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Critical Thinking and Problem-Solving Skills in Modern Education

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Abstract

Critical thinking and problem-solving skills are increasingly recognised as indispensable competencies in modern education, particularly in the context of rapidly changing social, economic, and technological landscapes. This paper examines the conceptual foundations, theoretical frameworks, and pedagogical practices associated with critical thinking and problem-solving, with a specific focus on the Indian education system. Drawing on national policies such as the National Education Policy (NEP) 2020 and the National Curriculum Framework (NCF), the study analyses how these skills are articulated in policy documents and the extent to which they are reflected in institutional practices at school and higher education levels. The paper highlights persistent gaps between policy intent and classroom realities, including an overreliance on rote learning, limited assessment of higher-order thinking, and inequities related to language, geography, and resources. It further explores effective pedagogical approaches—such as inquiry-based learning, Socratic methods, interdisciplinary teaching, technology-enabled learning, and formative assessment—that have demonstrated potential in cultivating these skills. Emphasis is placed on curriculum alignment, teacher preparation, metacognition, and assessment reform as key levers for sustainable change. The paper concludes that a systematic, context-sensitive, and inclusive approach is essential for embedding critical thinking and problem-solving skills across Indian education, thereby preparing learners for lifelong learning and informed participation in society.

Keywords: Critical thinking; Problem solving; Indian education; Pedagogy; Curriculum reform; Metacognition; Assessment reform.

1. Introduction

An uneventful life is one devoid of the need for problem-solving. Life invariably presents challenges both mundane and catastrophic that calls for mental agility. Whether it is a minor snag in domestic chores or a major, life-and-death problem in a modern organisation, developing critical thinking and problem-solving skills is essential. Problem-solving, like critical thinking, has no universally accepted definition. Various disciplines have offered definitions that convey, in essence, that problem-solving is an effort to discover a method to overcome an obstacle. Critical thinking and problem-solving capabilities continue to suffer neglect in many parts of the developing world, including India. Numerous studies on instructional strategies and pedagogical approaches that enable critical thinking and problem-solving development in contemporary education systems indicate the need for change in the educational system in India. A composite national curriculum framework that strives and supports “equal educational access, equity, quality and excellence needs to be developed” and adhered to in practice. Such a comprehensive and detailed framework creates a single umbrella for developing not just critical thinking and problem-solving skills in students but also major cognitive and non-cognitive attributes from an optimal age (Kanti Mukhopadhyay & G. Choudhari, 2024).

2. Conceptual foundations of critical thinking and problem solving

The purpose of education is to enable students to think critically and solve problems, yet the education systems of many countries fail to provide students with enough opportunities to develop their critical thinking and problem-solving skills. Problem-solving can be defined as the process of developing a new understanding of what is not well understood (Kanti Mukhopadhyay & G. Choudhari, 2024). Critical thinking and problem-solving are necessary to function effectively in many professions, but one of the areas where these skills are particularly urgently needed is medical education. It is essential for physicians to think critically and to solve problems in order to make even the simplest of everyday decisions. In India, experts have noted that medical graduates from universities and colleges do not possess the critical thinking and problem-solving skills that are expected to be developed during formal education.

Bloom's Taxonomy identifies knowledge, comprehension, application, analysis, synthesis, and evaluation as levels of cognitive thinking, with evaluation at the top level of complexity, while Paul depicts an ideal critical thinker as being inquisitive, judicious, open-minded, and seeks the truth. These skills are needed across the spectrum of professional and vocation formations, from teaching to medical education. Students in India are discouraged from picking options that require these skills, since they have not been integrated into the school curricula.

2.1. Definitions and distinctions

Critical thinking and problem-solving skills have become essential components of the curriculum in formal education worldwide. The National Education Policy of India has called for higher education institutes to produce graduates that use critical thinking and problem solving as the foremost abilities. Education Commission pointed out that every learner should acquire the capacity to think critically and solve problems. Since the early phases of formal schooling, the concept of thinking among learners is emphasized in the national curricular frameworks on school education, and the concept is in line with education at the higher education level.

