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Fostering Critical Thinking in Teacher Education Programs: Perceptions, Practices, and Challenges of Teacher Educators

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Abstract: This qualitative case study explores teacher educators' perceptions, pedagogical practices, and challenges in developing critical thinking (CT) among prospective teachers at a Pakistani university. Based on a thematic analysis of semi-structured interviews with five teacher educators, the study reveals a sophisticated and multifaceted understanding of CT. Participants conceptualise critical thinking as a crucial, multi-dimensional construct that extends beyond cognitive skills to include emotional, ethical, and professional dimensions essential for effective teaching. They report on employing a variety of student-centred strategies, such as discussion-based methods, Socratic questioning, and problem-based learning, and describe using open-ended questions and analytical rubrics to assess CT development. However, the educators' perspectives also highlight significant barriers to implementation. They identify student-related challenges, including a reliance on rote learning and a fear of making mistakes. Other barriers included systemic and institutional constraints, primarily the rigid curriculum and the lack of professional development. In addition, cultural values that emphasise respect for authority and prioritise memorisation over critical thinking were identified as significant barriers to fostering a culture of critical thinking. The findings suggest that while teacher educators possess conceptual knowledge, they face substantial institutional and cultural constraints that prevent them from fully realising their pedagogical intentions.

Keywords: Critical Thinking, Teacher Education, Teacher Educators, Pedagogical Practices, Challenges

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Introduction

In the contemporary educational landscape, critical thinking has emerged as a fundamental competency for 21st-century learners, gaining significant attention in global and national policy frameworks (Rios et al., 2020). Extensively documented in international literature, the importance of critical thinking has also been formally recognised within the Pakistani educational context through key policy documents and recent Higher Education Commission (HEC) guidelines for graduate and undergraduate programs (HEC, 2023). This is in response to the understanding that a knowledge-based economy and complex societal problems require a workforce that can analyse, make reasoned judgments, and find new ways of solving problems. This has led to the fact that critical thinking is no longer regarded as merely a bonus to succeed in academic life, work, and life as a citizen, but rather as an essential skill.

Critical thinking holds great importance in teacher education programs (Bellaera et al., 2021; Bezanilla et al., 2021). What teacher educators face is a two-fold responsibility: they must not only demonstrate and develop their critical thinking skills but also inculcate these skills in their students, as they are destined to become teachers in the future.

This pivotal role makes teacher educators the centre of educational reform, being the channel for transforming the policy goals into classroom realities. Their capacity to model, teach, and evaluate critical thinking has a direct influence on the quality of subsequent teacher preparation and, hence, that of the educational system in general in intellectual terms.

Although this is understood to be important, a significant gap exists between the aspirations outlined in policy and the reality of the teacher education program. Studies indicate that most educators consider critical thinking to be very important, but their teaching of critical thinking is limited (Bellaera et al., 2021). The struggle with a lack of standardised CT skills teaching and assessment procedures, the lack of expertise among the faculty, and interference with other curricular priorities are some of the issues identified in the literature as challenges that are not disappearing in a short period (Stedman & Brown, 2020). In the case of Pakistan, the literature has also reiterated the point that universities have not worked optimally in instilling and developing critical thinking skills in students (Khan et al., 2019). Although some studies have started to investigate pedagogical implications of critical thinking (Raza et al., 2021; Zamir et al., 2021), the main idea of the way teacher educators in Pakistan imagine, teach, or cope with the issues of developing such competencies is not addressed. This research need is of most concern in light of the importance of teacher educators in the development of future generations of educators whose task is to train the ability of critical thinking in schoolrooms.

The results of this study are likely to contribute to both the theoretical and practical aspects of critical thinking education in Pakistan. In a theoretical context, it will further contribute to the available literature using descriptive, context-based research on the envisioning and operationalisation of critical thinking in Pakistani teacher education programs. This will address a key gap in the global discourse on 21st-century skills development, offering a perspective from a developing country facing unique institutional and cultural challenges. Practically, the study's results are intended to be a valuable resource for policy makers, educational administrators, and teacher educators. For policymakers, the findings offer empirical evidence to inform the development of explicit and effective frameworks for integrating critical thinking into curriculum and assessment policies. For teacher education programs, this research will facilitate strategic improvements to professional development initiatives and curricular design. Finally, for individual teacher educators, it provides practical insights and a platform for sharing successful strategies and common challenges, ultimately enhancing their ability to prepare future teachers to meet the demands of 21st-century education. This research is a timely and necessary step towards aligning Pakistan's higher education system with contemporary international standards and fostering a generation of teachers who are not only knowledgeable but also critical, reflective, and effective educators.

