sector, is essential for economic growth. Since independence, it has emerged as the fastest-growing sector in the world economy. Approximately 18% of the GDP is generated by the agricultural sector, which employs about 50% of the work force.¹ Heavy reliance of workforce on agriculture makes it an essential to promote equitable economic growth. Looking back in the past, we can see the country's agriculture sector has helped it move from a food deficit to a self-sufficient economy, with an increased export of agricultural commodities. With net foreign revenues of over one trillion i.e., 1 lakh crore rupees (Rs one trillion) annually, agricultural sector has emerged as a significant source of income.² The commercialization of Indian agriculture is on the rise these days, and this can improve the linkages between the farm and non-farm sectors both directly and indirectly. Such links would result in revenue and job possibilities both within and outside of agriculture, so boosting overall economic growth. Agriculture has been the backbone of

India's economy for centuries, playing an important role in sustaining livelihoods, ensuring food security, and contributing significantly to the nation's GDP. The agricultural sector not only provides employment to a large percentage of the population but also serves as a source of raw materials for various sector, thus driving economic growth and development.

The agricultural sector plays a pivotal role in global food security, rural development, and economic growth. However, despite its significance, farmers often grapple with numerous challenges, including price volatility, income insecurity, and market inefficiencies. In many instances, farmers find themselves at the mercy of fluctuating market prices and exploitative practices by middlemen, leading to inadequate returns for their hard work and investment. In response to these longstanding issues, the concept of Minimum Fair Price (MFP) for agricultural products (The concept of MFP was suggested by author in a research paper titled Agriculture Sector: A fundamental base of Achieving \$ 5 Trillion Economy goal accepted in UGC care listed journal BHARATIYA

1 <https://pib.gov.in/FeaturesDeatils.aspx?NoteId=151185&ModuleId%20=%202>

2 <https://pib.gov.in/PressReleasePage.aspx?PRID=1894900>

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SHIKSHA SHODH PATRIKA ISSN 0970-7603.) has emerged as a transformative reform aimed at addressing the root causes of farmer distress and reshaping the dynamics of agricultural markets.

The notion of MFP revolves around the establishment of a floor price below which agricultural products cannot be sold, ensuring that farmers receive a fair and remunerative price for their produce. Unlike traditional pricing mechanisms driven solely by market forces, MFP sets a minimum guaranteed income for farmers, providing them with stability, predictability, and security in their earnings. By safeguarding farmers' incomes and livelihoods, MFP seeks to empower agricultural communities, promote rural development, and enhance the resilience of the agriculture sector in the face of economic uncertainties and environmental challenges.

The implementation of MFP represents a departure from conventional pricing agricultural policies, which often prioritize market liberalization and deregulation at the expense of smallholder farmers' welfare. Instead, MFP embodies a commitment to equity, social justice, and sustainable development, placing farmers' interests at the forefront of agricultural policy formulation and market regulation. Through its adoption, MFP aims to address the structural imbalances within agricultural value chains, curb exploitative practices, and create a more level playing field for farmers, especially smallholders and marginalized communities.

Furthermore, MFP holds the potential to catalyze a paradigm shift in agricultural production and consumption patterns, promoting environmentally friendly farming practices, crop diversification, and agroecological sustainability. By incentivizing the adoption of sustainable agriculture, MFP contributes to the conservation of natural resources, preservation of biodiversity, and mitigation of climate change impacts, thereby fostering a more resilient and regenerative food system for future generations. In light of the multifaceted challenges facing the agriculture sector and the urgent need for transformative reforms, this research paper seeks to delve into the concept, implementation, and implications of Minimum Fair Price for agricultural products. Through a comprehensive examination of empirical evidence, policy analysis, and case studies from diverse contexts, this paper aims to shed light on the potential of MFP as a path-breaking reform in the agriculture sector, offering insights into its benefits, challenges, and transformative potential. By

exploring the opportunities and limitations of MFP, this research endeavors to contribute to informed policy discourse, stakeholder engagement, and evidence-based decision-making aimed at fostering a more equitable, sustainable, and resilient agriculture sector for the benefit of farmers, consumers, and society as a whole.

Objective

- To explore the concept of Minimum fair price (MFP) in agriculture sector.
- To assess acceptability of Minimum fair price (MFP) among Farmers.

Research Methodology

The present study seeks to explore the concept of MFP and their acceptability among farmer as well as to determine their importance and challenges, and their usefulness in upliftment of Indian farmer. The study is exploratory and analytical research based on mainly primary data. Primary data is collected through group interview approx. 1000 Farmers in different village of 7 district of UP adjoining Lucknow such as Unnao, Sitapur, Lakhimpur, Raebareli, Hardoi and Barabanki during the period of 01.01.2024 to 31.03.2024. The secondary data is used for reference purpose only in different aspect of paper.

Concept of Minimum Fair Price (MFP)

The concept of Minimum Fair Price (MFP) for agricultural products represents a significant departure from conventional pricing mechanisms, aiming to ensure equitable returns to farmers and address systemic challenges within the agriculture sector. MFP entails the establishment of a floor price below which agricultural products cannot be sold, providing farmers with a minimum guaranteed income for their produce, which changes over time as per inflation index.

Acceptability of Minimum Fair Price (MFP)

According to group interviews & discussion conducted with farmers in different villages of different districts as mentioned above, MFP has been completely accepted by all the farmers. The only question mark before them is whether the government will implement it.

Determination of Minimum Fair Price (MFP)

MFP can be determined through following equation standard taken from Commission for Agricultural Costs & Prices (CACP).

$$La+ LM +I +S = C+P=MFP$$

La=Cost of Land

LM = Cost of labor and machinery

I= cost of inputs

S= Sundry cost

C= Cost of Production

P= Profit Margin

MFP= Minimum Fair price

Determination of MFP

Cost of Land (25% of total cost of production)		xxx
Add: cost of labor and machinery (40% of total cost of production)		xxx
Add: cost of inputs (20% of total cost of production)		xxx
Add: Sundry cost (15% of total cost of production)		xxx
	Cost of Produce	xxxx
Add: Profit Margin (15% of total cost of production)		xxx
	Minimum Fair price (MFP)-	xxxx

1. Cost of Land : The cost of land for agriculture can vary significantly depending on various factors such as location, soil quality, size of the land, accessibility to water sources, infrastructure, and local regulations. In terms of harvesting specifically, the cost of land may not directly impact harvesting expenses, but it can influence overall production costs and profitability. In regions where land is scarce or highly productive, the cost of agricultural land can be quite high. Conversely, in less fertile or remote areas, land prices may be lower. Additionally, factors such as land tenure systems, government subsidies or incentives, and market demand for agricultural products can also affect land prices. It's essential for farmers and agricultural businesses to consider land costs as part of their overall financial planning and investment strategy. As per CACP cost of land having approx. 25% weight of total cost of production.

2. Cost of labor and machinery : The cost of labor and machinery in agriculture farming can vary widely depending on factors such as location, type of crops grown, farm size, and technological advancements.

Labor costs include wages for farm workers, which can vary based on local labor markets, seasonal demand, and government regulations such as minimum wage laws. Machinery costs encompass expenses related to purchasing, operating, depreciation and maintaining equipment such as tractors, harvesters, and irrigation systems. Technological advancements, such as automation and precision agriculture technologies, can affect both labor and machinery costs by increasing efficiency and reducing the need for manual labor. Overall, labor and machinery expenses are significant considerations for farmers when planning and managing their operations, impacting the profitability and sustainability of agricultural businesses. Under determination of MFP we assign 40% weight of cost of labor and machinery, labor rate as par MANERGA benchmark. if cost of labor higher due to manual working then cost of machinery will be lower, vice-versa.

3. Cost of inputs: In agriculture farming, the cost of inputs includes seeds, fertilizers, manure (khad), chemicals, and irrigation.

- **Seeds:** Costs vary based on crop type, variety, and whether they're conventional or genetically modified. High-quality or specialized seeds may come at a premium.
- **Fertilizers:** Necessary for providing nutrients to crops, fertilizer costs depend on type (nitrogen, phosphorus, potassium), quantity used, and market prices.
- **Manure (Khad):** Organic fertilizers like manure or compost contribute to soil fertility. Costs depend on source, quality, and availability.
- **Chemicals (Pesticides, Herbicides):** Used to protect crops from pests, diseases, and weeds. Costs vary based on type, effectiveness, and application methods.
- **Irrigation:** Includes expenses related to water access and distribution systems like pumps, pipes, and sprinklers. Costs depend on water source, energy prices, and infrastructure.

Efficient management of these inputs is crucial for farmers to optimize yields and profitability while minimizing environmental impact and production costs. Under determination of MFP we assign 20% weight of cost of production for cost of input, as per official standard of CACP.

4. Sundry costs: In agriculture farming, sundry costs encompass various miscellaneous expenses beyond direct inputs and labor. Here's a breakdown:

- **Insurance Premium:** Farmers may invest in crop insurance to mitigate risks from weather events, pests, or market fluctuations. The premium depends on coverage levels, crop type, and the insurer's terms.
- **Transportation:** Costs associated with moving produce, inputs, and equipment to and from the farm. Expenses include fuel, vehicle maintenance, and hiring transportation services.
- **Storage:** Expenses for storing harvested crops, seeds, fertilizers, and equipment. Costs include building or renting storage facilities, maintenance, and utilities.
- **Contingent Expenses:** Miscellaneous costs that arise unexpectedly, such as repairs to equipment, emergency pest control measures, or legal fees. These expenses vary based on factors like weather conditions, pest outbreaks, or regulatory changes.
- **Cost of Interest:** It includes interest on loan taken for Agricultural purpose.

Efficient management of sundry costs is essential for maintaining financial stability and profitability in agriculture farming. Farmers must budget for these expenses. Under determination of MFP, we assign 15% weight of cost of production for sundry cost.

5. Profit margin: is a financial metric used to assess the profitability of a business relative to its revenue. It indicates the percentage of revenue that translates into profit after accounting for all expenses. In agriculture farming, profit margin measures the efficiency of converting revenue from crop sales into profit after accounting for various expenses such as input costs, labor, and overheads. It is a key metric for assessing the financial health and sustainability of farming operations, helping farmers evaluate profitability, make informed decisions, and identify areas for improvement. Under determination of MFP, we assume 15% profit margin is acceptable because approx. every type of industry earn approx. 15% on their produce.

