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Integrating Indian Knowledge System with 21st century skills: Revitalizing Total Quality Management in Education System

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Abstract:

The Bhartiya Gyan Parmampra believes in sustainability and strives for the welfare of all people. It is important that we reconstruct a comprehensive knowledge system of our rich heritage and demonstrate the "Indian Way" of doing things to the world. The NEP 2020 recognizes this rich heritage of ancient and eternal Indian knowledge and thought as a guiding principle to achieve the holistic development of the entire education system with the help of 21st century skills and total quality management. During the colonial era, British rulers established a formal traditional Indian system of education was marginalized. The NEP 2020 marked a significant paradigm shift in the country's approach to education, including the introduction of IKS as a foundational component of the curriculum. The IKS comprises Jnan, Vignan, and Jeevan Darshan, which have evolved from experience, observation, experimentation, and rigorous analysis.

The NEP 2020 states that Indigenous knowledge must be promoted, and if we want to compete globally, we must have 21st century skills (critical thinking and problem solving, creativity, communication, and so on). A 21st century education is about giving students the skills they need

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to succeed in this new world and helping them grow the confidence to practice those skills. Total quality management (TQM) is a management philosophy that aims to achieve long-term success through customer satisfaction. It involves continuous improvement in all aspects of the educational system. By integrating the principles of IKS and TQM, the educational system can create a more student-centered, quality-focused learning environment and holistic developmental system of education. With the help of these principles, the educational system can create a learning environment that fosters critical thinking, creativity, and a deep sense of purpose. This approach will help all stakeholders in the educational setup to develop the skills and values needed to thrive in the 21st century and contribute positively to society. This study aims to explore how the traditional Indian Knowledge System (IKS) can rejuvenate the Indian education system by integrating 21st century skills and TQM. This paper delves into an examination of these ancient knowledge systems, exploring ways to seamlessly integrate them into the current educational framework.

Keyword: *Indian knowledge system (IKS), 21st century skills, Total Quality Management (TQM)*

Introduction:

Ideas such as "Vasudhaiva Kutumbakam, " which means "the world is one family," emphasize the moral and ecological aspects of conventional Indian Darshan. The National Education Policy (NEP) 2020 is a comprehensive framework designed to transform the Indian education system to meet the challenges of the 21st century. One of its core tenets is the acknowledgement and incorporation of Indian knowledge systems (IKS), which include indigenous and traditional knowledge that has been essential to India's intellectual and cultural legacy. The Bhartiya Gyan Parmampra works to ensure everyone is well-being and believes in sustainability. Rebuilding the entire knowledge system of our rich heritage and displaying the "Indian Way" of doing things to the world are crucial. With the aid of 21st century skills and comprehensive quality management, the NEP 2020 acknowledges this rich legacy of timeless and ancient Indian knowledge and thinking as a guiding principle to accomplish the holistic development of the entire educational

system. During the colonial era, British rulers established a formal educational system to serve their administrative needs. These institutions propagated western knowledge, languages and cultural norms. The term Indian Knowledge System refers to diverse traditional knowledge systems and practices that have been developed and transmitted over centuries within various communities and regions across India. Quality education is a major concern in many societies worldwide. In a highly competitive education sector, academic institutions 'success depends on the quality of education. Educationalists, policymakers, scholars, and researchers have shown sincere interest in total quality management (TQM) as it is recognized as an effective management philosophy for continuous improvement, customer satisfaction, and organizational excellence. According to Koslowski, in this age of cut-throat competition, quality education is a major concern. The demand for and pressure on quality education are increasing. All concerned parties in education are actively considering implementing TQM in education because quality education is believed to be one of the fundamental building blocks of economic development. Since TQM was first created for industrial companies, there is considerable disagreement over its suitability for use in educational settings. Therefore, a solution to this issue is crucial. It was also discovered during the preliminary inquiry that there are significant obstacles to TQM implementation in educational settings. Given the current situation, we need to discuss 21st century skills. We must successfully address today's difficulties, which arise from fierce global rivalry, with the aid of these abilities. The acquisition of fundamental academic information is the foundation for 21st century skills learning, and institutions must expand on this foundation with learning, life, and literacy skills.. The 21st century skills include critical thinking, creativity, soft skills, collaboration, and other important elements that are rigorously present in the world society.