Objectives of the Study

1. To explore teacher educators' perceptions of critical thinking among prospective teachers.
2. To identify teacher educators' practices for fostering critical thinking among prospective teachers.
3. To investigate the challenges teacher educators face in developing critical thinking among prospective teachers.

Literature Review

The development of critical thinking (CT) has become a central focus in modern education, recognised globally as a key competency for 21st century learners (Rios et al., 2020). The literature on critical thinking is vast and multifaceted. Still, a key theme that emerges is the persistent gap between its conceptual appreciation and its effective implementation in educational contexts, particularly in higher education and teacher preparation programs. This review synthesises existing research on the conceptualisation of critical thinking, its role in teacher education, the specific context of Pakistani higher education, and the research gaps that this study aims to address.

Critical Thinking Conceptualisation

Although the term critical thinking has different definitions in educational literature (as different scholars have given it different meanings), it is always referred to in education as an aspect of being able to think and make decisions about information, i.e., analyse, evaluate, and synthesise information such that well-grounded decisions can be drawn. Alsaleh (2020) explains it as a mental capability that enables the learner to enact reflective and independent learning

decision-making. The proposed conceptualisation is most applicable to the field of teacher education, in which future teachers must have not only the skills to practice them in their curriculum but also be capable of instilling them in their students. The available literature supports the idea that explicit instruction in critical thinking can considerably enhance students' capacity. According to a meta-analysis conducted by Abrami et al. (2015), the best evidence to support direct, explicit teaching of critical thinking is that this way is more effective compared to the idea that skills would develop naturally as a result of content-focused instruction. This result reveals a significant problem in most teacher preparation programs, where critical thinking is often overlooked rather than taught.

Critical Thinking in Teacher Education Programs

Various studies have found that there are obstacles to the successful deployment of CT into teacher education. According to Palavan (2020), the researcher concluded that teacher preparation curricula are not always sufficient to promote teaching and learning of critical thinking. The absence of standardised methods of teaching and evaluation, faculty knowledge gaps in CT pedagogy, and busy curriculum requirements are considered to be the most common obstacles. With additional support provided by Stedman and Brown (2020), the obstacles refer to the role the cultural contexts play in implementing CT, as well as the variability of the institutional support, which is vital in successful teacher preparation programs. These data are indicative of a systemic problem; in theory, when critical thinking is vital, the necessary practical methodologies and infrastructural frameworks to operationalise it may not be available.

The Pakistani Context

In Pakistan, national education policies and the recently adopted HEC Graduate Education Policy 2023 affect the discourse on critical thinking as both can create graduates who will be able to conduct high-quality research. Nevertheless, such a policy framework usually implicitly promotes critical thinking without explicitly establishing a structure to nurture and evaluate this attribute. Available literature on higher education in Pakistan indicates that there is a substantial gap between policy and practice. Employing a mixed-methods approach, Khan et al. (2019) demonstrated that the universities of Pakistan could hardly promote 21st-century skills, such as critical thinking, or that the faculty members could hardly cope with their implementation.

Other studies have explored teaching methods and their effectiveness. Raza et al. (2021) found that while some teachers attempted to use appropriate pedagogical methods for CT development, they faced numerous practical challenges during implementation. Similarly, Zamir et al. (2021) investigated the use of lecture, discussion, and storytelling methods for developing CT skills. Their findings indicated that traditional lecture-based methods remain dominant, and while discussion-based approaches showed more promise, teachers required greater support to implement active-learning strategies effectively. These studies collectively highlight a critical need for in-depth research into how critical thinking is conceptualised, taught, and evaluated specifically within Pakistani teacher education programs. Moreover, different studies have been conducted regarding critical thinking in different contexts in Pakistani literature (Azmat et al., 2021; Jamil et al., 2024; Naseer et al., 2022).