Importance of Minimum Fair Price in Agriculture

The importance of MFP lies in its potential to alleviate the plight of farmers who often face income insecurity, exploitation by middlemen, and market volatility. By

setting a minimum fair price, MFP seeks to empower farmers to earn a decent livelihood, invest in farm inputs, and improve their overall standard of living. Moreover, MFP serves as a tool for stabilizing farm incomes, reducing dependency on volatile market prices, and mitigating the risks associated with crop failures, adverse weather conditions, or fluctuating input costs. Furthermore, MFP is instrumental in promoting agricultural sustainability and rural development. By ensuring fair returns to farmers, MFP incentivizes investment in sustainable farming practices, soil conservation, and natural resource management. It also contributes to the revitalization of rural economies, supporting livelihoods, infrastructure development, and community well-being.

In addition to its socioeconomic benefits, MFP plays a vital role in enhancing food security and market efficiency. By providing farmers with a stable income, MFP encourages production diversification, crop rotation, and the cultivation of nutritious food crops. This, in turn, contributes to a more resilient and diversified food system, reducing dependency on a few staple crops and enhancing nutritional diversity.

Moreover, MFP fosters transparency and fairness in agricultural markets by preventing price exploitation and ensuring a level playing field for farmers. It promotes market access and participation for smallholder farmers, empowering them to engage in direct marketing, value addition, and collective bargaining.

Challenges of Minimum Fair Price for Agricultural Products

Overall, the concept of Minimum Fair Price represents a path-breaking reform in the agriculture sector, offering a holistic approach to addressing the multifaceted challenges faced by farmers and transforming agricultural markets towards greater equity, sustainability and resilience. Through its implementation, MFP has the potential to unlock new opportunities for farmer empowerment, rural development, and inclusive growth, thereby shaping a more just and prosperous future for agriculture and society as a whole. While the concept of Minimum Fair Price (MFP) holds promise as a transformative reform in the agriculture sector, its implementation is not without challenges. Addressing these challenges is crucial for ensuring the effectiveness and sustainability of MFP mechanisms. This section explores some of the key challenges associated with the adoption of MFP:

- **Market Distortions:** Setting a minimum price floor may lead to market distortions, particularly if the floor price is set above the equilibrium market price. This can result in surpluses, reduced market competitiveness, and inefficiencies in resource allocation.
- **Fiscal Implications:** Implementing MFP requires financial resources to compensate farmers for the price support provided. Governments may face budgetary constraints and fiscal pressure in funding MFP programs, especially in developing countries with limited financial capacity.
- **Price Discovery Mechanisms:** Determining an appropriate minimum fair price for agricultural products requires accurate and reliable price discovery mechanisms. In many cases, market information systems may be inadequate or unreliable, making it challenging to establish a fair and transparent pricing mechanism.
- **Trade Implications:** MFP policies may have implications for international trade, especially if they result in distortions in domestic agricultural markets or violate international trade agreements. Trade disputes and retaliatory measures from trading partners could arise, affecting global market access for agricultural products.
- **Implementation Challenges:** Implementing MFP requires effective administrative and institutional mechanisms for monitoring, enforcement, and compliance. In contexts with weak governance structures, corruption, and administrative inefficiencies, ensuring the effective implementation of MFP policies can be challenging.
- **Producer Heterogeneity:** Farmers vary in terms of scale of operation, production costs, and market access. Designing MFP policies that are equitable and inclusive, while accounting for the diverse needs and circumstances of different types of farmers, poses a significant challenge.
- **Risk Management:** MFP policies may create moral hazard by insulating farmers from market risks, potentially reducing incentives for risk management and innovation. Balancing the need to provide income security for farmers with the imperative of promoting entrepreneurial behavior and risk-taking is a complex challenge.
- **Long-Term Sustainability:** Ensuring the long-term sustainability of MFP mechanisms requires careful consideration of environmental, social, and economic factors. MFP policies must be designed to promote sustainable agricultural practices, enhance resilience to climate change, and safeguard natural resources for future generations.

Addressing these challenges requires a comprehensive and multi-stakeholder approach, involving governments, farmers, policymakers, researchers, and civil society organizations. By identifying and overcoming these challenges, MFP has the potential to contribute to a more equitable, sustainable, and resilient agriculture sector, benefiting farmers, consumers, and society as a whole.

Suggestion

- **Establishing an independent constitutional body for MFP:** A dedicated constitutional body should be established to effectively determine Minimum Fair Prices (MFP) and classify agricultural produce based on quality.
- **Legal right to farmers for MFP:** Farmers should be granted a legal entitlement to Minimum Fair Prices (MFP) to ensure fair price for their agricultural produce and prevent below-MFP purchases in the market.
- **Industry status for agriculture:** The agricultural sector should be accorded industry status, with agricultural products recognized as industrial products.
- **Taxation on agricultural income:** Agricultural income should be subjected to taxation on individual basis as per current Income Tax Act 1961, leading to increased government revenue. This measure would primarily impact large farmers, estimated at around 9%.
- **Compulsory crop insurance policy:** Adoption of compulsory crop insurance policies is vital, with farmers designated as the insured party.
- **Reduction of burden on budget:** The government should transition from providing subsidies or relief to farmers to solely offering Minimum Fair Prices (MFP). This shift would reduce public expenditure, estimated at approximately Rs 3 lakh crore (on Kisan Samman Nidhi, subsidy on agriculture inputs etc.) as per the Union Budget.

- **Sustainable development considerations:** While implementing MFP, it is essential to ensure that it does not negatively impact on sustainable development goals for achieving target of Developed economy@2047.

Conclusion

In conclusion, the concept of Minimum Fair Price (MFP) for agricultural products stands as a transformative and path breaking reform with the potential to address longstanding challenges faced by farmers and reshape the agriculture sector towards a more equitable and sustainable future. Through our exploration of empirical research, policy analysis, and case studies, it becomes evident that the implementation of MFP holds promise in providing farmers with fair returns for their produce, stabilizing farm incomes, and fostering agricultural resilience. This model has demonstrated tangible benefits for farmers, including improved livelihoods, reduced dependency on middlemen, and enhanced market access.

However, our analysis also reveals several challenges and considerations that must be addressed in the implementation of MFP. These include the need for robust price discovery mechanisms, risk management strategies, and regulatory frameworks to prevent market distortions and ensure fiscal sustainability. Additionally, attention must be given to the unique characteristics of local agricultural markets, the diversity of farming systems, to promote group or cooperative farming and the role of technology in facilitating MFP implementation.

As we move forward, it is imperative to engage in further research, policy dialogue, and stakeholder consultation to refine and adapt MFP mechanisms to local contexts and evolving market dynamics. Collaborative efforts between governments, farmers, private sector actors, and civil society will be essential in navigating the complexities of MFP implementation and realizing its full potential in promoting farmer welfare, rural development, and food security. In conclusion, while challenges lie ahead, the pursuit of Minimum Fair Price for Agricultural Products represents an important step towards building a more inclusive, resilient, and sustainable agriculture sector that works for farmers, consumers, and the environment alike. By harnessing the transformative power of MFP, we can pave the way for a brighter future for agriculture and rural communities around the world.

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श्रीरामशलाका प्रश्नावली का गणितीय अध्ययन

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Abstract

Our Vedas, Shastras, Bhagavad Gita, Ramayana, Shri Ramcharitmanas and other mythological texts are stores of infinite knowledge. The entire world believes in Indian astrology. There is a separate part of astrology in all our Vedas. Goswami Tulsidas ji has used nine *Chaupais* in *Shriramshalaaka* questionnaire. Each *chaupai* represents a different planet, according to numerology, the Navagrahas like Sun etc. are considered to have numbers ranging from one to nine, they are written in each cell of a 15×15 matrix. By whose consistent combination one gets the well-being of the mind. It is believed that whenever someone wants to get the answer to any of his questions, he can get the answer to his questions with the help of *Shri Ram Shalaka*. In this research paper, the nine quatrains mentioned in the *Sri Ramshalaaka* questionnaire and the horizontal and vertical lines in the 15×15 square matrix will be discussed. After mathematical study of the frequencies of written letters and quantities, an attempt has been made to find out how Tulsidas ji composed the *Sri Ramshalaaka* questionnaire.

प्रस्तावना

गोस्वामी तुलसीदास जी द्वारा रचित श्रीरामचरितमानस, धर्म, समाज और राज्य के उत्कृष्ट संचालन हेतु आवश्यक दिशा निर्देशों से परिपूर्ण एवं हिन्दू आस्था का प्रतीक ग्रंथ है। वर्तमान में पढ़ाये जाने वाली विषयों यथा- राजनीति विज्ञान, समाजशास्त्र, वाणिज्य, गणित एवं अन्य की मूलभूत संकल्पनाओं के अनेकानेक उदाहरण मानस में दृष्टिगोचर होते हैं। ग्रंथ के उत्तरकाण्ड में वर्णित भविष्यवाणियाँ या श्रीसुन्दरकाण्ड में वर्णित गणितीय सूत्रों का अनुप्रयोग इस अद्भुत रचना में समाहित है। ग्रंथ की विशेषता है कि जिस भी विषय का मर्मज्ञ इसे पढ़ता है, उसे अपने विषय से संबंधित सारगर्भित प्रसंग उसमें प्राप्त हो जाते हैं। श्रीरामशलाका प्रश्नावली गोस्वामी तुलसीदास जी की रचना श्रीरामचरितमानस में दी गयी है, जिसमें एक 15×15 वर्ग आव्यूह में कुछ अक्षर एवं मात्राएँ लिखी हैं जिनके अनुक्रमीय योग से हमें मानस की चौपाई प्राप्त होती है। मान्यता है, कि किसी को जब कभी अपने किसी प्रश्न के शंका के समाधान एवं सम्यक निवारण की इच्छा हो, तो श्रीरामशलाका की मदद से उसका समाधान प्राप्त हो सकता है। भगवान श्रीराम का स्मरण करते हुए अपने सवाल को मन में अच्छी तरह सोच लें। इस हेतु अपने प्रश्न का चिंतन करते हुए श्री रामशलाका प्रश्नावली के किसी प्रकोष्ठ में अँगुली या कोई शलाका (छोटी डण्डी) रख देना चाहिए। अब श्रीरामशलाका प्रश्नावली के उस प्रकोष्ठ में लिखे अक्षर या मात्रा को किसी कोरे

