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LINKING METACOGNITIVE AWARENESS AND LEARNING MOTIVATION: A STUDY OF PROSPECTIVE TEACHERS IN PAKISTAN

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ABSTRACT

The purpose of this research is to examine the relationship between metacognitive awareness and learning motivation among prospective teachers' . Using a five-point Likert scale, 400 prospective teachers in Pakistan's Lahore province were given standardized questionnaires. These individuals attended universities that were both public and private. Learning motivation was assessed using a modified version of a general learning motivation scale, and metacognitive awareness was measured using a short-form inventory developed specifically for this purpose.

To ensure that the tools were content-valid, three researchers from the University of the Punjab's Institute of Education and Research were called upon.The questionnaire demonstrated a high degree of internal consistency, as indicated by Cronbach's alpha, which was 0.84 overall and 0.70 to 0.85 for subscales.

We utilized a multi-stage sampling approach.: four universities were randomly selected, followed by the identification of education departments within these institutions, and then the random selection of students from these departments. Using descriptive statistics, we examined the demographic data, and Pearson's correlation coefficient was used to investigate the association between learning motivation and metacognitive awareness. To search for gender and school type differences, we utilized independent samples t-tests.

The findings revealed a significant positive correlation between learning motivation and metacognitive awareness, highlighting the crucial role of metacognitive abilities in fostering motivation. Minor differences in strategy use were observed across gender and institutional sectors; however, the overarching result emphasized that enhancing metacognitive awareness can substantially improve learning motivation and educational outcomes. In light of these findings, the study underscores the importance of designing interventions aimed at cultivating metacognitive awareness among prospective teachers to enhance teaching effectiveness and promote students' academic achievement

Keywords: *Metacognitive awareness, learning motivation, prospective teachers, teacher education, self-regulation.*

INTRODUCTION

Effective learning and teaching are fundamentally rooted in metacognitive awareness, which refers to an individual's ability to monitor, regulate, and direct their own cognitive processes. Since the concept was first introduced, metacognition has emerged as a vital area of study within educational psychology (Flavell, 1979). Globally, the importance of

fostering metacognitive awareness is recognized across all levels of education, from elementary school to higher education. Metacognitive awareness is particularly essential for cultivating self-regulated learning, a cornerstone of academic success both inside and outside the classroom (Schraw & Pintrich, 2002).

Within teacher education, metacognition holds even greater significance as it empowers future educators to guide learners toward becoming autonomous, self-directed individuals. Teachers with strong metacognitive abilities can adapt their lesson planning and instructional strategies to better meet the diverse needs of their students, thereby enhancing the overall educational experience (Wilson & Bai, 2010). Furthermore, reflective practice—a critical component of effective teaching—is deeply connected to metacognitive processes (Schön, 1983). Reflective educators are more adept at evaluating their teaching methods, identifying areas for improvement, and making informed adjustments that lead to enhanced student outcomes (Loughran, 2002).

Similarly, learning motivation—encompassing both intrinsic and extrinsic dimensions—describes a learner's willingness to engage in and sustain academic efforts. In the framework of educational practice, metacognition and learning motivation are interrelated. Studies indicate that motivated, metacognitively awareness students are more likely to use good learning techniques, establish reasonable academic objectives, and attain better academic success (Zimmerman, 2002). Preparing future teachers with excellent metacognitive abilities and a great will to learn can help to improve the teaching-learning process and motivate lifetime learning.

In Pakistan, the education sector faces significant challenges, including poor quality in public education, limited teacher competencies, and curricula that prioritize rote memorization over critical thinking (Rehman, 2015). The quality of education significantly affects student results, hence the training of future teachers becomes extremely vital. Though important in other parts of the world, Pakistan, especially with regard to teacher education, has ignored metacognitive awareness and learning motivation.

Many studies have advocated changes to improve the metacognitive abilities and learning drive of prospective teachers. For example, Akhtar (2016) and Baig (2019) underlined the necessity of educational changes meant to improve these abilities. Sadly, most of Pakistan's studies on education have concentrated on more traditional, lecture-based approaches. It skips over the link between future teachers' metacognitive awareness and their natural desire to learn.