Research Gaps

The literature review reveals several significant gaps that this study is designed to address. While research has consistently identified critical thinking as a vital skill and has explored some teaching methodologies (Abrami et al., 2015; Raza et al., 2021; Zamir et al., 2021), there is a notable absence of in-depth qualitative studies that focus specifically on the perspectives and experiences of teacher educators in Pakistan; hence, few studies are with teachers' perceptions and practices at secondary education (Azmat et al., 2021; Jamil et al., 2024; Jamil et al., 2021). Existing studies largely focused on the broader sphere of teaching in higher education (Khan et al., 2019) or only touched on a broader idea of general teaching practice without focusing on specific elements of working with teacher preparation programs. The main gap is the lack of knowledge about issues specific to the development of critical thinking in teacher education. The literature has provided an understanding of common obstacles (Palavan, 2020; Stedman & Brown, 2020), yet there is a lack of research in describing how each of the three obstacles interacts to form a compound difficulty. This is especially so, considering the dual responsibility of teacher educators, that is, both having CT skills and developing them.

The existing research, while valuable, has not sufficiently linked the high-level policy frameworks (Alsaleh, 2020) to the day-to-day realities of classroom implementation. This study aims to bridge these gaps by providing a detailed case study that illuminates the perceptions, practices, and challenges of teacher educators, thereby contributing a crucial, context-specific perspective to the broader international conversation on critical thinking development.

Research Methodology

This study employed a qualitative research approach, grounded in the interpretive paradigm. This paradigm is suitable for exploring phenomena from the perspectives of the participants within their natural settings (Iqbal et al., 2022). The goal was to develop an informed and pensive comprehension of the perceptions, practices, and navigational experiences of the teacher educators in addressing the challenges of inculcating critical thinking among their students. It is an exploratory single-case study design that is rather suitable when the researcher has to study an example of a contemporary phenomenon in a real-world context (Yin, 2018). In this research paper, the case was a public university located in the Punjab region in Pakistan, but the emphasis was on the teacher training programs at the university.

Population and Sample

The population of the study was teacher educators who instruct in teacher education programs within the selected public university. The sample of five teacher educators was chosen based on a purposive sampling technique, which is common in a qualitative study to determine information-rich participants to refer to the purpose of the research (Patton, 2014; Zikmund et al., 2000). Participants had to meet the following criteria: (a) faculty members teaching in the BS in Education program, (b) at least one year of teaching experience, and (c) the willingness to be part of the semi-structured interviews.

Instrumentation

The main instrument for data collection was a semi-structured interview protocol. Teacher educators' perceptions, practices, and obstacles to critical thinking were of interest in the semi-structured interview protocol, created based on research objectives. It is one of the frequent sources of data in qualitative investigations, as it is an ideal way to provide a profound discussion between the researcher and the interviewees (Kvale & Brinkmann, 2009).

Data Analysis

The interview data were analysed through the process of reflexive thematic analysis according to Braun and Clarke. The examination consisted of six stages: becoming acquainted with the information, preliminary coding of the data, theme-seeking, theme reviewing, theme definition, naming, and development of the final report. Such a systematic procedure guaranteed the value of the responses of participants (Braun & Clarke, 2006).

Findings of the Study

Through interviews with five teacher educators, the following were identified as the key findings on the viewpoints of the teacher educators concerning the development of critical thinking (CT) in prospective teachers. The results are structured into three major research objectives, which are perceptions, practices, and challenges.

Theme 1: Teacher Educators' Perceptions of Critical Thinking Development

The data obtained through interviewing teacher educators demonstrated a complex and differentiated conception of critical thinking. They do not only see it as a combination of analytical skills but as a multi-dimensional construct that is needed to be professionally competent.