कागज या स्लेट पर लिख लेना चाहिए। तत्पश्चात् उस प्रकोष्ठ के आगे दाहिनी ओर एवं पंक्ति समाप्त होने पर नीचे की पंक्तियों पर बाएँ से दाहिनी ओर बढ़ते हुए उस प्रकोष्ठ से प्रत्येक नवें प्रकोष्ठ में लिखे अक्षर या मात्रा को उस कागज या स्लेट पर लिखते जाना चाहिए। इस प्रकार जब सभी नवें अक्षर या मात्राएँ जोड़े जाएँगे तो श्री रामशलाका प्रश्नावली में दी गई कोई एक चौपाई पूरी हो जाएगी, जिसमें आपको अपने प्रश्न का उत्तर मिल जाएगा। मानस में प्रसंग के अनुसार फल का वर्णन है। चौपाइयों की संख्या हमारे नवग्रह से प्रसंगवश मेल रखती है। मानस के विभिन्न अध्यायों/काण्ड में जिस प्रसंग में उन चौपाइयों की रचना की गई, उसी के परिप्रेक्ष्य में उनके पूर्ण होने पर फल प्राप्ति का उल्लेख मिलता है। अग्रवर्णित चौपाई क्रमांक 1,6,7 तथा 9 के पूर्ण होने पर कार्य सिद्ध होने का फल वर्णित है। चौपाई क्रमांक 3,5 और 8 के पूर्ण होने पर कार्य की सफलता में सन्देह व्यक्त किया गया है। क्रमांक 2 की चौपाई पूर्ण होने पर कार्य की सफलता के लिए उसे प्रारंभ करने से पूर्ण भगवान के स्मरण की बात कही गई है। क्रमांक 4 की चौपाई पूर्ण होने पर कार्य पूर्ण होने में सन्देह के कारण को भी वर्णित किया गया है।

श्रीरामशलाका प्रश्नावली एवं चौपाई

गोस्वामी तुलसीदासजी द्वारा रचित श्री रामचरितमानस में लिखित श्रीरामशलाका प्रश्नावली का स्वरूप निम्न प्रकार है:

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सु	प्र	उ	बि	हो	मु	ग	ब	सु	नु	बि	घ	धि	इ	द
र	रु	फ	सि	सि	रहि	बस	हि	मं	ल	न	ल	य	न	अं
सुज	सो	ग	सु	कु	म	स	ग	त	न	ई	ल	धा	बे	नो
त्य	र	न	कु	जो	म	रि	र	र	अ	की	हो	सं	रा	य
पु	सु	थ	सी	जे	इ	ग	म	सं	क	रे	हो	स	स	नि
त	र	त	र	स	हुँ	ह	ब	ब	प	चि	स	हिं	स	तु
म	का	।	र	र	म	मि	मी	म्हा	।	जा	हू	हीं	।	।
ता	रा	रे	री	ह	का	फ	खा	जू	ई	र	रा	पू	द	ल
नि	को	जो	गो	न	मु	जि	य	ने	मनि	क	ज	प	स	ल
हि	रा	मि	स	रि	ग	द	न्मु	ख	म	खि	जि	म	त	जं
सिं	ख	नु	न	को	मि	निज	रक	ग	धु	ध	सु	का	स	र
गु	ब	म	अ	रि	नि	म	ल	।	न	ढ़	ती	न	क	भ
ना	पु	व	अ	।	र	ल	।	ए	तु	र	न	नु	वै	थ
सि	हुँ	सु	म्ह	रा	र	स	स	र	त	न	ख	।	ज	।
र	।	।	ला	धी	।	री	।	हू	हीं	खा	जू	ई	रा	रे

श्रीरामशलाका में कुल 9 चौपाई हैं, जिसके आधार पर हमें उनसे अपने प्रश्न का उत्तर प्राप्त होता है।

1. सुनु सिय सत्य असीस हमारी। पूजिहि मन कामना तुम्हारी।।

यह चौपाई बालकाण्ड में श्रीसीताजी के गौरीपूजन के प्रसंग में है। गौरीजी ने श्रीसीताजी को आशीर्वाद दिया है।

फल:- प्रश्नकर्ता का प्रश्न उत्तम है, कार्य सिद्ध होगा।

2. प्रबिसि नगर कीजै सब काजा। हृदय राखि कोसलपुर राजा।।

यह चौपाई सुन्दरकाण्ड में हनुमानजी के लंका में प्रवेश करने

के समय की है।

फल:- भगवान् का स्मरण करके कार्यारम्भ करो, सफलता मिलेगी।

3. उघरें अंत न होइ निबाहू। कालनेमि जिमि रावन राहू।।

यह चौपाई बालकाण्ड के आरम्भ में सत्संग-वर्णन के प्रसंग में है।

फल:- इस कार्य में भलाई नहीं है। कार्य की सफलता में सन्देह है।

**4. बिधि बस सुजन कुसंगत परहीं।
फनि मनि सम निज गुन अनुसरहीं।।**

यह चौपाई बालकाण्ड के आरम्भ में सत्संग-वर्णन के प्रसंग में है।

फल:- खोटे मनुष्यों का संग छोड़ दो। कार्य की सफलता में सन्देह है।

5. होइहै सोइ जो राम रचि राखा। को करि तरक बढ़ावहिं साषा।।

यह चौपाई बालकाण्डान्तर्गत शिव और पार्वती के संवाद में है।

फल:- कार्य होने में सन्देह है, अतः उसे भगवान् पर छोड़ देना श्रेयष्कर है।

6. मुद मंगलमय संत समाजू। जिमि जग जंगम तीरथ राजू।।

यह चौपाई बालकाण्ड में संत-समाजरूपी तीर्थ के वर्णन में है।

फल:- प्रश्न उत्तम है। कार्य सिद्ध होगा।

7. गरल सुधा रिपु करहिं मिताई। गोपद सिंधु अनल सितलाई।।

यह चौपाई सुंदरकाण्ड में श्रीहनुमान् जी के लंका प्रवेश करने के समय की है।

फल:- प्रश्न बहुत श्रेष्ठ है। कार्य सफल होगा।

8. बरुन कुबेर सुरेस समीरा। रन सनमुख धरि काहुँ न धीरा।।

यह चौपाई लंकाकाण्ड में रावन की मृत्यु के पश्चात् मन्दोदरी के विलाप के प्रसंग में है।

फल:- कार्य पूर्ण होने में सन्देह है।

9. सुफल मनोरथ होहुँ तुम्हारे। राम लखनु सुनि भए सुखारे।।

यह चौपाई बालकाण्ड में पुष्पवाटिका से पुष्प लाने पर विश्वामित्र जी का आशीर्वाद है।

फल:- प्रश्न बहुत उत्तम है। कार्य सिद्ध होगा।

गणितीय विश्लेषण

श्रीरामशलाका प्रश्नावली में 15×15 की आव्यूह में कुल मिलकर 225 अक्षर व मात्राएँ हैं। सामान्य अर्थ में श्रीरामशलाका प्रश्नावली में कुल 15 पंक्ति और 15 स्तम्भ हैं। पंक्ति और स्तम्भ की संख्या बराबर होने के कारण श्रीरामशलाका आव्यूह को वर्ग आव्यूह कहते हैं।

परिभाषा-

1. आव्यूह (Matrix)- आव्यूह अदिश राशियों से निर्मित एक आयताकार संरचना होती है। आव्यूह फलनों का एक आयताकार क्रमित क्रम विन्यास है जो आव्यूह का अवयव कहलाती हैं। प्रत्येक खाने में लिखी राशि आव्यूह के अवयवों की क्षैतिज (Horizontal) रेखा, आव्यूह की पंक्ति (rows) और लम्बवत् (Vertical) रेखा, आव्यूह के स्तम्भ (Column) कहलाते हैं।

2. वर्ग आव्यूह- वर्ग आव्यूह एक तरह का आव्यूह होता है, जिसमें पंक्ति और स्तम्भों की संख्या बराबर होती है।

3. वर्ग आव्यूह का विकर्ण- आव्यूह के विकर्ण पर आधारित विकर्ण तत्व कहलाते हैं। यदि आव्यूह का आकार $n \times n$ है, तो विकर्ण में n तत्व होंगे। श्रीरामशलाका प्रश्नावली में 15×15 का वर्ग आव्यूह है। अतः विकर्ण में प्रविष्टियों की संख्या 15 होगी।

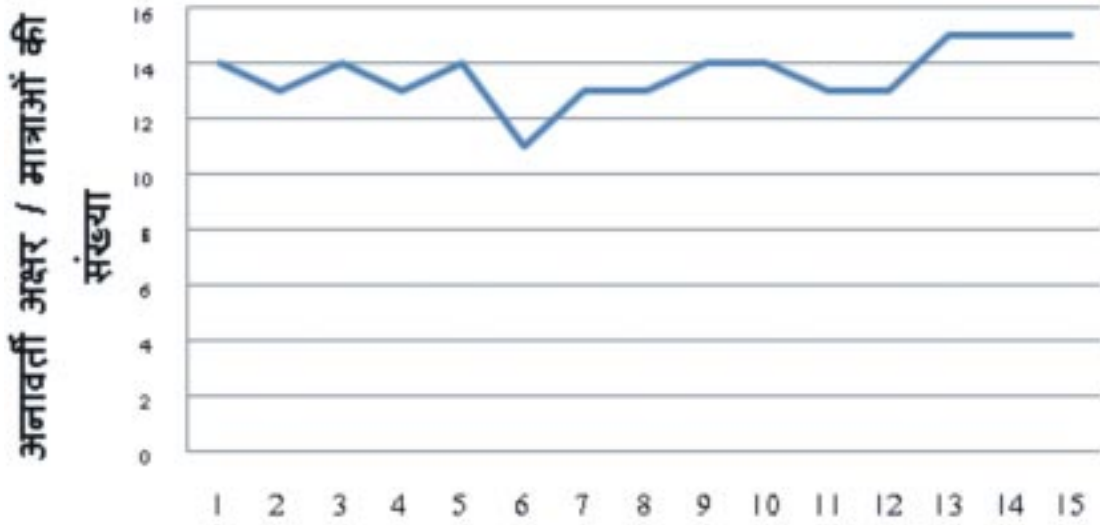
अक्षरों व मात्राओं की आवृत्ति का अध्ययन

श्रीरामशलाका प्रश्नावली में अंकित अक्षरों व मात्राओं की आवृत्ति का अध्ययन करने के पश्चात् देखा गया कि इसमें अंकित वर्ग आव्यूह में क्षैतिज और लम्बवत् लिखित कुछ अक्षरों व मात्राओं की आवृत्ति अनेकों बार हुई है तथा कुछ अक्षर एवं मात्राएँ केवल एक ही बार आई हैं। अक्षरों एवं मात्राओं का इस प्रकार का संयोजन श्रीरामशलाका प्रश्नावली को विशिष्ट बनाने के उद्देश्य से किया गया प्रतीत होता है।