Critical thinking and problem-solving skills have become essential components of the curriculum in formal education worldwide. Education Commission stated that the capacities to think critically and to solve problems should be included among the foremost abilities imparted to learners. Education scholars have also recognised critical thinking and problem solving, separately and in conjunction, as vital determinants of learning among all learners at any level, in any subject, and in any mode of education (A. Freeman, 1999). In response, the National Education Policy of India has called for higher education institutes to produce graduates that use critical thinking and problem solving as the foremost abilities. Since preprimary stages, the concept of thinking among learners is emphasised in the national curricular frameworks on school education.

2.2. Theoretical frameworks and models

Critical thinking and problem-solving are prioritized cognitive skills in modern education. Generally defined as higher-order, multifaceted processes involving the conscious and intentional manipulative engagement of acquired knowledge, these skills are in widespread agreement in disciplines as diverse as philosophy, psychology, cognitive science, and education. Yet even though critical thinking and problem-solving and related constructs (creativity, scientific reasoning, algorithmic and nonlinear problem-solving, mathematical and computational thinking, etc.) often overlap, they are distinguishable by specific characteristics; an explicit consideration of their cognitive skill and disposition components and educational relevance in India reveals the scope, need, and focus of this study.

Numerous theoretical frameworks and models offer further clarification of critical thinking and problem-solving, providing both solicited and unsolicited perspectives on the specific contents of each construct and on related constructs not under simultaneous scrutiny. Examples include the Big-Learning taxonomy, Bloom's revised taxonomy, the Paul model, reflective practice, and the dual-process theory of reasoning. Despite their theorist-desired intended universal applicability to cognitive skills teaching, these frameworks nonetheless warrant adaptation to meet the particular requirements of Indian contexts; a mapping of their tenets against various education, policy, and implementation

documents confirms substantial compatibility with institutional-level discourses and priorities in India. Nonetheless, critics continue to question the overall relevance and explanatory power of these frameworks, pointing to specific limitations within each.

2.3. The role of metacognition

Metacognition has gained widespread recognition among educational thinkers and practitioners as an influential factor in students' learning processes, learning outcomes, self-development, improvement in thinking and learning, and ultimately the acquisition of higher-order and critical-thinking skills. According to the National Research Council (NRC) of the National Academies (2000), metacognition entails knowledge of, and control over, cognition (planning, monitoring, and evaluation), enabling learners to engage in more adaptive learning. Higher education institutions in India regard metacognition as a key learner outcome, yet academic programs hardly address it (Lee, 2009).

3. Contextual landscape in Indian education

At the school level, several national datasets indicate a predominant reliance on rote learning and teacher-centric approaches, with conventional pedagogies continuing to shape classroom experiences. Even subjects such as social studies, which are more conducive to critical thinking and problem solving, rarely receive focused attention. Similarly, higher education-level policies prioritise curriculum time for higher-order cognitive skills. Nevertheless, the global push for multidisciplinary integrated pedagogies remains largely disjointed, and higher-order competencies are included only as overarching goals rather than as explicit learning aspirations for specific courses.

Equity, access, and inclusion considerations further complicate the landscape. Rural areas continue to face major disparities in the availability and quality of educational resources. Gender inequity persists in subjects such as science and technology, with fewer girls enrolled even in coeducational institutions. Language remains another barrier, posing significant obstacles to engagement with content. Inclusive education measures, such as support for children with disabilities, have been adopted at both the national and state levels. To ensure equitable policy impact, leading examples from states that have successfully extended coverage to marginalised groups across the various dimensions should be identified.