Objectives and Scope of the study:

The core objective of this study is to assess the compatibility of TQM in the educational system with respect to the Indian Knowledge System and 21st century skills. This study also attempts to identify the challenges that may impede the application of Indian knowledge system and 21st century skills in relation to TQM in educational settings. While attaining these objectives, this

study would make a special focuses on the term Indian Knowledge System (IKS), 21st century skills, and TQM to highlight the characteristics and potential benefits of adopting TQM principles in the perspective of implementing Indian knowledge system (IKS) and accepting modern challenges so that all can visualize it. In this study, education refers to primary, secondary, tertiary, and higher-level education, including professional and vocational education.

Research Methodology:

A structured and scientific approach was used to collect, analyze, and interpret qualitative data to fulfill the objectives. A qualitative methodology was chosen for this study. This exploratory approach provides an opportunity to understand and clarify the main problem of this study. Data and information for this study were collected through extensive literature reviews, interviews with experts, and personal experience.

Data collection:

For data collection, secondary data were obtained from journals, books, websites, and reports.

Indian knowledge system (IKS):

It is an organized and systematic perspective for transmitting knowledge from one generation to another. It distinguishes itself as a process of knowledge transfer rather than merely a tradition. It is an ancient and rich collection of beliefs, darshan, and practices that have been passed down from generation to generation-in India. It encompasses enormous fields such as piousness, science, art, social norms, and literature and plays a significant role in shaping Indian society and culture. The ancient texts of the Vedas, Upanishad, and other religious texts—which are regarded as the richest sources of knowledge on topics ranging from medicine, astronomy, mathematics, politics, to spirituality and philosophy—form the basis of the IKS. They shed light on the Indian way of life and emphasize the value of harmony, balance, and unity in society. The core ideas of moksha, karma, and dharma are interconnected and have significantly affected Indian society and culture. They guide individuals in their personal and devout growth and inform their persuasion towards

life, death, and the afterlife. These factors play a significant role in shaping societal norms and values and promoting social harmony and peace.

Elements of the Indian knowledge system:

There are rich genesis-like intellectual concepts, songs recorded in the sacred writing known as Vedas and Upanishads, and rituals that serve as the cornerstone of Hinduism.

- Puranas: Anthologies of myths, stories, and ancestries that impart spiritual and moral teachings.
- Darshan Institutions such as Samkhya, Nyaya, and Vedanta study epistemological, ethical, and metaphysical issues.
- Astronomy - Indian astronomers made important contributions in antiquity, including Aryabhata's research on planetary placements.
- Mathematics - ancient Indian mathematicians gave the Concept of zero, decimal system, and advances in algebra and geometry. Dharma and Karma are key concepts that highlight moral behavior and the law of cause and effect.
- Ayurveda: An ancient medical system that uses natural cures and lifestyle modifications to promote holistic health.
- Yoga is a spiritual and physical activity that fosters self-awareness and mental wellness. Tolerance and pluralism. Throughout history, the Indian knowledge system has accepted a diverse array of beliefs and traditions. The coexistence of many intellectual schools and religious groups, as well as the prevailing acceptance and tolerance, is significant.
- Gurukul System - In the past, education was frequently provided in Gurukuls, where students lived with their professors and received a comprehensive education.