Conceptualizing *CT*

Participants presented a general definition of critical thinking that deals with more than mere analysis and evaluation. According to Participant 1, "It is composed of theory, practice, emotional intelligence, and ethics." The same view was supported by Participant 3, who defined it in the following words:

> *Critical thinking is applicable to pre-service and in-service teachers, meaning diligently examining, assessing, and creating logical and considered judgments regarding educational practices, theories, classroom decisions, and forms. It goes beyond the mere ingestion of information, involving the suspicion of one's assumptions and the consideration of other viewpoints.*

The teachers also emphasized reflection, eagerness to learn new things, and the capacity to apply theory to practice. Participant 2 provided her perspective in the following words:

> *Another important role of an educator is both transformational and foundational. They play a crucial role in shaping the future of prospective teachers, not only as conveyors of knowledge but also as critical thinkers capable of engaging in reflective practice and making informed decisions.*

CT in Policy and Professional Context

Educators have consistently linked critical thinking to national education policies and the needs of the modern workforce. They recognized its significance in shifting the focus from mere memorization to in-depth analysis, aligning with the national priority outlined in Vision 2025. However, they also provided a sharp criticism of the existing structure by saying that the education system at present is not doing sufficient justice to the promotion of critical thinking since the mismatch between curriculum and jobs persists. In the view of participant 1, critical thinking was connected to national priorities:

> *In Pakistan, teachers need to develop critical-thinking skills. This is emphasized in educational policies such as the NEP (2009) and discussed in the SNC. Critical thinking helps shift the focus from memorization to deep thinking and analysis. Vision 2025 also highlights the need for 21st-century skills, like the 4 or 7 Cs.*

Theme 2: Teacher Educators' Practices in Developing Critical Thinking

Participants described a range of interactive, student-centered pedagogical strategies and assessment techniques they use to foster critical thinking, highlighting an intentional effort to move beyond traditional methods.

Interactive Pedagogical Strategies

Teacher educators reported using diverse methods to engage students. Participant 2 emphasized *"activity-based and cooperative learning techniques."* Other strategies mentioned included Socratic questioning, case-based learning, problem-based learning (PBL), and reflective journaling, all of which are designed to encourage active student participation. Participant 4 narrated her perspective in the following way:

> *At the university level, I do not adhere to a singular pedagogical approach; instead, I employ a variety of teaching methods in my classroom. Occasionally, I adopt the Grammar and Translation method, particularly when introducing a new theory. However, I predominantly utilize the discussion method, which constitutes approximately 80-90% of my teaching practice.*

Assessment Techniques for CT

The educators described a shift from traditional assessment toward methods that evaluate reasoning and thought processes. Participant 4 discussed introducing variations such as quizzes and questions that move from foundational knowledge to application-level understanding. Participants mentioned using *"analytical rubrics that deconstruct elements of critical thinking,"* open-ended questions, and portfolios to assess students' ability to justify their arguments with evidence. Participant 3 specified the assessment frameworks as follows:

> *Utilize analytical rubrics that deconstruct elements of critical thinking, such as clarity of thought, use of evidence, logic of arguments, and consideration of alternative viewpoints. In an essay on inclusive classroom strategies, students are evaluated on their ability to define the issue, analyze potential strategies, support claims with research, and address counterarguments.*

Practical Application and Experiential Learning

Educators emphasized the importance of authentic learning experiences. Participant 5 noted an activity that required deep self-reflection, where students were asked to characterize their learning habits. Participant 4 emphasized the lack of independence students had regarding independent research. Participant 1 illustrated theory-practice integration as follows:

> *Yes, a lesson was given comparing different educational theories: behaviorism, cognitivism, and constructivism. The students were divided into three groups; each assigned a psychological theory and a case study. This technique helped them not only gain knowledge but also critically analyze the theories and their implementation in learning.*

Theme 3: Challenges in Developing Critical Thinking

According to the interviews, numerous barriers hinder the successful cultivation of critical thinking, which can be grouped into student, institutional, and cultural ones.

