

A STUDY ON TEACHER'S PERCEPTION OF CRITICAL THINKING AMONG STUDENTS AND ITS INFLUENCE ON 21ST CENTURY EDUCATION

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Abstract

This research paper presents an analysis of critical thinking skills among government school teachers in District NW-A, Delhi. In relation to the four Cs of 21st-century skills, the purpose of this research is to learn more about teachers' perspectives and understanding of critical thinking skills. A total of 390 teachers from a wide range of subject areas participated in the study by responding to a questionnaire that was provided in the form of a Google Form. The information was analyzed by using descriptive statistics, and the results were laid up in tables and figures for presentation. According to the results, teachers are generally in agreement on the importance and benefits of critical thinking new skills, with high agreement scores for items related to new idea discovery and problem solving. However, there is opportunity for development in areas such as promoting balanced thinking and providing an appealing teaching atmosphere. The study also reveals variations in the practice of several critical thinking skills components, implying the necessity for customized training programs to improve skills such as inferring and decision-making.

Keywords: Critical Thinking, 21st Century Skills, Government School Teachers, Components of Critical Thinking, Teacher Training.

Introduction

Education systems worldwide are striving in the twenty-first century to equip students with the information and skills they need to thrive in a world that is growing more complex and interconnected. The four Cs of 21st-century skills—"critical thinking," "collaboration," "communication," and "creativity"—have emerged as crucial pillars in the discourse about education. Among these, critical thinking is widely recognized as a fundamental skill that enables individuals to analyze, evaluate, and apply information effectively.

Government schools play a pivotal role in providing education to a significant portion of the student population in District NW-A, Delhi. The teachers in these schools serve as the primary facilitators of learning, responsible for nurturing and developing students' cognitive abilities. Therefore, understanding the teachers' understanding and perception of critical thinking skills is essential for ensuring effective implementation of these skills in the classroom.

This research aims to analyze the critical thinking skills among government school teachers in District NW-A, Delhi. By examining their understanding and perception of critical thinking, this study seeks to shed light on the current state of critical thinking instruction and identify areas for improvement. The outcomes of this research will not only make a contribution to the current body of information on critical thinking, but they will also give insights that can be used to guide the design and execution of professional development programs for teachers.

"Government school teachers from the Directorate of Education (DoE) in District NW-A, Delhi", who are teaching a variety of subjects at various levels, ranging from elementary to senior secondary, make up the population of this study. With a total of 114 DoE schools and approximately 3800 teachers in the district, it represents a substantial sample size for examining critical thinking skills.

To gather data, a Google Form questionnaire was administered to the teachers, focusing specifically on critical thinking. The questionnaire consisted of fifteen statements that covered different aspects of critical thinking. The respondents were able to express their level of agreement or disagreement with each statement by using a scale developed by Likert. The data collected through this survey were subsequently analyzed to uncover patterns, trends, and insights related to critical thinking skills among government school teachers in District NW-A, Delhi.

Understanding the perceptions and practices of critical thinking among teachers is crucial for several reasons. Firstly, it provides valuable information about the extent to which critical thinking is integrated into classroom instruction. Secondly, it highlights areas where teachers may require support and professional development to enhance their own critical thinking skills. Lastly, it serves as a foundation for future research and initiatives aimed at fostering critical thinking in government schools.

Thus, this research focuses on analyzing critical thinking skills among government school teachers in District NW-A, Delhi. The purpose of this study is to contribute to the improvement of critical thinking instruction within the district by investigating the participants' understanding of critical thinking as well as their perceptions of the concept. The findings will provide valuable insights into the current state of critical thinking skills among teachers, enabling stakeholders to develop targeted interventions that promote effective critical thinking instruction and ultimately benefit the students in their educational journey.