3.1. Policy instruments and national curricula

In India, policies and frameworks influence both school and higher education; the National Curriculum Framework (NCF) and National Council of Educational Research and Training (NCERT) documents provide a set of guidelines for various subjects at each educational stage. While the NCF was revised in 2005, the NCERT curriculum frameworks for the school system have undergone three revisions since independence in 1947, with the latest document covering grades 1–12 (Harry Sulistyo, 2019). Recommendations in the NCF, including cognitive skills such as critical thinking and problem-solving, have been transformative for the entire school system. An amendment to the National Policy on Education (NPE) in 2020 states that all higher educational institutions must implement the NCF and comply with its guidelines (Kanti Mukhopadhyay & G. Choudhari, 2024). The NCF has the potential to reform curricula significantly; the University Grants Commission (UGC) regulates higher education through two instruments—model curriculum and model syllabus. The effect of the NCF curriculum framework on other subjects has not been closely studied, and a national-level evaluation of the NCF implementation has not yet been conducted.

3.2. Institutional practices across school and higher education

To achieve the objectives outlined in policy and curriculum documents, educational practices must foster cognitive skills both at school and within higher education. However, there remains a significant gap between these stipulations and the actual practices observed in Indian institutions. Analysis of the implementation of critical thinking and problem-solving skills and the impediments to their cultivation reveals differences in pedagogical and assessment practices adopted at school and

higher educational levels. At the school level, teaching tends to reflect lower-order objectives, with a strong reliance on textbook material and examinations that promote rote learning (S. Sundararajan, 2017). Higher education similarly exhibits a neglect of higher-order skills, with an emphasis on rote learning persisting from secondary education, further limited by the status of institutions (Kanti Mukhopadhyay & G. Choudhari, 2024) ,. Many colleges remain parochial, with a narrowing of focus to very specific skills related to particular employment opportunities, leading to a highly individualistic and utilitarian orientation.

4. Pedagogical approaches to cultivate critical thinking and problem solving

A number of pedagogical approaches have demonstrated success in cultivating critical thinking and problem-solving skills. Inquiry-based learning (IBL), Socratic methods, integrated and interdisciplinary teaching, technology-enabled approaches, and well-defined assessment techniques can all be employed to engage these cognitive skills and enhance student learning in identifiable ways. Evidence impacted by contextual factors is conspicuously absent. The following detailed descriptions focus on implementation steps and explicit teacher actions within each approach. Such specifications, in combination with particular student characteristics and desired learning outcomes, can often prove more relevant to Indian teachers than general statements about an approach.

Inquiry-based learning (IBL) approaches, including both open-ended and structured quasi-IBL, have considerable empirical backing and direct connection to problem solving. The term “inquiry” encompasses a spectrum that varies in the degree of teacher direction and control exerted over students—with open IBL situated at one pole and traditional expository instruction at the other. IBL places the learner at the centre of the learning process by promoting engagement in constructing knowledge rather than by simply absorbing information provided by the instructor (A. Freeman, 1999). Both open-ended and more structured forms are compatible with the domain-specific understanding of the cognitive skill, and the compatibility of both with problematic or ill-structured forms of decision making has been clearly established. Implementing inquiry-based lessons can include selecting a subject or topic of inquiry in the subject area as a first step. After prompting student inquiries and questions about the area of interest, teacher-scaffolding may include assisting students in determining which subsidiary questions or lines of investigation would be most informative or beneficial to pursue. Adopting a specific thinking and problem-solving framework can support the process of selecting and framing lines of inquiry and developing the capacity to monitor, assess, and revise their implementation. Other strategies to increase learner agency include relating the inquiry to students’ own ideas, experiences, or environments; providing different modes for expressing students’ ideas; facilitating student participation in determining lesson procedures (including materials, rules, or possession of prior knowledge); and inviting feedback or suggestions to improve lesson design. Prompting students to self-assess their inquiry—considering selected questions, lines of investigation, relevant information used, new insights gained—is another possible pedagogical move, either during or after the inquiry. Aligning the lesson with a curricular standard related to critical thinking and problem-solving skills further strengthens the curricular intent. Assessment methods providing opportunities for students to reflect openly about the inquiry and learning process and to express insights gained facilitate higher-order thinking about the inquiry taken.