Furthermore, the teaching strategies used in many Pakistani teacher training programs hardly encourage critical thinking, reflective learning, or the growth of metacognitive skills (Khan, 2017). Many future teachers therefore finish their training lacking the necessary tools to foster metacognitive development and learning motivation in their future classrooms. This lack draws attention to the urgent need for studies that fill in these areas and guide changes in educational policy and practice.

While international literature extensively explores the relationship between metacognition and motivation, few studies have investigated this linkage within the Pakistani context. Limited research by Akhtar (2016) and Baig (2019) touches on the relevance of metacognitive skills but does not sufficiently examine their connection to learning motivation among prospective teachers.

Examining a hitherto ignored aspect of Pakistani teacher education would help us to address this gap. This study looks at the link between metacognitive awareness of prospective teachers and their desire to learn in order to fill this major knowledge gap. By thus doing, it hopes to offer data-driven suggestions for improving teacher education initiatives. Improving instructional methods and finally enhancing the quality of education all across Pakistan depend on strengthening the metacognitive awareness and learning motivation of prospective teachers. Moreover, the results of this study could help to equip prospective teachers with the tools they need to succeed in modern, dynamic classrooms and to promote improved learning results for their pupils, hence supporting significant educational changes.

Literature Review

Educational psychology has paid much attention to the link between metacognitive awareness and learning motivation, especially in the framework of prospective teachers. Researchers have

underlined the need of these cognitive processes in controlling and improving students' learning experiences. Emphasizing their interdependence and impact on learning results, this literature review looks at important research on metacognition and learning motivation.

Metacognition: Definition and Significance

Metacognition, often referred to as "thinking about thinking," involves being aware of and regulating one's own cognitive processes. Over time, the concept has evolved, with scholars offering varied definitions. Flavell (1979), a pioneer in metacognition research, defines it as the awareness and control of one's cognitive activities. He identifies three primary categories of metacognitive knowledge: knowledge of the person, task, and strategy. This division provides a foundational understanding of how individuals assess and adjust their cognitive styles to enhance learning and problem-solving (Flavell, 1979).

Brown (1987), building on Flavell's model, underlines two main aspects of metacognition: knowledge of cognition and regulation of cognition. The first is awareness of one's strengths and shortcomings in learning; the latter is tactics for controlling and enhancing learning. Brown's work emphasizes the self-regulatory side of metacognition and its vital importance in adaptive learning, especially in educational environments. Pintrich (2002) broadens this by placing metacognition at the center of self-regulated learning, which comprises goal formulation, strategy selection, assessment, and progress tracking. According to Pintrich, metacognitive abilities enable students to seize control of their learning processes, hence improving academic performance.

Metacognition is not only a cognitive process but also comprises emotional and motivational components. Efklides (2011) proposes that students who are conscious of their thoughts and emotions regarding learning are better able to control their learning strategies and apply suitable effort, so improving learning results. Furthermore, metacognitive knowledge is usually classified into declarative, procedural, and conditional knowledge, all of which support efficient strategy selection and problem-solving (Schraw, 2001).

Metacognitive Strategies in Educational Settings

Metacognitive strategies are pivotal in promoting self-regulation and independent learning. Research has shown that when teachers introduce metacognitive strategies, students demonstrate improved cognitive skills such as problem-solving, critical thinking, and academic performance (Veenman, 2012). These strategies, when paired with motivation, foster perseverance and engagement in challenging tasks (Zimmerman, 2002). For instance, Soderstrom and Bjork (2015) argue that metacognitive awareness enables students to monitor their learning, adjust strategies, and enhance long-term retention. Winne and Hadwin (2022) further note that metacognitive control is essential for self-directed learning, particularly in digital and hybrid learning environments.

Zimmerman (2000) emphasizes the role of metacognition in self-regulated learning, which includes activities such as self-assessment, goal-setting, and planning. He concludes that educational interventions focused on metacognition promote students' ability to think about their learning processes, fostering a sense of ownership over their learning and enhancing their overall academic performance.