Research Background

In the 21st century, education systems worldwide have realized how important it is to provide students with the required skills and abilities to successfully navigate an increasingly complicated and linked world. The traditional model of education, which primarily focused on rote memorization and knowledge acquisition, is no longer sufficient to meet the demands of the modern workforce and society. Instead, educators and policymakers have identified a set of 21st-century skills that are deemed critical for students' success in their personal and professional lives. Among these 21st-century skills, critical thinking has emerged as a fundamental skill that enables individuals to analyze, evaluate, and apply information effectively. Critical thinking involves the ability to think logically, evaluate evidence, consider multiple perspectives, and make informed decisions. Students are encouraged to participate in higher-order thinking and problem-solving when they are taught this talent, which goes beyond the mere acquisition of information.

Researchers have shown that the use of critical thinking in education has a positive impact on a variety of outcomes, and this effect has been found to be able to be seen across a wide range of domains. Students who are able to develop strong critical thinking skills are in a better position to make decisions that are well-informed, identify solutions to challenging problems, and rapidly

adapt to changing conditions. In addition, critical thinking is inextricably related to a variety of other vital skills, including communication, teamwork, and creativity; hence, it is an essential component of educational strategies that take a holistic approach.

There is a need for research that investigates the use and efficacy of critical thinking in specific circumstances, even if its significance in education is widely accepted. Government schools, such as those in District NW-A, Delhi, play a significant role in providing education to a large number of students. Understanding the perceptions, practices, and challenges faced by government school teachers in teaching critical thinking is essential for promoting its effective integration into classroom instruction.

Previous research has investigated many facets of critical thinking in education, including teaching tactics, assessment methodologies, and the influence on the results of student learning. However, there is a small corpus of research explicitly concentrating on the understanding and perception of critical thinking among government school teachers in District NW-A, Delhi. This area of Delhi is located in India.

This research intends to address that gap by assessing the critical thinking skills of teachers working in government schools in District NW-A. This study aims to give insights into the present level of critical thinking instruction in government schools by assessing participants' understandings and perceptions of critical thinking. It also intends to suggest areas in which critical thinking instruction might be improved. The results of this research may be utilized to direct the creation and execution of targeted interventions and professional development programs for teachers, both of which will ultimately result in enhanced critical thinking skills among students. Therefore, it is crucial to ensure that students are equipped with the skills required for success in the 21st century since research on critical thinking in education has proven that it is important in doing so. For efficient integration of this skill into classroom instruction, it is essential to have an understanding of the perception and skill of critical thinking among government school teachers in District NW-A, Delhi. Education may improve critical thinking instruction and equip students to become critical thinkers and lifelong learners by addressing the specific problems and demands of teachers in this environment.

Review of Literature

The review of literature in this research paper provides an overview of existing studies and research related to critical thinking in education, specifically focusing on government school teachers in District NW-A, Delhi. The review encompasses a range of sources, including academic articles, research papers, and educational reports, to establish the current knowledge and gaps in understanding regarding critical thinking instruction in this context.

Numerous studies have been conducted on the subject of the significance of critical thinking as an educational aim in recent years. The capacity to assess and evaluate information, make reasoned judgements, and solve issues successfully is what Facione (2011) characterizes as critical thinking. Researchers have emphasized the favourable influence that critical thinking has on the learning outcomes of students, such as enhanced academic achievement, greater problem-solving ability, and higher order thinking skills (Ennis, 2021; Abrami et al., 2008).

Moreover, the literature reveals that critical thinking is closely linked to other essential skills. For instance, communication skills are crucial for effectively expressing and articulating critical thinking processes and ideas (Halpern, 2014). Collaborative skills enable students to engage in meaningful discussions, share perspectives, and challenge assumptions, thereby enhancing critical thinking abilities (National Research Council, 2022). Creativity is another skill that intersects with critical thinking, as it involves generating innovative ideas and approaching problems from unconventional angles (Cropley, 2006).

Research has examined the difficulties and possibilities associated with fostering critical school thinking among teachers in the setting of government schools. According to the findings of a study conducted by Shahzad, Naqvi, and Raza (2019), teachers working in government schools confront challenges such as insufficient resources, high class sizes, and traditional teaching approaches that impede the development of critical thinking skills in their students. However, the study also highlighted the teachers' recognition of the importance of critical thinking and their willingness to incorporate it into their instruction.