सारणी-1: स्तम्भ (Column) या लम्बवत् (Vertical) रेखाओं में अंकित अक्षरों व मात्राओं का अध्ययन

आव्यूह में स्तम्भ की क्रम सं.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	योग
स्तम्भ में अनावर्ती अक्षर/मात्राओं (भिन्न-भिन्न) की सं.	14	13	14	13	14	11	13	13	14	14	13	13	15	15	15	204
स्तम्भ में अक्षर/मात्राओं की सं.	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	225

आवर्ती अक्षरों मात्राओं की संख्या (21)



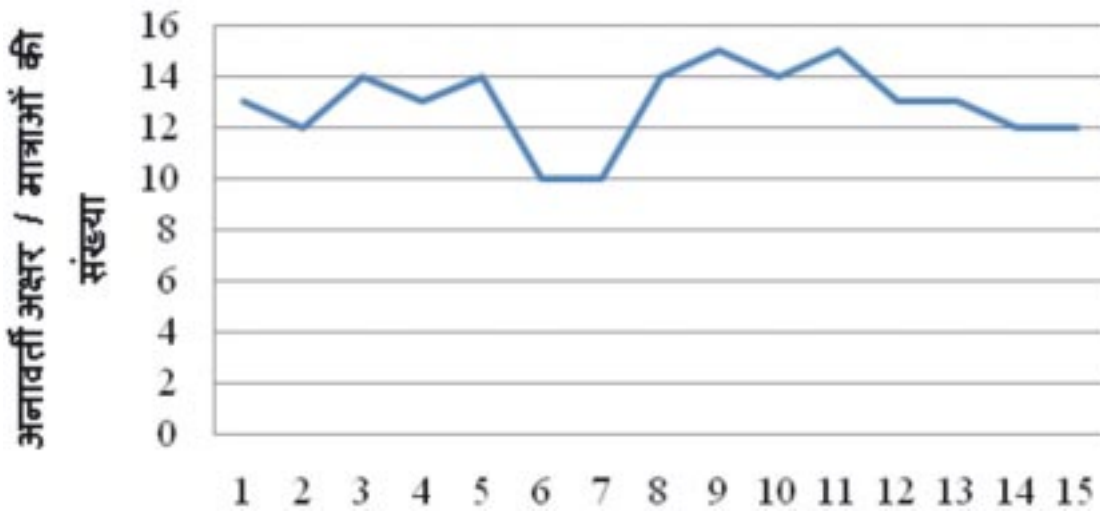
श्रीरामशलाका प्रश्नावली अवस्थित स्तम्भ क्रमांक

चित्र 1: आव्यूह में स्तम्भ एवं अनावर्ती अक्षरों/मात्राओं का निरूपण

सारणी-2: पंक्ति (Row) या क्षैतिज (Horizontal) रेखाओं में अंकित अक्षरों व मात्राओं का अध्ययन

आव्यूह में पंक्ति की क्रम सं.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	योग
अनावर्ती अक्षर/मात्राओं की सं.	13	12	14	13	14	10	10	14	15	14	15	13	13	12	12	194
अक्षर/मात्राओं की सं.	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	225

पंक्ति में आवर्ती अक्षरों मात्राओं की संख्या (31)



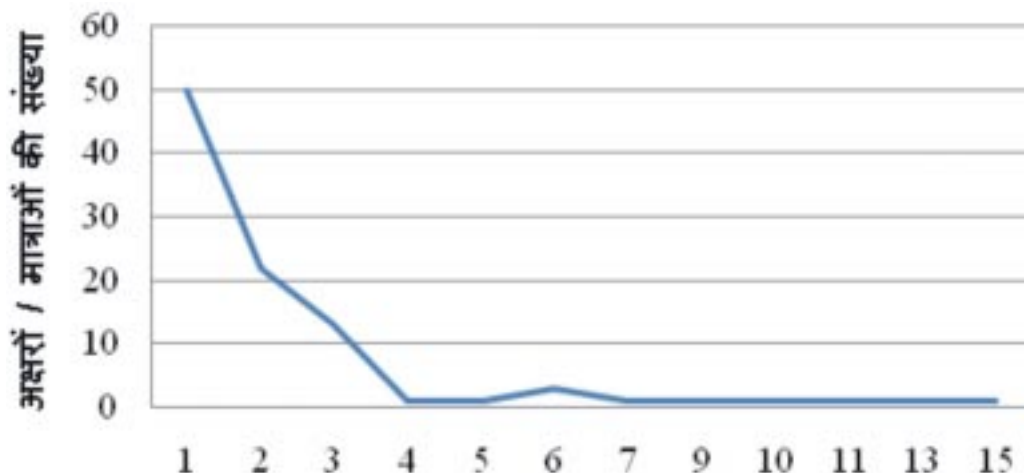
श्रीरामशलाका प्रश्नावली अवस्थित पंक्ति क्रमांक

चित्र 2: पंक्ति एवं अनावर्ती अक्षरों की चित्रीय निरूपण

उपरोक्त सारणी 1 व 2 से यह स्पष्ट है कि आव्यूह की पंक्तियों में आवर्ती अक्षरों और मात्राओं की संख्या स्तम्भ में आवर्ती अक्षरों मात्राओं की संख्या से ज्यादा है।

सारणी-3: सम्पूर्ण श्रीरामशलाका प्रश्नावली के वर्ग आव्यूह (Square Matric) में अंकित अक्षरों व मात्राओं का अध्ययन

अक्षरों एवं मात्राओं की पुनरावृत्ति की आवृत्ति (f)	01	02	03	04	05	06	07	09	10	11	13	15	कुल
आवर्ती अक्षरों एवं मात्राओं की सं. (X)	50	22	13	01	01	03	01	01	01	01	01	01	96
कुल (fx)	50	44	39	04	05	18	07	09	10	11	13	15	225



चित्र 3: अक्षरों एवं मात्राओं की संख्या एवं उनकी पुनरावृत्ति का निरूपण

चौपाइयों में अंकित अक्षरों व मात्राओं की आवृत्ति का अध्ययन

श्रीरामशलाका प्रश्नावली में लिखित चौपाई	भिन्न-भिन्न अक्षर/मात्राओं की सं.	अक्षर/मात्राओं की कुल सं.	प्रयुक्त अक्षर एवं मात्राएँ
1. सुनु सिय सत्य असीस हमारी । पूजिहि मन कामना तुम्हारी ।।	20	25	सु नु सि य स त्य अ सी स ह म । री पू जि हि म न का म ना तु म्ह । री
2. प्रबिसि नगर कीजे सब काजा । हृदय राखि कोसलपुर राजा ।।	22	25	प्र बि सि न ग र की जे स ब का जा हृ द य रा खि को स ल पु र रा ज ।
3. उघरहि अंत न होइ निबाहू । कालनेमि जिमि रावन राहू ।।	19	25	उ घ र हि अं त न हो इ नि ब । हू का ल ने मि जि मि र । व न र । हू
4. बिधि बस सुजन कुसंगत परहीं । फनि मनि सम निज गुन अनुसरहीं ।।	21	25	बि धि ब स सु ज न कु सं ग त प र हीं फ नि म नि स म नि ज गु न अ नु स र हीं
5. होइहि सोइ जो राम रचि राखा । को करि तरक बढ़ावै साखा ।।	21	25	हो इ हि सो ई जो रा म र चि र । खा को क रि त र क ब ढ़ । वै स । खा
6. मुद मंगलमय संत समाजू । जो जग जंगम तीरथ राजू ।।	18	25	मु द मं ग ल म य सं त स म । जू जो ज ग जं ग म ती र थ र । जू
7. गरल सुधा रिपु करहिं मिताई । गोपद सिंधु अनल सितलाई ।।	22	25	ग र ल सु धा रि पु क र हिं मि ता ई गो प द सिं धु अ न ल सि त ला ई
8. बरुन कुबेर सुरेस समीरा । रन सन्मुख धरि काहुँ न धीरा ।।	19	25	ब रु न कु बे र सु रे स स मी रा र न स न्मु ख ध रि क । हुँ न धी रा
9. सुफल मनोरथ होहुँ तुम्हारे । रामु लखनु सुनि भए सुखारे ।।	20	25	सु फ ल म नो र थ हो हुँ तु म्हा रे रा मु ल ख नु सु नि भ ए सु ख । रे
कुल अक्षर व मात्राएँ	182	225	



हरा रंग - कार्य सिद्ध होगा को दर्शाता है।
पीला रंग - कार्य सफल होगा को दर्शाता है।
लाल रंग - कार्य को पूर्ण होने की सफलता में सन्देह है, को दर्शाता है।

इसके अध्ययन से हमें यह निष्कर्ष प्राप्त होता है कि जिन चौपाइयों के फल से कार्य सिद्ध होने अथवा ईश्वर के अनुश्रवण से कार्य प्रारंभ करने पर सफलता मिलने का फल उसमें अनावर्ती अक्षरों और मात्राओं की संख्या सम है।

निष्कर्ष (Result)

1. श्री रामशलाका प्रश्नावली के जिस प्रकोष्ठ में अँगुली या शलाका रखेंगे, पहले प्रकोष्ठ से उस प्रकोष्ठ तक नंबर गिनने तथा 9 से भाग देने पर जितना शेष बचेगा, उस नंबर की चौपाई ही उसका फल होगा।
2. गोस्वामी तुलसीदास द्वारा रचित श्रीरामशलाका प्रश्नावली में पहले से नवें प्रकोष्ठ में, इसमें दी हुई क्रमशः 9 चौपाइयों का पहला अक्षर आया है। इसी प्रकार दसवी से अठारवें कोष्ठ में क्रमशः 9 चौपाइयों का दूसरा अक्षर आया है। अतः श्रीरामशलाका प्रश्नावली (15x15 के वर्ग आव्यूह) के प्रत्येक कोष्ठ के अक्षर/मात्राओं तथा क्रमवार 9 चौपाइयों के अक्षर/मात्राओं के स्थान में निम्न सम्बन्ध है:

पहली चौपाई के अक्षर/मात्राओं का स्थान	$9n - 8$
दूसरी चौपाई के अक्षर/मात्राओं का स्थान	$9n - 7$
तीसरी चौपाई के अक्षर/मात्राओं का स्थान	$9n - 6$
चौथी चौपाई के अक्षर/मात्राओं का स्थान	$9n - 5$
पांचवी चौपाई के अक्षर/मात्राओं का स्थान	$9n - 4$
छठी चौपाई के अक्षर/मात्राओं का स्थान	$9n - 3$
सातवी चौपाई के अक्षर/मात्राओं का स्थान	$9n - 2$
आठवी चौपाई के अक्षर/मात्राओं का स्थान	$9n - 1$
नौवी चौपाई के अक्षर/मात्राओं का स्थान	$9n$

अतः हमें निम्न सूत्र प्राप्त होता है:

$$9n - (9 - m) / 9(n-1) + m$$

जहां n = चौपाई में अक्षर/मात्रा का स्थान तथा m = क्रमवार लिखित चौपाई का नंबर।

हमारा दायित्व है कि सुदीर्घकाल से संचित इस कोष को जिसने पूर्ण समर्पण एवं समस्त प्राणि कल्याण की शुभाकांक्षा के कारण अनन्त काल तक हमारे ज्ञान के रत्नाकर कोष को संवर्धित किया, उससे अर्जित अमूल्य राजनीतिक, सांस्कृतिक, कलात्मक, ज्योतिष एवं खगोल की उपलब्धियां को अमरदीप सम संरक्षित कर अपने पूर्वजों द्वारा शताब्दियों से संजोये आये इस कोष को जनमानस तक उपलब्ध करायें।

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Policies in Fostering Innovation and Technological Integration in ODL

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Abstract

In a time of swift technology progress and transforming educational models, Open and Distance Learning (ODL) has become a crucial area for enabling inclusive, adaptable, and accessible education. Online distance learning has proved to be an asset in educational sector for furnishing opportunities for everyone including the disadvantaged, hence promoting inclusivity. Today's era is witnessing tremendous shift from traditional distance learning pattern towards providing digital education for distance learning. It breaks the barriers of space, time and access. It is an innovative and comprehensive method of delivering education that goes beyond conventional limitations of location and time. ODL is fundamentally about communicating in whatever form with the with one main aim of bridging the gap between teaching and learning. Educational technology can be thought of as a more advanced version of remote learning and unrestricted education. Education can now take place anywhere thanks to the exploitation of ICT and educational technologies. Utilizing educational technology also has the multiplier effect of allowing for the efficient and cost-effective outreach to a large number of students. It is believed that the use of ICT in education is a practice tool rather than an evangelizing instrument. Distance learning has reoriented itself towards more self-paced, self-regulated way of learning. This study aims to discuss how policies influence learning outcomes, educational techniques, and institutional tactics while highlighting the role they play in fostering innovation and technological integration.

Introduction

Education has always meant to bring diversities on a same page. It plays an important role in bringing together all the sections of the society to interact, to learn to bring positive changes in each other. Education is expected to burn all the bridges between the society that creates difference on the basis of rich-poor, cast-creed, gender etc. There are large number of people who are deprived from receiving quality education for different reasons, in that case Open and Distance learning (ODL) plays a game changer. Derek Rowntree defined open and distance learning (ODL) in the following manner (Rowntree, 1992): "Open learning as a philosophy or a set of beliefs about teaching and learning and distance learning as a method/s or a set of techniques for teaching and learning. Open Learning is an arrangement to enable a person to learn at the time, place and pace which satisfies their circumstances and requirements. The emphasis is on opening up opportunities by overcoming barriers that result from geographical isolation, personal

or work commitments or conventional courses structures which have prevented people from gaining access to the training they need." According to Perraton (2000), the term 'open learning', with its ambiguities about the meaning of the term 'open', has led some of its protagonists to shy away from defining it, labelling it as a philosophy rather than a method, as such, a usage is a pretext for its vagueness. 'Open Learning' was mentioned in one of the issues of the Pitman's Journal in 1929 long before the first Open University in the world (UKOU) was established in 1969.

A comprehensive UNESCO document entitled 'Open Learning' describes open learning as follows: "Such systems are designed to offer opportunities for part-time study, for learning at a distance and for innovations in the curriculum. They are intended to allow access to wider section of adult population, to enable students to compensate for lost opportunities in the past or to acquire new 10 Basic Issues of Open and Distance Education skills and qualifications for the future. Open learning

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systems aim to redress social or educational inequality and to offer opportunities not provided by conventional colleges or universities" (Mackenzie, Postgate and Scupham, 1975). The term Open and Distance clearly states that the learners is far way or distant from the person who will provide education. That shows the flexibility of time and place in open and distance learning. To make Open and Distance learning more effective there has been certain innovations, transformation from time to time. Because innovations can lead to more effective learning and increase efficiency among people.

ICT in Open and Distance learning

The core of open and distance learning is probably communications in all forms through which the distance between the learner and the teaching end is minimum. ICT makes education or learning possible anywhere or everywhere through innovations and technological advancements now ODL is becoming more easily accessible, affordable and beneficial for the learners. Education Technology's cost-effective nature proves beneficial in ODL.

Importance of innovation and technological integration in ODL

- **Accessibility:** By bringing education to learners who might be geographically remote, have restricted mobility, or encounter other obstacles to traditional education, innovation and technological integration in ODL can greatly increase access to education. ODL has the ability to reach learners who live in remote locations, underprivileged populations, and individuals with impairments by means of online platforms, mobile apps, and other technological tools.
- **Flexibility and Convenience:** Due to technological advances, ODL is able to provide learners with a variety of learning options that can fit their schedules and needs. learners are able to manage their education with employment, family obligations, and other commitments because they have the flexibility to access course materials, engage in conversations, and finish projects at their own speed anytime, anywhere.
- **Personalization for learners:** ODL providers may now tailor learning experiences to each individual learner's needs, preferences, and learning style because of modern innovations including learning management systems (LMS), artificial intelligence

(AI), and adaptive learning algorithms. Learning outcomes and engagement can be improved by using adaptive technologies and personalisation, which can modify the pace, content, and instructional tactics to meet each learner's skill level and development.

- **Cost effectiveness:** ODL frequently uses technology to provide services and educational materials in an economical manner. ODL providers can lower operating costs and offer education at lower tuition rates by terminating away the need for physical infrastructure that is required in a normal learning process such as classrooms and textbooks, and optimizing resources through online delivery and automation. this makes learning more accessible and affordable for a wider audience.
- **Innovation:** Technology makes it easier to experiment, iterate, and enhance ODL delivery tactics, instructional techniques, and learning technologies over time. ODL providers can gain insights into learners' habits, preferences, and performance through data analytics, feedback mechanisms, and collaborative platforms. This allows them to improve their services, create new strategies, and keep up with the latest developments in education.
- **Global collaborations and interactions:** ODL platforms with technological capabilities enable global cooperation and knowledge sharing amongst experts, educators, and learners from different backgrounds. Learners can interact with one another, share ideas, and access resources beyond their immediate social or geographic limits through online forums, virtual classrooms, and cooperative projects. This promotes innovation, group problem-solving, and cross-cultural understanding.

Objectives

The objectives of this study are to:

1. To examine current Open and Distance Learning (ODL) regulations and evaluate how well they support technological integration and innovation within ODL frameworks.
2. To give suggestions on how to strengthen laws intended to support ODL innovation and technology integration, focusing on resolving issues and optimizing chances for development, to legislators, educators, and other stakeholders.

3. Propose a framework for enhancing quality in the ODL system.

Method

Secondary source of data collection was used to collect data for analysis and comprehension. Sources like books, research articles, journals, research reviews, reports and policy documents.

Findings

Through the decade ODL system has experienced a remarkable growth due to its quality of flexible learning and its user-friendly features have turned into facilitator of education specially for geographically separated or remote areas. Internet has played an extremely great promoter for the same. ICT has become very vital in all types of ways to impart education. Technological advancements and innovations in the field of education have helped in designing different ways to impart education or to make ODL more effective. Some of the ways include Virtual learning, learning through MOOCs etc. Certain frameworks and policies are prescribed by ODL providing institutions like IGNOU (Indira Gandhi National Open University) and UNESCO at international level.

Need for Innovation and Technology in ODL system

UN millennium developed goals emphasized on ESD (Education for Sustainable Development) keeping this as a base there arises a need of innovation in ODL

Areas of innovation in ODL system:

- Academic programmes
- Application of ICT /TECHNOLOGY in delivery of content
- Admission procedure and learner support
- Evaluation methods and assessment
- Convergence of systems
- Quality assurance and management

ICT for ODL

Information and communication technology (ICT) tools are used to convey the educational material through print and multimedia. ICT now affects all aspect of life, including education. The effects of ICT can be seen on how various media are used in instruction while utilizing ICT tools gives one a great sense of education. The ODL system's primary print media is supported by these ICT tools. The ODL system currently uses a variety of media,

such as CD-ROM, interactive radio teleconferencing, videoconferencing, online education through multimedia, and, more recently, iPods for instruction delivery. The smartphone is a crucial ICT tool that is exhibiting promising potential.