Philosophy for Children is a specific inquiry methodology designed to develop thinking skills, reasoning, and philosophical understanding. Lessons commence with an engaging stimulus (text, artwork, music, film, etc.) to elicit questions and establish ownership of the inquiry. Students are encouraged to formulate their own questions about the stimulus. A range of questioning techniques may be employed to promote clear, precise questions, to assist students in finding their own original, personal questions. After students decide collectively on which question to pursue, different forms of collaborative-discourse processes (e.g., dialogue, conversation, discussion) may be considered. Explicit support is given at each stage, specifying the genre of question, the type of permissible contribution, rules regarding the invitation to contribute to the collective inquiry, and the relationship between personal and collective thinking. After the inquiry, students are prompted to reflect on what, how, and why they were thinking and learning throughout the process. P4C can be implemented at various stages of the educational experience and across the curriculum. Expertise in its progressive adaptation

for school-level and tertiary teaching across a multitude of disciplines has been developed and shared with strong and sustained growth in its Indian community of teachers.

4.1. Inquiry-based learning and Socratic methods

Inquiry-based learning emphasises active exploration; students investigate issues and develop solutions guided by teachers. Inquiry involves identifying gaps in knowledge, posing meaningful questions, and seeking answers (Gilbert Edwards, 2019). Feedback indicates that no single definition fully captures the approach. The Open University (2007) defines inquiry as "an approach to learning that engages students in investigation through questioning, gathering information, creating understanding, and considering the implications." It encompasses discovering and constructing knowledge (Artigue, 2012) while helping students clarify thoughts and connect concepts (The Higher Education Academy, 2011).

Socratic methods nurture critical thinking and problem-solving through dialogue and questioning, prompting students to reason, articulate ideas, and analyse views (Shahsavar et al., 2013). Socratic dialogue fosters reasoning skills. Disciples develop questions to articulate thoughts; stating ideas to peers develops analytical ability. Structuring Socratic dialogue involves grouping students, presenting open-ended questions, and using follow-up prompts linked to broader course themes. Guided reflection encourages deeper connections to past learning and encourages further inquiry.

4.2. Integrated and interdisciplinary teaching

Integrating and teaching across disciplines have gained significant attention in the educational reform debate. Innovative pedagogies, such as inquiry-based learning, project-based learning, problem-based learning, and design-based learning, that support integrated or interdisciplinary teaching offer alternative paths to preparing students for a rapidly changing world. Interdisciplinary instruction facilitates student involvement in complex, open-ended, authentic inquiries that enhance their motivation and deeper understanding of knowledge content and thinking processes. Communities of inquiry allow for multi-faceted exploration of important questions, promoting an understanding that resembles the practices of disciplinary experts and fostering the development of the epistemic virtues associated with those disciplines. Greater autonomy in assessment encourages students to assume more responsibility for their learning and enables instructors to provide richer opportunities for feedback that is more closely aligned with the assessment criteria (M Sada et al., 2016).

Integrating the curricular about the nature and instructional practices of different science subjects fosters a better understanding of the overall scientific conception, enhances both creative thinking and critical thinking skills, and improves the quality of students' reports. Moreover, effective collaboration in a co-design endeavour improves the innovative capabilities of teachers. A co-design of integrated chemistry curriculum effectively engages students in curricular topics of their own interest and requires students to apply knowledge or approaches from the sciences beyond chemistry to explore those topics. The instructional practice of a co-design endeavour shows any potential in stimulating innovation capability and developing a better understanding of integrated curriculum design. Professional development and teaching-learning communities, even in those teachers and schools with no prior integrated science experience, prove valuable and essential supports for pursuing innovative teaching (Kanti Mukhopadhyay & G. Choudhari, 2024).

4.3. Technology-enabled approaches and digital literacy

Technology-enabled approaches, including digital learning tools and students' use of technology for learning, can assist the development of critical thinking and problem-solving skills (Bajpai et al., 2019). Schools should therefore consider incorporating affordable, accessible, and useful technologies into the teaching of these skills. To address the expanded online learning caused by the pandemic and the associated digital skills required by educators, higher-education institutions and their affiliated

organisations can also adopt data-informed instruction to guide the design of professional learning (Kumar Nag, 2022).