Professional development programs have been identified as effective strategies for supporting teachers in enhancing their understanding and implementation of critical thinking. The literature suggests that providing teachers with training and resources that explicitly address critical thinking instruction can positively impact their instructional practices (Fisher, Frey, & Rothenberg, 2008). Collaborative learning communities and teacher networks have also been found to be beneficial for teachers in exchanging ideas, sharing best practices, and fostering a culture of critical thinking (OECD, 2018).

While there is considerable research on critical thinking studies in education, there is a paucity of research especially concentrating on critical thinking teachers in District NW-A, Delhi. By assessing the understanding and perception of critical thinking among these teachers, this research report aims to close this knowledge gap. This study aims to add to the knowledge base by building on the existing literature and providing insights that may influence the establishment of targeted interventions and professional development programs for teachers working in this setting. These insights will be provided by expanding on the current literature.

As a result, this overview of the relevant literature underlines the significance of critical thinking in the educational setting, as well as its connection to other crucial skills. It identifies the challenges and opportunities faced by government school teachers in promoting critical thinking and emphasizes the role of professional development programs. The existing literature provides a foundation for understanding the significance of critical thinking instruction and sets the stage for the current research, which aims to explore the understanding and perception of critical thinking among government school teachers in District NW-A, Delhi.

Theoretical Framework of the Present Research

This research paper's theoretical framework is based on the concept of 21st-century skills and the role of critical thinking within that framework. Rapid technology developments, globalization, and complex socioeconomic concerns define the twenty-first century. As a consequence, there is a

growing realization that conventional educational methodologies must be supplemented with skills relevant to and required for success in the contemporary world.

The 21st-century skills framework includes a variety of competences that allow people to succeed in the digital era. Critical thinking, creativity, communication, cooperation, and problem-solving are a few examples of these skills. Critical thinking, in particular, is an important component of this framework since it underlies many other skills and is necessary for navigating the complexity of today's world.

Critical thinking is based on a variety of theoretical viewpoints and frameworks. The Paul-Elder Model of Critical Thinking, established by Richard Paul and Linda Elder, is one such framework. This paradigm stresses the value of intellectual characteristics such as intellectual humility, intellectual honesty, and intellectual persistence in developing critical thinking skills. It also emphasizes the role of intellectual criteria in evaluating and reasoning about information, such as clarity, correctness, relevance, and fairness.

Bloom's Taxonomy is another famous theoretical approach that divides cognitive processes into six categories, ranging from "lower-order thinking skills like remembering and understanding to higher-order thinking skills like analyzing, evaluating, and inventing". Critical thinking is classified as a higher level of Bloom's Taxonomy, indicating its ability to participate in complicated cognitive processes.

Furthermore, the concept of metacognition is critical to understanding and encouraging critical thinking. The knowledge and management of one's own thinking processes is referred to as metacognition. It entails monitoring one's thinking, evaluating the efficacy of tactics, and making necessary improvements. Planning, self-reflection, and self-regulation are all metacognitive methods that aid in the development of critical thinking skills.

This research paper's theoretical framework also integrates the concept of 21st-century teaching and learning methodologies. These methods place an emphasis on student-centered and inquiry-based pedagogies that foster critical thinking. They urge educators to create learning experiences that inspire students to think critically, evaluate data, ask probing questions, and build their own understanding of subjects.

In a nutshell, the concept of skills suited for the 21st century serves as the basis for the theoretical framework of this research study, with the emphasis being focused primarily on critical thinking. The Paul-Elder Model of Critical Thinking, Bloom's Taxonomy, and metacognition are just a few examples of the theoretical views that are used to understand and research the numerous facets of critical thinking. There are many more models and taxonomies as well. The framework also takes into account the principles of teaching and learning techniques that have arisen in the twenty-first century. As a means of supporting students in the development of critical thinking skills, these techniques encourage student-centered and inquiry-based teaching practices in the classroom. By grounding the research in these theoretical underpinnings, the study aims to provide substantial insights into the understanding and perception of critical thinking among government school teachers in District NW-A, Delhi.

Research Methodology

The study utilized a Google Form questionnaire consisting of fifteen statements related to critical thinking skills. Each statement was coded and mapped to specific components of critical thinking. The teachers responded to these statements using a “five-point Likert scale”. The collected data were analyzed using “descriptive statistics”.