According to UNESCO good Innovative practices in ODL in Asia and Pacific region are prescribed as follows:

- **Quality assurance:** ODL institutions have prioritized creating and implementing rules to ensure quality in recent years. With the growing popularity of ODL and the rise of borderless education, quality assurance is becoming ever more crucial. There are seven cases that show creative QA efforts in different ODL domains.
- **Curriculum:** Rather of providing a broad spectrum of courses and programs, newly established ODL schools typically offer courses or programs that are focused on one or a small number of topic areas. And should be presented in the form of innovative content to the learners.
- **Policy revision:** In order to make pace with the rapidly changing environment of growing ODL, policy revision has become an integral part.
- **Student Services and Tutoring:** In contemporary ODL, typical student services include phone or email support, digital libraries, in-person and/or online tutoring and counselling, and mentorship. ODL universities may now more quickly and easily provide personalized and interactive student services because to the advancement of ICT. Analysed are instances of all-inclusive one-stop student services, the incorporation of internet technology in tutoring, and service evaluation.
- **ICT Innovations:** While new technological advancements have opened up new career opportunities for those in remote education, they have also increased the pressure on ODL institutions to find efficient methods to integrate these tools into their ODL practices. We provide cases that demonstrate creative ways to use ICT, such as multimedia, LMS, mobile technologies, and e-books.
- **Collaboration:** Collaborating with other ODL providers lowers the cost of implementing new technologies and raises the caliber of programs being developed, collaborative relationships are crucial for ODL providers.

Table 1: Quality Parameters for ODL

S.No	Parameter	Description
1.	Availability	The products and services of the ODL system are available on time and at any time the learner needs it. Similarly, the availability of resources is there for all other stakeholders on time and as and when they need these.
2.	Accessibility	The product and services are accessible to all including the differently abled or those with special needs or those residing in the remote areas, to their satisfaction.
3.	Affordability	The products and services are cost-effective or affordable for the learners.
4.	Usability	The learners, teachers and staff are able to use the products, processes and services for teaching-learning in an efficient manner and with satisfaction.
5.	Learn ability	The product and processes enhance the ability of the learner to quickly grow and adapt her knowledge and skills.
6.	Reliability	The mechanism of assurance is in place where the continuity and accuracy of service is guaranteed. Also, the system intimates the learners in case of any failure to deliver its products or services. The other stakeholders are similarly intimated.
7.	Durability	The products and services are relevant for a long time.
8.	Security	The system can protect confidential data, such as learners' details. The Intellectual Property Rights are protected. Other forms of security measures in technology use are maintained.
9.	Flexibility	The system can adapt in case there is a change in the external environment. New policies, products, processes or services are included if needed.
10.	Manageability	The system is easily manageable. It may include operations and deployment of products and services.
11.	Serviceability	The system can be supported through changing configurations in the products, processes, or services.
12.	Performance efficiency	The system is able to provide the desired output, e.g., produce learners with knowledge and skills.
13.	Sustainability	The quality improvements in the system are sustained for a long time.
14.	Scalability	The quality improvements in the system can be scaled up to be implemented in other related areas of the system.

Source: <https://files.eric.ed.gov/fulltext/EJ1303628.pdf>

Conclusion

A success of any program or system depends on including innovation and technological practices as a must. Specially in case of education sector innovation and technology plays a crucial role in its development and success. If each stake holder works towards good practices in ODL then definitely quality open and distance education can be achieved. This research highlights the importance of policies in driving innovation and technological integration in Open and Distance Learning (ODL). It emphasizes the need for effective frameworks

that address pedagogical approaches, learner support mechanisms, and quality assurance measures. Policies should align with ODL institutions' goals and objectives, be flexible, and prioritize inclusivity. Collaboration between policymakers, educational institutions, industry stakeholders, and the research community is crucial for driving innovation. Continuous evaluation and refinement of policies are essential for addressing emerging challenges and opportunities. A holistic approach to policy formulation can unlock technology's full potential for democratizing education.

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Connecting the Dots: STEM and the Multidisciplinary Approach

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Abstract

The multidisciplinary approach is considered the essence of STEM education, enabling students to effectively draw from diverse knowledge pools to address real-world problems. STEM education has become a cornerstone of modern teaching and learning, which is driven by the increasing demand for innovative solutions to complex problems. The multidisciplinary approach within STEM education recognizes that real-world issues rarely exist in isolation and require insights from diverse areas of study. This multidisciplinary approach goes beyond traditional subjects by integrating diverse fields to address complex and global challenges. A student needs a strong foundation in fundamental disciplines and essential mental flexibility to develop a combined inductive-deductive vision and the freedom of interdisciplinary, multidisciplinary receptivity. The current study aims to highlight the concept of STEM and STEM Education. The current study also discusses various initiatives by the Government of India to promote STEM Education. Furthermore, the current study highlights the link between STEM and the multidisciplinary approach/research. The study highlights that the multidisciplinary approach is essential in STEM because it reflects the reality of the problems being addressed, fosters innovation at the intersections of fields, and prepares professionals to navigate an interconnected world. By connecting the dots across disciplines, STEM achieves its full potential in driving progress and improving lives.

Introduction

STEM (Science, Technology, Engineering, and Mathematics) education represents a paradigm shift in contemporary teaching and learning by emphasizing real-world applications, problem-solving, and innovation. This multidisciplinary approach goes beyond traditional subjects by integrating diverse fields to address complex and global challenges. The National Education Policy (2020) reports that evaluations of undergraduate educational approaches integrating STEM have consistently demonstrated positive learning outcomes. These include enhanced creativity and innovation, improved critical and higher-order thinking skills, strengthened problem-solving abilities, and better teamwork and communication skills. Additionally, students achieve deeper learning and mastery of curricula across disciplines, increased social and moral awareness, greater engagement, and enjoyment in learning.

Furthermore, the policy reveals that research benefits significantly from a holistic and multidisciplinary

education approach, fostering more comprehensive and impactful outcomes. STEM fosters collaboration, creativity, and critical thinking among learners and prepares them to navigate and contribute to an increasingly interconnected technology-driven world. A multidisciplinary STEM curriculum in an educational institution encourages students to see the interconnection of disciplines. Subjects like physics merge with technology in robotics, biology intersects with engineering in biotechnology, and mathematics underpins advancements in artificial intelligence. Such integration can develop a holistic thinker capable of synthesizing knowledge across domains.

The approach also nurtures essential 21st century skills like adaptability and resilience by engaging students in hands-on projects that mimic professional environments. In school education, the focus of many initiatives is twofold. One is to increase the number of students who pursue STEM subjects, and the second is

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to ensure that each student is well-prepared and suitably qualified to engage in STEM careers (Barker *et al.*, 2014; Bryan *et al.*, 2011; Sha *et al.*, 2015; Vedder-Weiss & Fortus, 2012). The multidisciplinary approach in STEM helps educators transform their classrooms into dynamic spaces where inquiry-based learning flourishes. Partnerships with industries and research institutions expose learners to real-world scenarios and cutting-edge technologies. STEM's multidisciplinary ethos aligns education with societal needs, fostering a generation of innovators equipped to tackle pressing issues like climate change, healthcare disparities, and technological ethics. By linking theory with application and integrating diverse perspectives, STEM education epitomizes the transformative power of interdisciplinary learning, ensuring its relevance and impact for decades.

Science, Technology, Engineering, and Mathematics (STEM)

The technical fields of "science, technology, engineering, and mathematics" are distinct yet interrelated and are collectively known as STEM. According to Merrill (2009), STEM is described as "a standards-based, meta-discipline at the school level, where educators, especially those specializing in science, technology, engineering, and mathematics, implement an integrated approach to teaching and learning. In this method, content specific to each discipline is not treated in isolation but is instead presented as an interconnected and dynamic area of study." Research has shown that the term STEM has been interpreted in various ways ranging from disciplinary to transdisciplinary perspectives by scholars such as Vasquez, 2014/2015, Burke *et al.*, 2014, Honey *et al.*, 2014, Moore and Smith, 2014, Rennie *et al.*, 2012 and Vasquez *et al.*, 2013 (English, 2016). The word STEM has become a popular buzzword among many in recent years, and the term STEM has gained considerable momentum since 2001 (Breiner *et al.*, 2012). STEM signifies a transformative and interdisciplinary approach to education that seeks to bridge gaps between various fields of study to address real-world challenges. It promotes an integrated approach where the knowledge from various disciplines is interconnected and applied collaboratively. It also promotes experiential learning where students are engaged in hands-on projects, problem-solving activities, and the use of cutting-edge technologies to deepen their knowledge and understanding of concepts.

STEM helps develop essential skills that are very important for succeeding in an increasingly complex, technology-driven global landscape by fostering critical thinking, creativity, analytical reasoning, and teamwork.

The fundamental goal of STEM education is to prepare learners for careers in high-demand fields, enabling them to become innovators, researchers, and leaders in science and technology. It is significant in driving economic growth, enhancing global competitiveness, and addressing pressing societal issues like climate change, sustainable energy, and healthcare advancements. Moreover, STEM education also focuses on inclusivity by encouraging the participation of under-represented groups like women and minorities. With this, it fosters diversity and innovation within these fields. STEM sparks curiosity and a mindset of inquiry among learners. It also develops technical expertise and lifelong learning among learners, enabling them to adapt to and shape the future. With this future-focused approach, STEM is the cornerstone for building a knowledgeable, skilled, and resilient society, ready to tackle the challenges and opportunities of the 21st century.

STEM Education in India and Abroad

STEM education in India is playing an important role in preparing learners for a rapidly evolving world driven by technology and innovation. It focuses on building critical thinking, problem-solving skills, and analytical skills among students and equipping them to address real-world challenges. A robust STEM education framework becomes imperative as India aspires to be a global leader in information technology, space exploration, and biotechnology. The concentration of Govt. of India on STEM education is making it a worldwide center for innovation. The environment of STEM education in India is changing by emphasizing inclusion and reaching out to students from both Urban and Rural areas. India has taken various cutting-edge initiatives to prepare the next generation for success in various fields of STEM. Sharma (2024), in a related study, reported that around 70% of Indian Students studying abroad have chosen STEM fields. Europe has surged as a preferred destination for Indian students, surpassing other countries due to Europe's affordable education options and the flexibility of choosing field of the study which may be witnessed in the table below:

Country	Approximate Indian Students (2023-24)	Key Benefits
Germany	39600	Strong STEM Programmes and Affordable Education
France	12000	Scholarships, multicultural experience
United Kingdom	150000	Post-study work visas, prestigious institutions
Ireland	6000	Booming tech sector, English language
Netherland	4500	High academic quality, diverse courses

Sharma (2024)

The Govt of India has taken various initiatives to promote STEM Education in India. Some of these initiatives are as follows:

Atal Tinkering Labs: The "Atal Innovation Mission" set up "Atal Tinkering Laboratories" (ATLs) in schools throughout India. The goal of the ATLs was to "Nurture one Million children in India as Innovative Thinkers." The purpose of this initiative was to encourage curiosity, creativity, and imagination among young students. An "Atal Tinkering Lab (ATL)" serves as a specialized space for young innovators to implement their ideas through hands-on, DIY experiences while acquiring vital innovation skills. These young innovators can experiment with a range of tools and equipment, enhancing their understanding of STEM principles. The ATLs are outfitted with educational and practical DIY kits that encompass various fields such as science, electronics, robotics, open-source microcontroller boards, sensors, 3D printers, and computers.