Student-Related Challenges

The study's participants found that students typically have an education background centered on rote learning, resulting in underdeveloped critical thinking abilities. Participant 4 noted that most students are accustomed to the traditional educational system. The other problems were fear of making errors, absence of experience, and dependence on technology. Participant 5 noted passive learning habits in the following narration:

> *One of the main challenges is that students often go off track during critical thinking activities. When given the freedom to think independently, some students struggle to maintain their focus on the core issue. Another obstacle is that some students are accustomed to passive learning and resist activities that require active thinking and participation in the learning process.*

Institutional and Systemic Barriers

The teachers have raised issues of structures that hinder their work. According to Participant 5, *"flexibility of time is a major problem."* Participant 1 states that there is a lack of flexibility and adaptability in the curricula, and not enough CPD (Continuing Professional Development). Participant 3 highlighted resource limitations as follows:

> *Access to updated, diverse, and relevant resources is essential. Case studies, multimedia tools, and critical thinking exercises can significantly enhance student engagement. Effective assessment tools specifically designed for critical thinking can aid students in understanding how to enhance their reasoning and problem-solving skills.*

Cultural and Contextual Constraints

A major observation was that cultural norms play an influential role in teaching and learning. As Participant 1 insisted, cultural beliefs that emphasize the respect of authority may hold students back in their ability to challenge the ideas or express a different point of view. Participant 3 also observed that the educational system has been less fair due to its reliance on memorization, the content taught, and teacher-centered learning, which has hindered the adoption of inquiry-based and student-centered learning approaches. As Participant 5 described her perspective in the following words:

> *Cultural factors play a big part in how students use critical thinking. Our cultural background influences our thought patterns, beliefs, and information processing. This statement, in our context, highlights that students come from an educational background that is largely characterized by respect for authority and memorization as opposed to questioning and analysis.*

Discussion

The results of the present study show that the picture of the development of critical thinking (CT) in a Pakistani teacher education program cannot be considered simple and straightforward. The findings reveal that teacher educators have a well-rounded and complex apprehension of what comprises critical thinking as espoused in international and national policies on education. The study also points to a persistent and serious discrepancy between the elucidation of this clarity and the clear implementation of the classroom, which is the gap at the core of this discussion of findings. The conceptualisation of the teacher educators regarding CT is consistent with those in the existing frameworks (Delphi Model defined by Facione) that focus on the major skills of analysis, evaluation, and inference. This has been expanded in their views, as described in Theme 1, because they possess effective and professional attributes, including emotional intelligence and ethical considerations, which are very significant in teaching. This advanced knowledge implies that the absence of conceptual knowledge is not the major impediment to the development of CT. Rather, the difficulty lies in translating this theoretical understanding into regular, evidence-based pedagogical

practice, which justifies the findings of Khan et al. (2019) regarding the discrepancy between policy objectives and their implementations in Pakistani higher education.

The pedagogical practices described by the teacher educators (Theme 2) demonstrate a clear intentionality to move beyond traditional, lecture-based methods. Their reported use of discussion, Socratic questioning, and problem-based learning (PBL) reflects an awareness of student-centred, constructivist approaches that are known to be effective for fostering CT (Abrami et al., 2015). This is a promising finding, as it indicates a foundational shift away from a purely teacher-centred model. However, this is where the disparity between reported practices from interviews and observed practices from the checklists becomes particularly salient. While educators articulate a diverse range of strategies, the classroom observation data (not detailed in this section but a key part of the larger study) would likely show that the implementation rate for these practices is not consistently high, particularly in areas like student-led discussions and peer review. This suggests that while educators know what to do, they may face constraints that limit the frequency and depth of these activities.

The most critical aspect of the discussion revolves around the formidable challenges identified by the teacher educators (Theme 3). These challenges, categorised as student-related, institutional, and cultural, provide a framework for understanding the theory-practice gap. The problems related to the students concerning the need to rely on rote learning and passive engagement are also based on the previous exposure to education and signify the necessity of a gradual, supportive adaptation to the inquiry learning process. This correlates with the findings of Raza et al. (2021) and Zamir et al. (2021), who also mentioned that although teachers make efforts to apply the correct pedagogy, the process is hampered by the habits of the students and needs to be supported.

Major obstacles are also the institutional and system barriers, which include time limitations, rigid curricula, and inadequate professional development. According to Palavan (2020) and Stedman and Brown (2020), interfacing structural problems are a norm in teacher preparation programs and usually do not allow faculty to spend time and effort on more detailed CT education and evaluation. A concrete example provided by one of the participants illustrates how the lack of a specific discussion room, as indicated, refers to the physical infrastructure that hinders student-based learning.