Metacognitive Awareness and Learning Motivation

Metacognitive awareness is the deliberate knowledge and control of one's cognitive processes to improve learning and problem-solving. It lets students know their cognitive strengths and shortcomings and helps them to guide their own learning path (Abdelshiheed et al., 2023). All of which result in better academic performance, Pintrich (2002) underlines that metacognitive awareness is vital in goal setting, strategy selection, and feedback integration. Often, the Metacognitive Awareness Inventory (MAI) is used to gauge students' capacity to reflect on and modify their learning strategies, hence stressing the need of metacognitive awareness in promoting autonomous learning (Schraw et al., 2006).

Research indicates that metacognitive awareness improves students' capacity to adjust to different learning contexts, hence promoting both academic and personal development. For example, Hoskins and Fredriksson (2008) contend that learning how to learn depends on

the growth of metacognitive skills, which is crucial for problem-solving and lifelong learning. Furthermore, metacognitive awareness helps students to be flexible and change their learning tactics in reaction to evolving needs and comments (Anderson, 2002).

The Role of Learning Motivation

A major predictor of academic performance is learning drive. Deci, Vallerand, Pelletier, and Ryan (1991) claim that self-determination theory (SDT) stresses the need of autonomous, self-directed actions in motivation. SDT contends that, more than extrinsic motivation, which is based on outside rewards, intrinsic motivation—driven by personal satisfaction and enjoyment—is more conducive to long-term learning. Dörnyei (2001) elaborates even more on how complicated motivation is; it includes a person's will, effort, and hope for goal pursuit.

Motivated students are more likely to participate in self-monitoring, strategic planning, and goal-setting—all of which are fundamental elements of self-regulated learning (Zimmerman, 2000). Motivational learning is thus rather important in encouraging a student's dedication to their academic goals and in improving their capacity to endure obstacles.

The Interconnection Between Metacognitive Awareness and Learning Motivation

Academic achievement is mostly shaped by the interaction between metacognitive awareness and learning drive. Studies have indicated that metacognitive awareness increases learning motivation by giving students the means to track and control their cognitive processes, hence boosting their confidence and tenacity (Efklides, 2011). Knowing their cognitive strengths and shortcomings helps students develop better realistic objectives, select suitable tactics, and remain motivated all through the learning process (Pintrich, 2002).

Furthermore, metacognitive awareness helps one to feel in charge of their learning, which is naturally driving. Students who monitor and change their learning tactics become more likely to feel good about learning, such as satisfaction and success (Zimmerman, 2002). This self-regulated way of learning not only improves academic performance but also encourages lifetime learning, adaptability, and resilience in the face of obstacles (Veenman, 2012).

Ultimately, promoting self-regulated learning and academic achievement depends on the interaction between metacognitive awareness and learning motivation. While learning motivation provide the desire and tenacity required to reach academic objectives, metacognitive awareness lets students track, control, and change their learning processes. These two components working together improves long-term learning results, flexibility, and problem-solving abilities. Educational treatments meant to increase both metacognitive awareness and learning motivation can therefore greatly enhance students' academic success and their capacity to study on their own.

Methodology

Research Design

This study aimed to examine the connection between prospective teachers' metacognitive awareness and learning motivation using a quantitative correlational research approach.

Population and Sample

The population consisted of prospective teachers enrolled in education programs at four universities in Lahore. Using a multi-stage sampling technique, 400 participants (146 males, 254 females) were selected from two public and two private universities.

Instruments

Two standardized instruments were used:

Metacognitive Awareness Inventory-Short Form (MAI-SF) by Schraw and Dennison (1994) assessed metacognitive awareness.

Learning Motivation Scale, adapted from Zakariya and Barattucci, measured general learning motivation.

Both instruments utilized a five-point Likert scale. The reliability of the combined instrument was satisfactory (Cronbach's alpha = 0.84).