A. Sampling and Population

The population of the study comprises “government school teachers from Directorate of Education (DoE), NW-A District, Delhi, teaching various subjects at different levels”. Out of 114 DoE schools in the district NW-A, 390 teachers completed the Google Form questionnaire on critical thinking, providing a representative sample for this study.

B. Demographic Details

The study provides demographic details of the teachers, including the distribution of subjects taught and experience levels. The analysis reveals that the majority of teachers are engaged in teaching languages and social sciences. Additionally, most teachers have relatively low levels of experience, with a limited representation of highly experienced teachers.

C. Data Analysis and Interpretation

The analysis of teachers' responses to the critical thinking statements is presented through figures and charts. The findings highlight the highest agreement scores for statements emphasizing the role of critical thinking in exploration of new ideas and problem-solving. Conversely, lower agreement scores were observed for statements related to creating an attractive classroom environment and developing balanced thinking.

D. Analysis of Components

The study further examines the variance and homogeneity among different components of critical thinking skills. The analysis reveals that observing critical thinking shows the highest variance, indicating diverse perspectives among teachers. On the other hand, deciding critical thinking demonstrates high homogeneity, suggesting potential opportunities for targeted training programs.

Critical Thinking Skill

Following an investigation into the teaching of collaboration skills, communication skills, and creative thinking, an additional part of 21st century skills, namely critical thinking, is submitted to inquiry. This occurs after an investigation into the teaching of creative thinking, communication skills, and creative thinking. The research study included a total of 390 teachers from a variety of subject areas. After entering a total of fifteen statements into the scale, the data from those statements was then examined. These statements have been programmed in line with the information that is shown below with respect to the components that are to be mapped.

Table 1: “Variable coding related to critical thinking

Code	Statement of Measures	Components to be mapped
v60	Critical thinking focuses on investigation	Observing
v61	Critical thinking does not encourages open ended questions	Inferring

v62	Critical thinking generates the curiosity among the students	Curiosity
v63	Critical thinking does not makes classroom environment attractive for learning	Inferring
v64	Critical thinking gives importance to the debate and discourse	Judging
v65	Critical thinking prepare the students to deal with the real world problem solving	Curiosity
v66	Critical thinking does not allow the students to make connections and see relationships	Inferring
v67	Critical thinking makes the students predicts events	Inferring
v68	Critical thinking allow the students to involve in learning	Deciding
v69	Critical thinking helps the students to value the different ways of working	Judging
v70	Critical thinking helps in exploration and imagination of new ideas.	Imagining
v71	Critical thinking does not develop balanced thinking	Deciding
v72	Critical thinking makes the students more creative	Deciding
v73	Critical thinking help students in improving the analytical ability	Inferring
v74	Critical thinking encourages students look for the evidence.	Observing
v75	Critical thinking help me as a teacher to think out of box	Curiosity”

Table: 2: Scale used for item measurement

5	4	3	2	1
Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree

Components to be mapped

By using a variety of statements, the components listed under critical thinking have been mapped:

1. Judging
2. Inferring
3. Imagining
4. Observing
5. Developing curiosity
6. Making decisions

Demographic details of teachers studied for critical thinking

Distribution of subjects taught

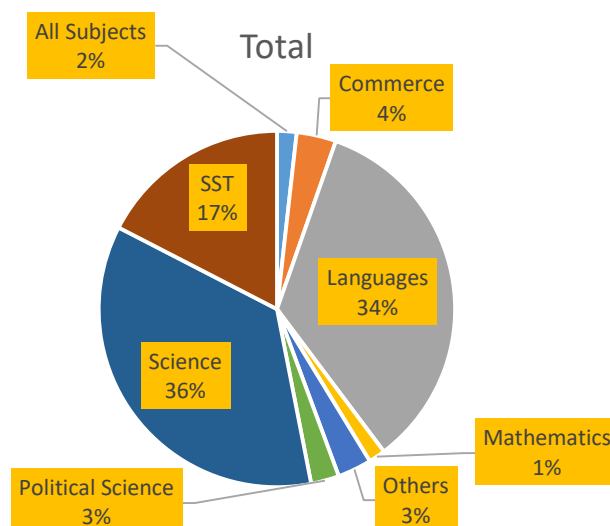


Figure 1: Distribution of subjects taught

The teachers who instruct students in languages have the biggest representation, followed by those who instruct students in science. This is something that can be witnessed. Teachers who are teaching languages and S.Sc. have a collective representation of around 51%. As a result, the results are biased in favour of the teachers who are teaching these two subject areas.