Despite policy efforts to promote the use of digital content in schools, free and low-cost technologies such as radio, television, interactive voice response, and offline resources remain more widely adopted. These older technologies, however, are usually not designed for facilitating critical thinking or problem-solving skills. School systems should therefore seek suitable complementary and free digital-learning tools that can enhance the teaching of higher-order skills or digital literacy. Such systems should further be analysed to identify specific ways they support critical thinking or problem-solving skills.

4.4. Assessment techniques for higher-order thinking

Higher-order thinking, comprising critical and creative thinking, can be assessed through differentiated questioning framed at a high level; deliberate analysis of the responses; the assessment of the pupil's work against the rubric; and the expert verification of the assessment level assigned (Loh et al., 2017). A rubric for evaluating students' written reflections on lesson study and the students' accompanying artefacts was developed as part of a different project. It was found that the teacher and the pedagogical counsellor could calibrate their formal assessment directly by examining the students' written reflection and discussing their interpretation of the rubric in situ (Kanti Mukhopadhyay & G. Choudhari, 2024).

5. Curriculum design and implementation in India

The situation in India is addressed by aligning curriculum guidelines with the objective of developing these skills in students. Learning objectives aligned with critical thinking and problem solving promote the design of appropriate learning environments. Cognitive and emotional aspects of personality development are also taken into consideration to enhance the employability of the Indian youth, linked to the National Skill Development Mission and Skill India initiatives. Measures have been suggested for policy formulation and implementation for teacher-training institutes and professional development of teachers, as curriculum and pedagogy are widely viewed as ineffective in the systematic development of these higher-order skills. Induction into the profession works toward acquiring a minimum set of competencies necessary for teachers to make meaningful contribution to student learning and cope effectively with school-level challenges. The Education Development Trust had characterized pedagogical practices in India as much less effective than in many other countries. Teaching is essentially a collaborative process, and action research plays a crucial role in its improvement.

5.1. Curriculum alignment with cognitive skills

Curriculum design should align cognitive skills with local, relevant challenges. The purpose is to enhance students' engagement and motivation in educational processes. Recommended principles include clearly articulated, grade-wise, and incrementally progressing curriculum learning outcomes; learning processes and contextual situations familiar to students, using local materials and relevant real-world situations; and an initial focus on developing skills through a subject of high practical relevance and volume (Harry Sulistyo, 2019).

General cognitive skills (GSs)—pervasive cognitive capabilities uniquely resource-consuming in an educational context, which either build upon emerging skills or require different subject matter, thus predominantly developed through the separate institutional subject identified as the cognitive skills subject—should be focused on due to their primacy in national and institutional policies. To avoid imposing a single cognitive framework locally irrelevant in many contexts, and in alignment with broader polices limiting institutional subject combinations. Progression and articulation within the GS subject should be determined through national and institutional lineages (Crkvenčić, 2015).

5.2. Teacher preparation and professional development

Teacher education is an essential element of skill debilitation for critical thinking and problem solving (CTPS) since the teachers' community is the gatekeeper of any change in education. Hence their preparation pre-service and in-service and continuous professional development is vital (Amita Raj Gargey & Amit Kashyap, 2017). The Analysis has pointed out that the teachers need to be trained in these skill areas in order to impart the skills to the students. . Teacher education and training for CTPS need to focus on the/level of primary, Secondary, Senior Secondary, and Higher Education the teacher is engaged at the National Council for Teacher Education (NCTE), National Accreditation and Assessment Council (NAAC), and National Council for Educational Research and Training (NCERT) publications will guide the mapping of course outcomes with respect to Experience (Voice of the teacher, School and Classroom, Action Plan, E-Learning).