Importance of IKS:

The importance of the Indian knowledge system is extremely significant because of its monumental influence on many different fields. Ancient Indian writings, such as the Vedas and Upanishads, offer great nuances of insights into spirituality and the essence of life, influencing not only religious beliefs but also global philosophical discourse. Indian mathematicians such as Aryabhata and Brahmagupta made significant advances in algebra, trigonometry, and astronomy, and India is the origin of the decimal numeral system and ideas such as zero, which have swayed worldwide advances in mathematics. The ancient Indian medical system, Ayurveda, emphasizes overall health. It has affected conventional medicine worldwide, and Indian-inspired techniques such as yoga and meditation improve both mental and physical health. Indian literature exhibits rich storytelling and poetic traditions, from epics such as the Mahabharata and Ramayana to classical works such as those of Kalidasa. Indian sculpture and traditional dance are examples of art that highlight the country's creative and diverse culture. The philosophical traditions of Samkhya, Nyaya, and Vedanta offer frameworks for understanding morality, logic, and existence. These lessons are still applicable in discussions on ethics.

21st century skills and education:

In the midst of the current technological revolution, there is a thriving conversation about how society should adapt to the future of work taking place in the national media, universities, policy organizations, think tanks, consulting firms, and companies. Models for work and education that were taken for granted in the 20th century are now under a microscope, as society attempts to determine what is suitable to keep and what needs to be changed and re-framed for the 21st century. Concerns about skills-based education are not new but are part of an ongoing debate over the nature and value of all levels of educational frameworks. The knowledge, life skills, professional skills, habits, and characteristics that are vital to students' success in the modern world—especially as they transition to college, the workforce, and adulthood—are referred to as 21st century skills. In the current situation, we must consider 21st century abilities such as creativity, critical thinking, problem solving, communication, persistence, teamwork, and literacy. According to professionals in higher education and industry, soft skills are

the most crucial factor in determining success in advanced coursework and jobs. Schools are training pupils for occupations that may not exist in the modern world. Career preparation is the process of providing children with a diverse range of abilities that may help them prepare for the future. Social media has altered how people communicate with one another and made navigating social settings more difficult for adolescents. Access to knowledge has significantly expanded in the Internet era. Students must be taught how to handle and evaluate vast volumes of data. Students must be taught how to apply facts and concepts to complicated issues, as content knowledge from basic topics is only so useful.

The National Education policy (NEP- 2020) has prioritized the development of students who are well equipped to navigate the challenges of the 21st century. By focusing on critical thinking, problem solving, communication, collaboration, and creativity, NEP 2020 is helping to build a generation of students who are well equipped to navigate the challenges of the 21st century and make a positive impact on society. One of the key components of the NEP 2020 is the emphasis on developing problem-solving and critical thinking skills in students. In today's world, it is increasingly important for individuals to be able to work effectively with others to achieve common goals. For this purpose, NEP 2020 emphasizes several components, such as communication, collaboration, creativity, multidisciplinary learning, experiential learning, and use uses of technology in the learning process. Sweet (2014) states that, "the most common method for implementing 21st century skills is project based learning." Zhao (2012) believes that, "according to the definitions found in PBL (Project Based Learning) handbooks for teachers, projects are complex tasks, based on challenging questions or problems, that involve students in design, problem-solving, decision making, or investigative activities; it gives students the opportunity to work relatively autonomously over an extended period of time; and culminate in realistic products or presentations." Project-based learning enhances student creativity and innovation (Pearson, 2014).

Total quality management and Education:

An approach to management known as total quality management (TQM) was first introduced in the 1950s and has steadily gained traction since the early 1980s. At the heart of this ideology is the word "quality." Many definitions of total quality management with various meanings have been presented because scholars have taken advantage of the opportunity to express their opinions on the phrase in a variety of ways. According to Crosby, quality management is a systematic approach to guarantee that scheduled operations occur as intended. According to Yang, Total Quality Management (TQM) is a collection of procedures that emphasizes methodical improvement, meets customer expectations, and reduces rework. TQM is a management philosophy that builds a customer-driven learning organization dedicated to total customer satisfaction through continuous improvement in the effectiveness and efficiency of the organization and its processes. Total Quality Management provides what is required, as judged by the client. It is accomplished through everyone in the organization being committed to achieving results, a passion for quality, and decisions based on performance data. TQM emphasizes that it is important for all elements to fit together to turn raw materials into products and deliverables that satisfy clients. Customer satisfaction is the result most addressed by TQM (describing the basic tenets of TQM as follows: “long-term perspective, customer focus, and top management commitment, system’s thinking, training and tools in quality, increased employee participation, development of a measurement and reporting system, improved communication between management and labor, and continuous improvement”. It can be seen that TQM describes two main notions: 1. Continuous improvement, and 2. Tools and techniques/methods used. In general, TQM encompasses many management and business philosophies, and its focus shifts based on the scenario in which TQM is applied. Whether in industry or higher education, the TQM philosophy revolves around the customer. According to Crosby (1984), unless strategy is focused on the quality of the teaching system and improvement, the goal of TQM cannot be fulfilled. TQM in education cannot be accomplished without everyone in the organization, from top to bottom, being committed to achieving results, a passion for quality, and decisions based on performance data (Kaufman, 1992). Corrigam (1995) claims that TQM cannot succeed until a firm creates a customer-driven, learning organization committed to complete customer satisfaction. As a democratic nation, India guarantees equitable educational opportunities for all. Although many

educational institutions exist, they only offer theoretical instruction. Practical education is not prioritized in the curriculum. The curriculum taught in schools dates back several decades and has not been updated to reflect the demands of society, the needs of students, or the changing times. There are no instructions in schools that may foster professionalism, a scientific mindset, or practical hands. The current system produces students with degrees but no knowledge, students with certificates but no employability, and students with grades but no originality. Therefore, learners face problems when they must utilize their knowledge. Industries also have to spend precious time, money, and energy in undoing, modifying, and redoing what is learned in educational institutions.

Integration of IKS, 21st century skills, and TQM in educational settings:

Integrating Indian Knowledge Systems (IKS) with 21st-century skills through Total Quality Management (TQM) in education requires a comprehensive approach. This involves curriculum restructuring, pedagogical innovation, technology utilization, and stakeholder engagement, while maintaining a focus on quality improvement to guide this integration.

Curriculum Design and Development:

- Mapping IKS with 21st-Century Skills: Exploring the interlink between the principles of IKS, such as sustainability, critical thinking, and ethics and essential 21st century skills such as problem-solving, digital literacy, and global citizenship.
- Embody traditional Indian sciences (e.g., Ayurveda, Vedic mathematics) and philosophies into STEM, arts, and humanities subjects.

Modular Approach:

- Creation of multidisciplinary programs that combine contemporary applications with IKS ideas. For instance, integrating sustainable architectural techniques with Vastu Shastra concepts into engineering curricula.

- TQM Application: Improving curricular relevance and alignment with industry demands by utilizing input from stakeholders (employers, instructors and students).

Pedagogical Innovations:

Using the experiential learning approach of the Gurukul system, where students use IKS and contemporary technologies to tackle real-world issues, is known as experiential and problem-based learning (PBL). For instance, students can be encouraged to create herbal items as part of their business projects by applying Ayurvedic concepts.

Multisensory Learning:

- Infusing traditional arts into classes such as dance, classical music, and Kathakalakshepam storytelling to foster emotional intelligence and creativity.
- Application of TQM: Monitoring the performance of instructional strategies through frequent questionnaires, assessments, and classroom observations and continually improving methods in response to results.

Building Capacity and Training Teachers:

- Educator Empowerment: Holding seminars to teach teachers IKS and current teaching strategies, such as fusing debating tactics with Upanishadic discussions.

Collaborative Platforms:

- Creating forums for information sharing between IKS specialists and contemporary educators.
- Application of TQM: Assessing professional development initiatives, teacher performance using data-driven insights, and quality control methods.