Distribution of experience w.r.t. subjects taught

Table 3: Experience Vs subjects

Experience	All Subjects	Commerce	Languages	Mathematics	Others	Political Science	Science	S.Sc.	Grand Total
0-4	2	5	54	1	8	6	70	25	171
5-9	3	1	30	2	2	3	39	20	100
10-14	2	2	30	2	2	0	15	11	64
15-19	0	2	7	0	0	0	5	4	18
20-24	0	1	10	1	0	1	6	1	20
25-29	0	2	2	0	0	0	3	5	12
30-34	0	1	1	0	0	0	0	2	4
35-39	0	0	0	0	0	0	1	0	1
Grand Total	7	14	134	6	12	10	139	68	390

It is clear from the table that most teachers have experience ranging from 0 to 4 years in the classroom teaching science and S.Sc. subjects. If we expand the experience window to include the years 0 through 9, we find that 271 of the respondents fall into that category. The category of

teachers with 35–39 years of experience has the fewest representatives overall. This group has the lowest representation. There is just one person that answered the survey question from that particular experience category. The findings of the study will be seen as having a bias in favor of the viewpoints of teachers with less professional experience.

Data Analysis and Interpretation for Critical Thinking

We analyse the statement in relation to the statements after studying the demographics. The results are shown in the following chart:

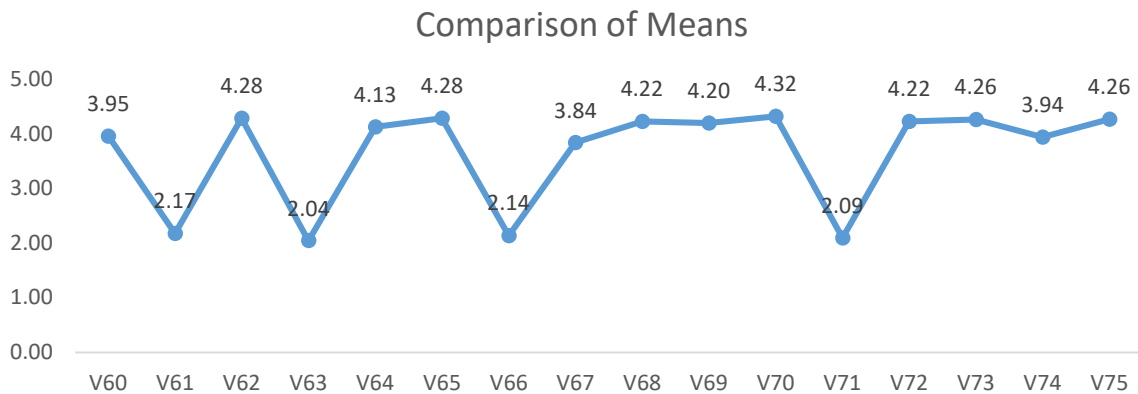


Figure 2: Comparison of Means

The statement that "critical thinking helps in exploration and imagination of new ideas" had the highest mean score of 4.32, which indicates the greatest level of agreement among respondents. Following that, the statements that "Critical thinking generates the curiosity among the students" and "Critical thinking prepares the students to deal with real world problem solving" each received a mean score of 4.28 out of a possible 5 points. This demonstrates that the teachers have the belief that critical thinking leads to the exploration of new ideas. It is possible to conduct an in-depth study to determine how much of an influence critical thinking has on the generation of new ideas and the approach used to solving problems. The lowest levels of agreement were also discovered for the statements that "Critical thinking does not develop balanced thinking" with a mean score of 2.09 and that "Critical thinking does not make classroom environment attractive for learning" with a mean score of 2.04 respectively. This indicates that the teachers have a positive attitude toward the components of critical thinking and believe that critical thinking makes a positive contribution to the environment of the classroom as a whole.