Data Collection

In order to gather information, questionnaires were distributed to students during class meetings and they were allowed to complete them independently. Thorough adherence to ethical considerations, including obtaining informed consent and maintaining confidentiality, was maintained.

Data Analysis

Data were analyzed using SPSS. Descriptive statistics summarized demographic data and mean scores. Pearson's correlation coefficient measured the relationship between variables, while independent sample t-tests examined gender- and sector-based differences.

Results

Demographic Profile

Of the 400 participants, 36.5% were male and 63.5% were female. 65.5% were enrolled in public universities, while 34.5% were from private institutions.

Levels of Metacognitive Awareness and Learning Motivation

The mean score for metacognitive awareness was 4.05 (SD = 0.589), indicating a high level of awareness. Similarly, learning motivation scores were also high.

Correlation Between Metacognitive Awareness and Learning Motivation

A Pearson correlation analysis revealed a significant positive relationship between metacognitive awareness and learning motivation ($r = 0.68$, $p < .01$).

Gender-Based and Sector-Based Differences

Independent sample t-tests showed no significant differences in metacognitive awareness and learning motivation based on gender or sector (public vs. private).

Research Question 1

Table 1

What is the level of metacognitive awareness of prospective teachers?

	N	Minimum	Maximum	Mean	Std. Deviation
Metacognitive awareness	400	2	5	4.05	.589

On a scale from 1 to 5, the table demonstrates that future teachers are typically quite self-aware when it comes to their thinking and learning processes, with an average score of 4.05. In other words, the majority of people are able to monitor, manage, and steer their own learning. Scores are rather consistent with one another; the majority are near the mean, with a standard deviation of 0.589. The results demonstrate that prospective teachers possess strong metacognitive abilities.

Research Question 2

Table 2

What is the level of learning motivation of prospective teachers?

	N	Minimum	Maximum	Mean	Std. Deviation
Learning motivation	400	1	5	4.12	.573

Those who aspire to teaching positions clearly have a need for knowledge, as evidenced by their mean score of 4.12 on a scale from 1 to 5. There is considerable dispersion with a standard deviation of 0.573, but the majority of the outcomes cluster around the mean.

Research Question 3

Table 3

Relationship between participants views about metacognitive awareness and learning motivation (n=400)

Variables	'r'	'p'
metacognitive awareness and learning motivation	.702	.001

According to the data in the table, the participants' levels of motivation to learn were significantly related to their metacognitive awareness ($r = .702$, $p < .05$). Metacognitive

awareness was brought up by a few participants in relation to the learning process of individuals aspiring to teaching positions.

Discussion

The findings confirm a strong positive relationship between metacognitive awareness and learning motivation among prospective teachers. These results align with previous research emphasizing the mutual reinforcement of metacognition and motivation in learning contexts (Zimmerman, 2002; Siqueira et al., 2020).

The lack of notable gender- or sector-based variations implies that the growth of metacognitive skills and drive is uniformly relevant across demographic groups. This result underlines the need for teacher education programs to include metacognitive strategy training independent of institutional type.

Furthermore, these findings are significant for educational reform in Pakistan, where improving the caliber of teacher preparation is essential for tackling systematic educational issues.

Conclusion

Among prospective teachers, this research offers empirical data linking metacognitive awareness to learning motivation. Improving metacognitive skills throughout teacher education can help to motivate, thereby improving academic performance and more efficient teaching methods.

Given the results, teacher education programs must give the development of metacognitive strategies top priority together with topic knowledge and pedagogical abilities.

Recommendations

1. Curriculum Integration: Incorporate explicit instruction on metacognitive strategies into teacher education curricula.
2. Workshops and Seminars: Organize regular workshops to develop prospective teachers' self-regulation and reflective practices.
3. Mentoring Programs: Implement mentoring programs focusing on fostering autonomy, competence, and self-efficacy among student-teachers.
4. Teachers who are actively seeking to enhance their metacognitive and motivational abilities might participate in professional development classes as part of continuous professional development.
5. Further Research: Conduct longitudinal studies to explore the long-term impact of metacognitive training on teaching effectiveness and student achievement.

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