Robo Shiksha Kendra: In 2023, the Bosch set up a Z cutting-edge STEM tinkering lab in VCV Govt. Higher Secondary School Vellakinar, Coimbatore. The lab was set up to foster innovation and creativity among students and propel them toward a promising future, which STEM drives. The Robo Shiksha Kendra (RSK) is equipped with cutting-edge robotics kits that empower students to access premium components for building and program robots. The RSK prioritizes interactive learning among students and encourages them to involve themselves in the subjects through practical experiments and projects. In RSK, various experts guide students in developing problem-solving and critical-thinking skills. The RSK

possesses a dynamic curriculum that exposes students to multiple concepts of STEM and fosters creativity among them.



Rashtriya Avishkar Abhiyan: The "Ministry of Human Resource Development, Department of School Education and Literacy" has set Rashtriya Avishkar Abhiyan (RAA) aims at creating a spirit of creativity and inquiry, love for Mathematics and science among children of 6-18 years of age. The RAA aims to make science, mathematics, and technology exciting to children and encourage them to have an enduring interest inside and outside the classroom. The target educational institutions are State/UT Govt. and local body schools, "Kendriya Vidyalayas, Navodaya Vidyalayas," Special Schools, Open Schools, and Special Training Centers.

(Source: "Ministry of Human Resource Development, Department of School Education and Literacy")

STEM and the Multidisciplinary Approach

STEM education has become a cornerstone of modern teaching and learning, which is driven by the increasing demand for innovative solutions to complex problems. The multidisciplinary approach within STEM education recognizes that real-world problems rarely exist in isolation and require insights from diverse areas of study. This interconnectedness of many disciplines fosters a more profound appreciation among students of how different domains interact and equips them with the tools to think broadly and innovatively. The main benefit of this approach is its ability to bridge the gap between theoretical knowledge and practical application. By interconnectedness of various disciplines, STEM encourages students to apply mathematics formulas in shaping and designing engineering projects. This approach enables the learners to foster collaboration and teamwork among them. In multidisciplinary professional

environments, the students work in groups to address various challenges, and each learner contributes their expertise from their respective perspectives. The inclusion of arts in STEM is transforming it into STEAM, which is a growing trend that further improves the multidisciplinary approach. STEAM education has broadened the learning scope and encouraged innovative thinking among learners by incorporating creativity and design principles. The multidisciplinary approach to STEM aligns with the evolving demands of the 21st century workforce as modern careers increasingly need adaptability, cross-disciplinary expertise, and the ability to collaborate with diverse groups. In STEM, the learners develop versatile skills, allowing them to excel in different domains, from healthcare and robotics to renewable energy and data science. These skills include communication, critical thinking, and ethical reasoning (Ghani *et al.*, 2021). Educators play an important role in the implementation of a multidisciplinary approach. The teachers/educators design curricula integrating STEM areas and generating inquiry-based and project-based learning opportunities. For example, a lesson on robotics may involve programming (technology), mechanical design (engineering), mathematical algorithms, and understanding the physics of motion. Colleges and Universities are incorporating undergraduate research experiences to enhance student retention, graduation rates, and success in STEM fields (Yantz *et al.*, 2015). With this, the teachers help students see the interconnections among disciplines and foster a mindset of lifelong learning.

Conclusion

The multidisciplinary approach is considered the essence of STEM education, enabling students to draw from diverse knowledge pools to address real-world problems more effectively. The study highlights that the boundaries between science, technology, engineering, and mathematics are increasingly blurred. This interconnectedness means that advances in one field often depend on progress in others. A multidisciplinary approach allows these fields to work synergistically. Real-world problems are multidimensional. Solving these problems requires knowledge and methods that span multiple fields. Innovation Happens at the Intersections. Breakthroughs often occur when disciplines intersect. This integration enhances academic understanding and prepares students for the complexities of modern careers and global challenges. The study also highlights that by fostering critical thinking, creativity, and collaboration, STEM education ensures that learners are equipped to innovate

and contribute meaningfully to society. For students to succeed in the future, an effective STEM education is essential. The teachers who integrate STEM education must be well prepared and supported by all. The development of curricular materials for STEM integration, the relations between teacher preparation programs for integration and teachers' subsequent classroom teaching strategies, and how teachers perceive STEM integration might all be the subject of future research. A student needs a strong foundation in fundamental disciplines and essential mental flexibility to develop a combined inductive-deductive vision and the freedom of inter multidisciplinary receptivity. This is necessary given the rapid growth and accumulation of scientific information.

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समसामयिक गतिविधियाँ / Current Events

- दिनांक 19 जुलाई, 2024 को भारतीय शिक्षा शोध संस्थान में "साधारण सभा एवं संचालन समिति" की बैठक का आयोजन किया गया।
- दिनांक 27 अगस्त से 29 अगस्त, 2024 तक "Writing Research Report" विषय पर तीन दिवसीय ओरियंटेशन कार्यक्रम का आयोजन किया गया, जिसमें 15 छात्र-छात्राओं ने भाग लिया।
- दिनांक 14 सितम्बर से 24 अक्टूबर, 2024 तक University of Lucknow, Lucknow के M.A. (Education) III Semester में अध्ययनरत् विद्यार्थियों को एक माह के Internship कार्यक्रम के अन्तर्गत विभिन्न विषयों पर व्याख्यान के अतिरिक्त संस्थान की गतिविधियों, क्रियाकलापों, निर्देशन एवं परामर्श तथा पुस्तकालय के तकनीकी ज्ञान से परिचित कराया गया।
- दिनांक 18 सितम्बर, 2024 को शोध मनोवैज्ञानिक, डॉ भानु प्रताप यादव द्वारा सरस्वती विद्या मन्दिर, अलीगंज, लखनऊ में HSPQ (High School Personality Questionnaire) से कक्षा 11 के विद्यार्थियों का व्यक्तित्व परीक्षण किया गया।
- दिनांक 19 नवम्बर, 2024 को शोध मनोवैज्ञानिक, डॉ भानु प्रताप यादव द्वारा सरस्वती विद्या मन्दिर, अलीगंज, लखनऊ में HSPQ (High School Personality Questionnaire) से कक्षा 12 के विज्ञान विषय के विद्यार्थियों का व्यक्तित्व परीक्षण किया गया।
- दिनांक 20 नवम्बर, 2024 को शोध मनोवैज्ञानिक, डॉ भानु प्रताप यादव द्वारा सरस्वती विद्या मन्दिर, अलीगंज, लखनऊ में HSPQ (High School Personality Questionnaire) से कक्षा 12 के कॉमर्स विषय के विद्यार्थियों का व्यक्तित्व परीक्षण किया गया।
- दिनांक 07 दिसम्बर, 2024 को बी.एस.एन.वी. कालेज के दो शोध छात्रों ने मनोविज्ञान प्रयोगशाला का भ्रमण किया। उन्हें प्रयोगशाला में उपलब्ध शोध से सम्बन्धित उपकरण व परीक्षण से अवगत कराया गया।

शोध आलेख प्रकाशनार्थ भेजने के पत्र का प्रारूप

प्रेषक :

.....

.....

सेवा में,

दिनांक :

मुख्य सम्पादक,
भारतीय शिक्षा शोध पत्रिका,
भारतीय शिक्षा शोध संस्थान,
सरस्वती कुंज, निरालानगर,
लखनऊ - 226020 (उ.प्र.)

विषय : शोध पत्रिका में प्रकाशनार्थ शोध आलेख का प्रेषण।

महोदय,

मैं/हम आपकी शोध पत्रिका में प्रकाशनार्थ शोध आलेख प्रेषित कर रहा/रहे हैं। इस सम्बन्ध में आवश्यक विवरण निम्नवत् हैं-

1. शोध आलेख का शीर्षक
2. लेखक/लेखकों के नाम, पद, पत्राचार का पता, फोन, ई-मेल पता -
नाम पद पत्राचार का पता फोन/मो. ई-मेल
.....
.....
.....
3. शोध आलेख शोध पत्रिका के नवीनतम अंक में प्रकाशित 'लेखकों के सूचनार्थ' के दिशा-निर्देशों के आधार पर तैयार किया गया है। शोध आलेख के सम्बन्ध में यदि कोई स्पष्टीकरण वांछित है तो लेखक से उसकी जानकारी ली जा सकती है। इसके लिए लेखक सदैव तैयार है।
4. यह शोध आलेख हमारे अपने अनुसंधान कार्य पर आधारित है। इसमें व्यक्त विचार, निष्कर्ष आदि हमारे हैं। ये भारतीय शिक्षा शोध संस्थान अथवा विद्या भारती की नीतियों के परिचायक नहीं हैं। यदि हमारे शोध आलेख में प्रकाशित किसी सामग्री से कापीराइट नियम का उल्लंघन होता है तो इसके लिए हम स्वयं उत्तरदायी होंगे। प्रकाशक अथवा सम्पादक मण्डल इसके लिए किसी भी प्रकार से उत्तरदायी नहीं होगा।
5. इस शोध आलेख का अन्यत्र प्रकाशन नहीं कराया गया है और न ही इसे कहीं अन्यत्र प्रकाशनार्थ भेजा गया है।
6. इस पत्र के साथ शोध आलेख की टंकित पाण्डुलिपि (दूसरी भाषा में सारांश, केवल शोध पत्र का) की एक प्रति उसकी सीडी, शोध पत्र में प्रयुक्त उपकरणों की छाया प्रतियाँ प्रेषित हैं।
7. इस शोध आलेख की एक प्रति हमारे पास सुरक्षित है।
आशा है आप इस शोध आलेख को अपनी शोध पत्रिका में प्रकाशनार्थ स्वीकार करेंगे।
8. प्रकाशन पूर्व आलेख के प्रस्तुतीकरण के समय रु. 1000/- आलेख के साथ तथा आलेख में किसी तरह की कोई साहित्यिक चोरी नहीं हुई है, एतदर्थ प्रमाण पत्र (Plagiarism Certificate) प्रेषित कर रहा हूँ/रही हूँ।
9. मैं प्रकाशन हेतु स्वीकृति आलेख सूचना प्राप्त होने के भीतर रुपये 2000/- (आलेख) अवश्य प्रेषित करूँगा/करूँगी।

सधन्यवाद,

भवदीय,

(लेखक/लेखकों के नाम व हस्ताक्षर)

Format of Letter for Sending Research Article/Research Note for Publication

From _____

To- Chief Editor,
Bharatiya Shiksha Shodh Patrika
Saraswati Kunj, Nirala Nagar,
Lucknow-226020 (U.P.)
Email: sansthanshodh@gmail.com

Date:

Subject: Dispatch of Research Article/Research Note for Publication in Research Journal.