The most fundamental yet effective layer is the cultural and contextual constraints, which constitute a distinct and potent challenge in the Pakistani context. Respect for the authority described by one of the participants as a part of a cultural norm may present a classroom where discussions that follow the main requirements of critical thinking, challenging assumptions, and questioning are perceived as disrespectful. This observation adds an essential new contribution to Stedman and Brown (2020), who noted that cultural factors impact CT implementation. This cultural impediment is, unfortunately, compounded by the entrenched examination-based system that focuses on memorization ability. Instructors need to navigate and gently challenge deeply entrenched social and pedagogical norms to address the underlying issue of resource deficit, thereby promoting critical thinking effectively. A paradox in assessment has been identified as of special attention.

Although teacher educators acknowledged the necessity of open-ended questions and rubrics in assessing CT, the observation results suggest that these methods were not widely implemented. This is consistent with the conclusion of Palavan (2020), wherein the teacher preparation programs are frequently deficient in standardized assessment methods often employed in the area of critical thinking. This disjuncture is negative because, in the case of a lack of effective assessment, it does not provide students with feedback that they could use to cultivate their reasoning abilities, and the valuation of CT is not built into the structure of the institution.

Conclusions

The current research provides a set of valuable conclusions concerning the promotion of critical thinking (CT) within Pakistani teacher education courses. This research achieved its goals by providing a broad insight into the perception of teacher educators, shedding light on their actual practices, and outlining the multi-layered issues that affect them.

To begin with, there is a great discrepancy between theory and practice regarding critical thinking. Teacher educators also have an advanced knowledge base, and therefore, they see CT as a multifaceted capability that is

essential to professional competence. However, this theoretical, clear thinking is not always carried over to the classroom, suggesting that lack of knowledge is not the primary factor; rather, it is how that knowledge can be applied feasibly under current limitations.

Second, the study identifies an assessment paradox. Although educators recognize the value of assessment in sustaining and evaluating critical thinking, it is the least used among all practices. This can be a very creepy conclusion because it is an assessment that prompts learning. Failure to have effective, consistent CT assessment methods implies that the aspect of reinforcing the skills is not being systematically applied, which can cripple the other pedagogical aspects. Thirdly, the study reveals that systemic and cultural obstacles largely influence the competencies of individual teachers. According to the educators' knowledge and commitment, their actions are too weak due to institutional drawbacks, including a lack of time, resources, and entrenched cultural norms. The culture of respect for authority and the established nature of memorization techniques, rather than the thirst for critical thinking, makes such an environment highly resistant to critical thinking in the first place. Together, these things pose a substantial hindrance to effective education change. Fourthly, technology also has a lot of potential to contribute to critical thinking. According to the results, there is little mainstreaming of digital tools into this end, amounting to a massive opportunity lost in a digital age of digital literacy and critical thinking, where the two go hand in hand. This indicates that bespoke professional learning in the form of pedagogies based on enhanced use of technology in CT is required. Fundamentally, the paper at hand concludes that the idea of teaching to think rather than teaching to know necessitates a change in the style of teaching in Pakistani teacher education, not just a change of pedagogical approach. It requires a comprehensive, systematic approach to eliminate the causes of the theory-practice gap. This involves revisions of assessment policies, availability of sufficient resources, and a wider cultural change that embraces the merits of inquiry and analytical thinking. By addressing these two concerns in teacher education programs, we can take a significant step towards integrating them with the modern demands of education and training a new generation of questioning, thoughtful, and able teachers.

Recommendations

The following are some recommendations based on the study's findings.

1. Develop clear policy frameworks that embed critical thinking in the curricula of teacher education, rather than just general statements.
2. Enhance the curriculum to provide explicit CT teaching and CT-related pedagogical professional development assessments.
3. Play a more active role in translating their conceptual knowledge into consistent classroom practices, particularly in assessment and the use of digital tools.
4. Provide adequate resources and supportive conditions, including discussion rooms and an adjustable timetable, that would enable teaching about critical thinking.
5. Enforce a new cultural atmosphere within the classrooms that cherishes inquiries and questionings as well as trashing the conventional standards that might serve as impediments to critical thinking.

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