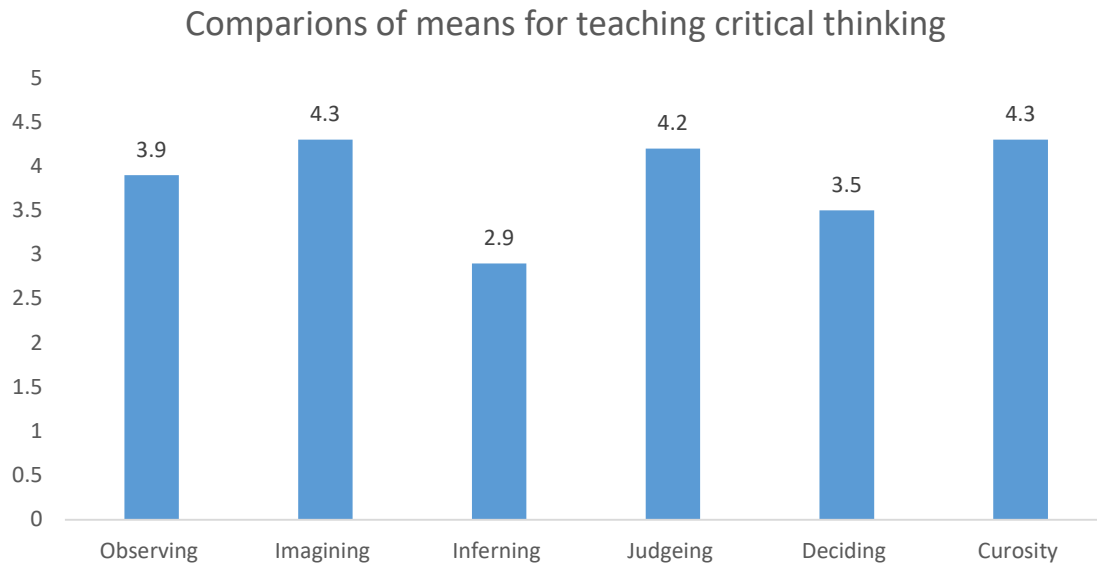


Figure 3: Comparison of Means for Teaching Critical Thinking

The practice of critical thinking skills reveals that the most frequently utilized skill is developing curiosity through critical thinking. Following closely is visualizing using critical thinking, while making judgments about critical thinking is practiced the least, with a mean score of 2.9. Therefore, critical thinking is determined to be the least practiced skill. Consequently, teachers should enhance their instruction skills in critical thinking to facilitate decision-making and the formulation of critical conclusions.

Furthermore, teachers can provide students with an overview of how critical thinking contributes to exploring all possible outcomes, leading to effective conclusions. This can be achieved through teacher training programs. Self-learning exercises and group activities can focus on the entire process of critical thinking, including drawing conclusions and making successful decisions. These exercises may employ a comparative approach, demonstrating the distinction between decisions based on critical thinking and decisions influenced by factors other than critical thinking.