Various in-service models exist Training of trainers, Block, and District Resource Centre (BRC, DRC), Teacher learning Circles (TLC), training of teachers on demand, Web Based Teacher Training, Maker Lab and Science Clubs, Brain Gain Program, Teacher Orientation course on initiatives of Integrated Teacher education Programme (ITEP) of National Council for Teacher Education (NCTE) CDC Programme, and Post Graduate Degree full-time/Part-time Teacher Education Programme. While the courses are implemented on Clustering basis across state Supported classes are co-facilitated by group of Teacher Educators from other institutes adding more dialogues. Continuous Professional Development (CPD) is required to develop the Comprehensive Framework (NCTE-NAAC) Teacher Educators need functional knowledge from content, pedagogy, technology and assessment will form to bridge classroom practice with CTPS skills. Formal recognition is important major bodies NCTE and National Board for Accreditation for Teacher Education (NBA-NCTE) consider this course under accreditation.

5.3. Resource availability and infrastructural constraints

The availability of learning resources in educational institutions across the country has a significant impact on the effectiveness of teaching. Clearly, the precondition for implementing a curriculum that aims to evolve and enhance cognitive skills in both formal and non-formal educational programs is the budgetary allocation for educational and instructional facilities and infrastructure as well as for teaching-learning-materials (TLM). There are 2,676 schools, universities, and colleges provided by the Central Institution Census for the year 2019–20 in India, where a little more than 93,948 schools and 1,046 colleges (43% of the total targeted) have reported a total grant allocation for being better-prepared during COVID-19 pandemic. It is important to recognize the national policy on Education (NPE) that urges to safeguard the interest of the weaker sections of the society, particularly the extremely poor, Scheduled Caste (SC), Scheduled Tribe (ST), Minorities, and the handicapped, to make full use of the Air-conditioned, Natural Gas Facility, Fire and Air Safety Validated, Green Building Certified Institutions (Kumar Nag, 2022). Besides, 43% of the students receiving assistance remained among the very poor families even in the year 2018–19, and 10% of students were among SC and ST families (Phillips, 2009).

6. Challenges and opportunities

Diversity in Indian culture and languages affects the practice of critical thinking and problem solving (S. Sundararajan, 2017). These models often emphasize the need to localize thinking skills and assessment tools for the specific context and language of the students. When students are evaluated based on dimension measures such as creativity or inquiry in English while at the same time processed language that is not natural for them, there is a need to prove whether meaningful information can be gained, and if not, the evaluation is therefore not fair.

The current practice of assessment in India is not clear, with no common standardized test for cognitive skills assessment. Some students get exposure to the skills and assessment and some do not. Some curriculum shows how broad and deep a skill could be introduced and assessed and in which, the curriculum is wide but mostly knowledge-based and seldom includes core skill. These curricular proposals are worthwhile and ought to be understood and appreciated (Amita Raj Gargey & Amit Kashyap, 2017). As the cognitive development of children is recognized internationally and by researchers worldwide, it ought to be practised and spread.

6.1. Cultural and linguistic diversity

Reflecting the rich cultural and linguistic diversity of India is a major challenge for educational policies and practices, especially those related to the promotion of critical thinking and problem solving. Even when the need to think critically is acknowledged, individuals not proficient in English face significant obstacles in understanding the nature of critical thinking. Fostering implantation does not guarantee implementation, even in academic contexts where English is regularly used (Puadi Ilyas, 2018). Government-sponsored efforts to define desirable skills need to reflect more closely the vernacular contexts of teachers and learners, where variances in sociolinguistic and sociocultural factors may not always correspond to standard pedagogical notions. Strategies aiming to address and bridge these gaps make progress on several fronts towards the ultimate goal of ameliorating critical thinking across the country (Yue & Ning, 2015).

A second major challenge relates to the need to assess the presence or absence of critical thinking, as stipulated in the curricula. Assessment methods need to reflect the skills they contemplate teaching and should be revised to avoid transferring a structured approach to the assessment of unstructured questions set freely in vernacular languages. Granting autonomy to schools regarding the materials they may adopt to teach such skills potentially limits systemic evaluation of educational reform.