Sir,

I am/We are sending a research article/research note for publication in your Research Journal. Necessary details are as under-

1. Title of the research article/research note _____

2. Name	Designation	Mailing Address	Ph./Mob.No.	E-mail ID
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

3. Manuscript of the research article/research note has been prepared according to the Information for Contributors published in the latest issue of the Journal. If any clarification is desired the contributor(s) may be consulted. Contributor(s) will always be ready for this.

4. This research article/research note is the result of my/our own research work. Views, conclusions etc. expressed in this are may/our own. They do not express the policies of Vidya Bharti or Research Institute of Bharatiya Education. If the copyright rules are violated by any of our published matter then we ourselves would be responsible for it. Publisher or Editorial Board will not be responsible for this in any way.

5. This research article/research note has not been published nor it has been sent for publication anywhere else.

6. Along with this letter a typed copy of research article/research note along with a summary in other language (in case of research article); its CD; photocopy of tools used in research article; have been enclosed.

7. A copy of this research article/research note has been retained by me/us

Hope this research article/research note will be accepted by you for publication in the Research Journal.

8. Please submit Rs. 1000/- along with your paper. It's the submission fee and is non-refundable. No action will be taken on your paper till this fee is received. You are also required to submit Plagiarism Certificate along with your research paper.

9. Within a week I shall send money Rs. 2000 (Article) after receiving intimation of acceptance of my research paper.

Thanks,

Yours Sincerely,

(Name and signature of contributor)

लेखकों के सूचनार्थ / Information for Contributors

1. भारतीय शिक्षा शोध पत्रिका का प्रमुख उद्देश्य शिक्षा के विभिन्न आधारों से सम्बन्धित भारतीय संस्कृति संदर्भ में किये गये सैद्धांतिक एवं प्रयोगात्मक अध्ययनों को प्रकाशित करना है। इसमें विद्याभारती पर किये गये तथा विद्यालयी शिक्षा को उन्नत बनाने वाले अध्ययनों को वरीयता दी जाती है।
2. शोध पत्रिका में हिन्दी एवं अंग्रेजी, दोनों भाषाओं में शोधपत्र प्रकाशित किये जाते हैं। इसमें एक भाषा में प्रकाशित शोधपत्र का सारांश दूसरी भाषा में भी प्रकाशित किया जाता है।
3. सामान्यतया शोधपत्र अनुसंधान आधारित (Research based), पुनरीक्षण लेख (Review Articles), सैद्धांतिक विषयों पर आधारित निबन्ध (Essays based on theoretical issues) आदि हो सकते हैं। इसके लेखन में यथा आवश्यकता अग्रांकित शीर्षकों का प्रयोग किया जाना चाहिए- भूमिका (Introduction), उद्देश्य (Objectives), प्रकल्पना (Hypothesis), शोध पद्धति (Method), शोध का अभिकल्प (Design), प्रतिदर्श (Sample), प्रयुक्त उपकरण (Tools used), सांख्यिकीय प्रविधि (Statistical Techniques), प्रदत्त-विश्लेषण (Data Analysis), परिणाम (Result), प्राक्कल्पनाओं का सत्यापन सहित विवेचन (Discussion), अध्ययन का निहितार्थ (Implications of the Study), सन्दर्भ (References)। शीर्षकों में आवश्यकतानुसार उपशीर्षक भी बनाये जा सकते हैं।
4. शोधपत्र सामान्यतया 2500-3000 शब्दों से अधिक का नहीं होना चाहिए। इसके साथ एक संक्षिप्त सारांश दूसरी भाषा में लगभग 250-300 शब्दों में संलग्न किया जाना चाहिए।
5. सभी चित्रों (Figures), तालिकाओं (Tables) को अलग कागज पर तैयार करें। इन पर पाण्डुलिपि में प्रदर्शन के क्रम से चित्र-1/तालिका-1 आदि से प्रदर्शित कर दें। प्रत्येक चित्र/तालिका पर उसका अपना शीर्षक (Caption) अवश्य अंकित किया जाना चाहिए। तालिका में खड़ी लाइनों का प्रयोग न करें।
6. सन्दर्भ शीर्षक के अन्तर्गत केवल आलेख में प्रस्तुत सन्दर्भों का ही उल्लेख करें। इसके लिए लेखकों की रचनाओं, प्रकाशन वर्ष, प्रकाश आदि के विवरण सहित, लेखकों के नामों को वर्णानुक्रम (Alphabetically) में प्रस्तुत करें। आलेख की पाण्डुलिपि में इसे उचित स्थान पर अग्रांकित रूप में दें, जैसे (वर्मा, 1990, पृ. 40)।

पुस्तक (Books)

- * श्रीवास्तव, (डॉ.) शंकर शरण एवं राय, (डॉ.) कमला, (1991-92), **शिक्षण के मूल तत्व**, वाराणसी : श्रीराम प्रकाशन
- * वही पृ.-98
- * श्रीवास्तव एवं राय (1991-92), पूर्व चर्चित पृ.-102

सम्पादित पुस्तक (Edited Book)

- * तोमर, (डॉ.), जगतपाल सिंह, (2006), **शिक्षक होने का तात्पर्य**, एस.एस. श्रीवास्तव एवं अन्य द्वारा सम्पादित, **शिक्षक सशक्तिकरण में**, लखनऊ : भारतीय शिक्षा शोध संस्थान

जर्नल (Journal)

- * गुप्ता, आर.पी. (2007), **सेक्स एजुकेशन : हवाई (Why)? हेन एण्ड हाऊ (When and How)?**, भारतीय शिक्षा शोध पत्रिका, 26(2), पृ. 23-29

अप्रकाशित शोध प्रबन्ध/अन्य (Unpublished Thesis/ Others)

- * दत्त, (डॉ.), विभा, (1981), **ए क्रिटिकल स्टडी ऑफ एसेन्डेन्स-सबमिशन ऑफ इण्टरमीडिएट स्टूडेंट्स (ब्याच एण्ड गल्सी)**, अप्रकाशित पीएच.डी. शोध प्रबन्ध, लखनऊ विश्वविद्यालय।

श्रीवास्तव, (डॉ.), कान्ति मोहन, (1991), **परीक्षा परिणाम का प्रभावी प्रस्तुतीकरण**, आलेख प्रस्तुत, भारतीय शिक्षा शोध संस्थान द्वारा आयोजित अखिल भारतीय शोध गोष्ठी (तृतीय), नई दिल्ली में।

- * **राम-सा सत्य है राम का अस्तित्व** शीर्षक समाचार, दैनिक जागरण (नगर सं.), लखनऊ, 14.09.2007

7. तैयार शोधपत्र की पाण्डुलिपि डबल स्पेस देकर (कोटेशन, फुटनोट, सन्दर्भ एवं सारांश सहित) ए-4 साइज के सफेद कागज पर एक ओर पर्याप्त हाशिया देकर टंकित होना चाहिए। पाण्डुलिपि के प्रथम पृष्ठ पर शोधपत्र का मुख्य शीर्षक तथा लेखक-लेखकों के नाम के पश्चात् विभिन्न-शीर्षकों में आलेख की विषयवस्तु प्रस्तुत की जानी चाहिए।
8. शोधपत्र के मुख्य शीर्षक के साथ अन्य शीर्षक एवं उसके अन्तर्गत उपशीर्षक दर्शाने के लिए टंकित पाण्डुलिपि के हाशिए में पेंसिल से मु.हे. (M.H.) तथा उप.हे. (S.H.) अंकित कर दें। इसका क्रमांक भी अंकित कर दें। किसी शीर्षक को रेखांकित न करें।
9. शोधपत्र एवं सारांश की टंकित पाण्डुलिपि की एक प्रति एवं उसकी सीडी, शोधपत्र में प्रयुक्त उपकरणों की छाया प्रतियाँ इस प्रमाण पत्र के साथ भेजी जानी चाहिए कि यह शोधपत्र कहीं अन्यत्र प्रकाशित नहीं है।
10. शोध टिप्पणी के अन्तर्गत शोध संस्थान के विभिन्न प्रकोष्ठों एवं अन्य शोधकर्ताओं द्वारा किये गये शोधों का सारांश प्रकाशित किया जाता है। इसके लिए किये शोध सारांश हिन्दी अथवा अंग्रेजी में अधिकतम लगभग 1500 शब्दों में भेजा जा सकता है। इसकी पाण्डुलिपि शोधपत्र की भांति तैयार की जानी चाहिए, किन्तु इसमें शोध टिप्पणी के मुख्य शीर्षक के अतिरिक्त अन्य शीर्षक, चित्र, तालिका, सन्दर्भ आदि देने की आवश्यकता नहीं है।
11. शोधपत्र/शोध टिप्पणी के प्रकाशनार्थ प्राप्त होने के सामान्यतया चार माह के भीतर उसके प्रकाशन हेतु स्वीकृति की सूचना लेखक को प्रेषित कर दी जाती है। यदि शोधपत्र/शोध टिप्पणी के सम्बन्ध में कोई सूचना इतनी अवधि में न मिले तो इसका तात्पर्य है कि रचना प्रकाशन हेतु स्वीकृत नहीं की गई है।
शोध पत्रिका में प्रकाशनार्थ प्रेषित शोधपत्र/शोध टिप्पणी की एक प्रति लेखक बन्धु अपने पास अवश्य सुरक्षित रख लें। अस्वीकृत होने पर इसके वापस भेजे जाने की व्यवस्था नहीं है।
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सचिव

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