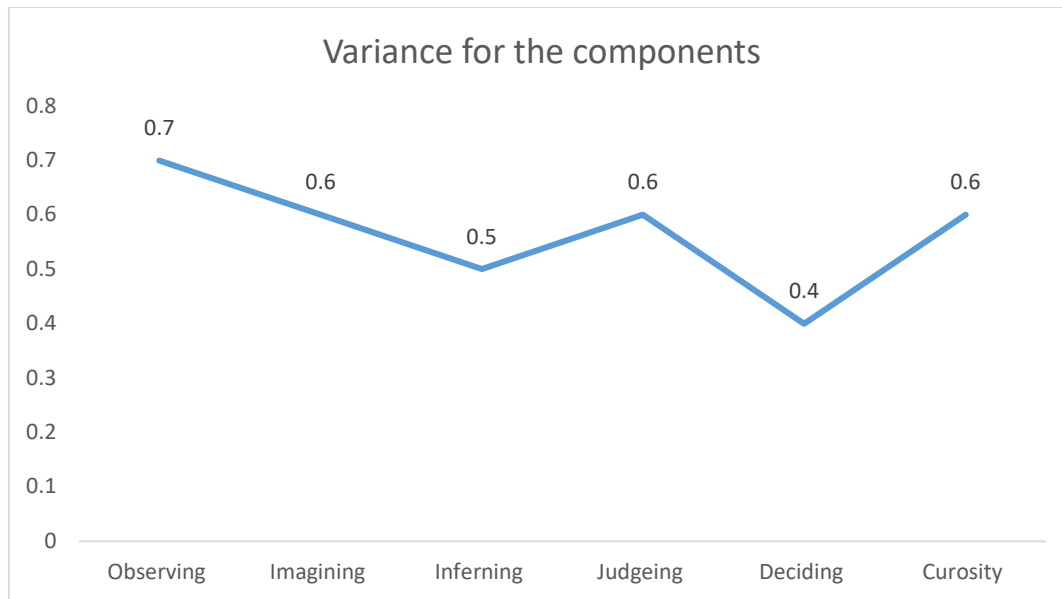


Figure 4: Variance for the Components

The largest variance is observed while observing the critical thinking components, and the variance among the components is further examined. This means that while observing the critical thinking, the teachers are thinking in a variety of different ways. In addition, it has been observed that there is a great degree of uniformity in the process of determining critical thinking. When designing training programs for observing components while using critical thinking, a larger compartmentalization of teachers is necessary.

Conclusion and Recommendations

The analysis of critical thinking skills among government school teachers in District NW-A, Delhi has provided valuable insights into their understanding and perception of this essential 21st-century skill. The findings of this research shed light on various aspects of critical thinking and offer recommendations for improving its integration into classroom instruction.

The study revealed that teachers generally recognize the importance and benefits of critical thinking skills. The high agreement scores for statements related to exploration of new ideas, problem-solving, and generating curiosity among students indicate a positive perception of critical thinking. This aligns with the broader educational goal of fostering creativity, innovation, and analytical thinking among students.

However, there are areas that require attention and improvement. The lower agreement scores for statements related to creating an attractive classroom environment and developing balanced thinking suggest the need for interventions to enhance these aspects of critical thinking instruction. Teachers should be supported in creating engaging learning environments that foster critical thinking and promote balanced perspectives among students.

The analysis of the components of critical thinking skills highlighted variations in practice among teachers. While skills such as developing curiosity, imagining creativity, and making judgments were relatively well-practiced, there was room for improvement in skills like inferring and decision-making. Targeted training programs and professional development initiatives can address

these gaps by providing teachers with strategies and resources to effectively nurture these skills in their students.

The findings also emphasized the need to consider the level of experience among teachers when interpreting the results. The study revealed a predominance of teachers with lower experience levels, which may have influenced the outcomes. Future research should strive for a more balanced representation of teachers across different experience ranges to ensure a comprehensive understanding of critical thinking skills among educators.

In summary, the findings of this research have made a contribution to the body of prior information on government school teachers' critical thinking skills in the District NW-A of Delhi. The results provide light on the areas in which critical thinking is successfully integrated into classroom education as well as those in which it may need some work. If it implements targeted training programs, supports teachers in strengthening their own critical thinking skills, and provides opportunities for professional development for teachers, the education system in District NW-A is capable of fostering a culture of critical thinking and providing students with the competencies necessary for success in the 21st century. This will allow the education system to provide students with the skills necessary for success in the 21st century.

Moving ahead, it is recommended that educational authorities and stakeholders emphasize the development of comprehensive techniques for integrating critical thinking skills across the curriculum. These skills are essential for students to be successful in today's complex and competitive global economy. The education system can guarantee that critical thinking becomes an intrinsic component of teaching and learning in government schools in District NW-A, Delhi, by providing continuing support, resources, and opportunities for professional development for teachers. This may be accomplished by providing teachers with opportunities for ongoing professional development.

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