Integration of Technology:

- Digitization of IKS Resources: Putting old Indian books, manuscripts, and films showing customs into digital libraries those students worldwide may access.
- Platforms for Online Education: To adapt IKS-based content to a range of learner demands, AI-driven adaptive learning systems should be used. For instance, interactive models of astronomical computations are drawn from ancient Indian literature.
- TQM Application: Consistently assessing system performance and user satisfaction to ensure that platforms are effective, engaging, and easy to use.

Key challenges in implementing TQM, 21st century skills and IKS in educational settings:

The young person gazing into the future is at the core of this maelstrom. Every kid has the potential to grow up to be a strong, moral, imaginative, critical, and involved adult. Over-reliance on textbooks hinders the implementation of 21st century education. It takes a lot of effort to prepare resources for 21st century teaching and learning methodologies in order to address current difficulties. Teachers believe that getting ready for a flipped classroom is a very difficult process. In addition to the problems faced by teachers, pupils also encounter some hurdles. The first difficulty is the restricted vocabulary. According to Lim (2017), kids' limited English language competency prevents them from thinking critically since they lack vocabulary. A further implementation challenge. According to Lim (2017), students are not able to think critically due to a lack of vocabulary, as their language proficiency in English is low. Another challenge in implementing 21st century skills is insufficient resources for the teaching learning process. The inability of teachers and students to apply problem-solving based learning can hinder the achievement of current competency needs. In the perspective of the TQM, implementation in education the biggest obstacle could be the commitment from the parties involved with education system, especially the top management and teachers. Brown et al. notice that lack of top management commitment affects TQM efforts negatively, which is one of the main reasons of failure of TQM efforts. The role of individual, particularly the teachers are often informal and less bureaucratic in traditional education system. Failure to implement TQM principles in educational settings, particularly in higher education, can be attributed to a variety of factors, including

resistance to change, a lack of administrative commitment, the high time commitment required for personal training, the difficulty of implementing TQM tools in higher education institutions, the lack of team leader and staff experience in collaboration, and the concerns of higher education institutions regarding their own inadequate results.

Conclusion:

This study does not offer any framework or guidelines what will make implementing IKS, 21st century skills and TQM successful in an educational settings; rather it is involved in explaining what could motivate an academic institute to embrace IKS, 21st century skills and TQM into its process; examining to the extent to which 21st century skills and TQM is relevant and matching with implementing the IKS based education; and what may hinder the successful application of achieve the 21st century skills and TQM in implementing the IKS based educational settings. Random selection of 21sst century skills and TQM principles, tools, techniques and concepts shall not provide any meaningful benefit. Instead, it is wise to choose those tools and techniques, which are consistent with an academic institution. Furthermore, An innovative way to modify the teaching strategies in order to provide holistic development to students is to incorporate Indian Knowledge System (IKS) with 21st century skills and total quality management in the classroom. These elements provide relevance in a rapidly evolving world while also preserving India's rich cultural and intellectual heritage and bringing it into compliance with international standards. Incorporating IKS values and principles in the classroom, as moral and ethical principles with modern learning can definitely help students to become deeply grounded and morally responsible beings. Students are better prepared to delve into the dynamic global environment while they foster 21st-century skills like digital literacy, creativity, teamwork, and critical thinking. With its focus on stakeholder participation, continuous improvement, and outcome-based assessment, TQM principles provide the necessary framework to effectively achieve these goals.

Successful integration of these elements requires a paradigm change in curriculum design, professional growth for educators, policy, and assessment practices. Stakeholders must collaborate to create an educational ecosystem that is inclusive, imaginative, and culturally aware. Such a

program not only raises the standard of education but also equips students with the skills and values necessary to significantly impact society. Overall, IKS, 21st-century skills, and TQM offer a solid path to excellent, sustainable education that bridges tradition and modernity and fosters both personal and societal advancement.

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