6.2. Assessment reform and standardization

Assessment naturally occupies a central place in education. It is an essential component of instructional practice, plays a significant role in determining the curriculum and strategies used, and can even influence the nature of all educational provision (for example, by determining how much emphasis is placed on the development of higher-order thinking). As a result, assessment mechanisms and practices profoundly affect student learning. Assessment can be conceptualized in different ways. It can be seen as a system comprising multiple complementary components, each of which can be formalized and regulated to some extent. These components can also be roughly ordered in a hierarchy depending on the extent to which they influence the curriculum and instructional practices. Finally, assessment can be placed in a broader framework that includes broader accountability processes and societal influences. With these different dimensions in mind, it is possible to identify significant challenges and opportunities concerning assessment in Indian education.

Assessment mechanisms at the national level have gained increasing prominence recently. Following the 2005 National Curriculum Framework (NCF), the National Council of Educational Research and Training (NCERT) has widely implemented assessment reforms on the basis of comprehensive national consultations. The setting of National Level Examinations similar to international assessments is being considered. Systematic and specialized reforms have also been undertaken at the higher education level, although their distribution and impact remain limited relative to other areas and institutions. Another important consideration is that reforms at the higher education level intersect with the school landscape. A clearer or more widely understood connection between school reforms and higher education is needed (Loh et al., 2017).

6.3. Scalable models for diverse settings

Small, urgent learning interventions lasting several weeks or less focused on critical thinking and problem-solving skills have produced significant outcomes in Indian higher education institutions (Miner-Romanoff et al., 2019). Similar initiatives in school education have yielded promising results, indicating potential for broader implementation across India. Sustainability depends on scaling these approaches or introducing new initiatives within available timelines. Simple incremental scaling of effective interventions without adaptation to new contexts is unlikely to succeed. Designing distinct approaches that build on existing evidence without replicating previous work offers greater potential for impact.

6.4. Stakeholder collaboration and community involvement

Schools are typically regarded as the fundamental unit of any educational system; nevertheless, Indian classrooms remain excessively rigid. Adolescents attend school for nearly eight hours a day yet encounter an educational environment devoid of creativity, inquiry, and enjoyment (Charania & Davis, 2016). Moving beyond schools to embrace stakeholder collaboration can foster more relaxing spaces conducive to critical thinking, problem solving, and happiness. Collaborators comprise teachers, principals, support staff, school management committees, school boards, local bodies, the Ministry of Education, the National Council of Educational Research and Training (NCERT), parents, and other community members. These stakeholders and family involvement are established prerequisites of the Pradhan Mantri Vidya Lakshmi Yojana, the National Education Policy—2020, and the Samagra Shiksha Abhiyan.

7. Conclusion

Critical thinking and problem-solving skills are indispensable in contemporary society for grasping knowledge and pursuing higher academic skills. In an increasingly competitive environment, these skills distinguish between average and exceptional students and equip them with lifelong learning abilities. The importance of foresight, adaptability, and sustained critical-thinking skills has been emphasized in educational directives by the National Council of Educational Research and Training (NCERT) under the Ministry of Education.

National Education Policy (NEP) 2020 has advocated developing these key higher-order skills and the National Curriculum Framework (NCF) advocated reformulating both school and higher education in accordance with eighteen focused and vibrant skills that cater to continuing educational development of every citizen through lifelong learning. Formally, critical thinking is the ability to think deeply and reflectively about significant issues or decisions, carefully examining the situation before acting. Problem solving is the ability of a person that helps him in haply finding solutions to those problems efficiently.

Critical thinking and problem solving are essential skills which need simultaneous and integrated development that the methods of problem posing, Socratic questioning, inquiry lessons based on HOC higher order thinking criteria, research projects, assignment and project work, reasoning-based methods, Bridge's approach, Whakatauki, IDEAL, PMI tools, Six Hats, PEST and SCAMPER have been primarily implemented and tested in the school and higher education level. Simulated teaching for rendering teachers at different teacher-training institute throughout India are also being practised for creating a critical thinking based education in every institution. A set of process-oriented critical thinking lessons and strategy based project work have been framed to ameliorate the corresponding skill in undergraduate medical situation. The impact of these implementations can only be measured by the cognitive skill, evaluative judgement and discipline based learning outcome attained by the students.

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