



An Analysis of Secondary School Teachers' Perceptions of Students' Learning Competencies

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Abstract

The present study titled “*An Analysis of Secondary School Teachers' Perceptions of Students' Learning Competencies*” aimed to examine and classify the perceptions of secondary school teachers regarding their students' learning competencies across six major domains—Reading and Comprehension Skills, Communication and Language Competencies, Experiential Learning, Critical Thinking and Problem-Solving, Creativity Competencies, and Environmental and Social Competencies. The study adopted the survey method, involving a sample of 750 secondary school teachers selected from government, aided, and private schools across Krishna, Guntur, and Prakasam districts of Andhra Pradesh, using a stratified random sampling technique. Data were collected using a Learning Competencies Scale (LCS) developed by the researcher, consisting of 66 items rated on a five-point Likert scale. The tool demonstrated high reliability, with a Cronbach's alpha coefficient of 0.94, confirming its internal consistency.

The collected data were analysed using Boxplot Analysis to determine the distribution, variation, and central tendency of teachers' perceptions across the six domains. Findings revealed that secondary school teachers generally perceived their students' learning competencies as moderately high ($M = 289.87$), with minimal variability and a few exceptionally high ratings indicating outstanding performance in select contexts. Among the domains, teachers perceived students as most competent in Environmental and Social Learning, while Critical Thinking and Creativity emerged as the least developed competencies. The results underscore the need for greater emphasis on pedagogical strategies that enhance higher-order thinking, creativity, and problem-solving skills in secondary education.

Keywords: Learning Competencies, Secondary Education, Teachers' Perceptions, Competency-Based Learning, Boxplot Analysis

1. Introduction:

Learning is a continuous and dynamic process through which individuals acquire knowledge, develop skills, form attitudes, and modify behaviour based on experience and interaction with their environment. It is not merely the accumulation of facts, but a process of constructing meaning, understanding relationships, and applying concepts to new situations. Psychologists and educators view learning as both a cognitive and behavioural transformation that results in relatively permanent changes in one's capacity to think, feel, and act. Classical theories such as behaviourism, cognitivism, and constructivism have each contributed to explaining how learning occurs—ranging from stimulus-response conditioning to the active construction of knowledge through experience and reflection.

In the context of education, learning extends beyond classroom instruction; it involves developing competencies that enable learners to function effectively in real-world contexts. Effective learning is purposeful, active, and reflective, encouraging students to engage in critical thinking, problem-solving, and collaboration. The modern approach to learning emphasizes learner-centered pedagogy, where the teacher serves as a facilitator guiding students toward autonomy and self-regulated learning. With the introduction of competency-based education and the influence of digital technologies, the nature of learning has evolved from rote memorization to the development of higher-order thinking skills and life-long learning abilities.

2. Conceptual Background

Competency-Based Learning (CBL) is an educational approach that emphasizes the attainment of clearly defined learning outcomes that combine knowledge, skills, values, and attitudes essential for holistic student development. Unlike the traditional content-driven model, CBL focuses on what learners can do with what they know. It promotes mastery of specific competencies rather than completion of prescribed instructional hours. In India, this approach gained prominence following global educational reforms that emphasized measurable learning outcomes, skill development, and learner autonomy (OECD, 2018).

The foundation for competency-based education in India was laid through the National Curriculum Framework (NCF, 2005), which advocated for constructivist pedagogy and the development of critical, creative, and collaborative learners. This was further strengthened by the National Education Policy (NEP, 2020), which explicitly calls for a shift from rote learning to competency-based, experiential, and holistic education. The NEP 2020 emphasizes achieving foundational literacy and numeracy and developing 21st-century skills such as communication, problem-solving, and critical thinking (Ministry of Education, 2020). The policy also advocates reforming assessment systems to focus on learning outcomes rather than content recall, thereby aligning instructional practices with competency standards.

The National Council of Educational Research and Training (NCERT) operationalized CBL through the publication of Learning Outcomes at the Elementary Stage (2017), which provides grade-wise and subject-specific learning competencies expected of students. These outcomes serve as benchmarks for curriculum planning, classroom instruction, and student assessment (NCERT, 2017). Similarly, the Central Board of Secondary Education (CBSE) has integrated competency-based questions into board examinations since 2020 to encourage application-based learning (CBSE, 2021). At the state level, several educational departments have adopted CBL frameworks to ensure quality and accountability in school education.

CBL in India also aligns with the UNESCO (2015) vision of education for sustainable development, which emphasizes learner-centered, competency-oriented pedagogy. However, implementing CBL in India faces challenges such as limited teacher training, inadequate assessment literacy, and infrastructural constraints (Kumar & Saha, 2021). Strengthening teacher capacity and assessment frameworks is crucial for realizing the NEP's vision of transforming education into a competency-driven system that nurtures lifelong learners.

3. Importance of Competency-Based Learning in Secondary Schools

Competency-Based Learning (CBL) holds immense importance in secondary education, as this stage serves as a bridge between foundational schooling and higher or professional education. At this level, students are expected not only to acquire academic knowledge but also to develop essential competencies that enable them to apply learning meaningfully in real-life contexts. CBL ensures that learners gain mastery over specific skills, attitudes, and values necessary for success in the 21st century—such as problem-solving, critical thinking, communication, creativity, and collaboration (OECD, 2018). It moves beyond rote memorization, fostering deeper understanding and transferable skills that prepare students for future academic and career challenges.

In the context of Indian secondary education, competency-based learning aligns closely with the objectives of the National Education Policy (NEP, 2020), which emphasizes learning outcomes, holistic development, and reduction of curriculum load. The NEP advocates shifting from content-heavy instruction toward an outcome-oriented model that cultivates analytical and life skills. At this stage, students face increased academic pressure and diverse learning expectations; thus, CBL offers a structured approach to personalized learning where progression is based on demonstrated mastery rather than time spent in class. This ensures that no student is left behind, and learning gaps are effectively addressed through differentiated instruction (Ministry of Education, 2020).

Furthermore, CBL enhances the relevance and quality of education by connecting classroom learning to real-world applications. Through project-based and experiential learning approaches, students learn to integrate knowledge across subjects, promoting interdisciplinary thinking and innovation (NCERT, 2017). Teachers act as facilitators who guide learners in acquiring competencies through authentic tasks, formative assessments, and reflective practices. Competency-based learning also encourages continuous and comprehensive evaluation, focusing on skill attainment rather than one-time examinations (CBSE, 2021).

At a broader level, implementing CBL in secondary schools contributes to the national goal of preparing employable, socially responsible, and adaptable citizens. It nurtures self-directed learners capable of lifelong learning—a critical attribute in an era of rapid technological change. By emphasizing “learning to learn,” CBL supports India's vision of transforming education into a system that is both equitable and excellence-driven, ensuring that every learner achieves meaningful educational outcomes.

4. Challenges in Implementing Competency-Based Learning in Secondary Schools

Although Competency-Based Learning (CBL) has been recognized as a transformative approach to improving the quality and relevance of education, its implementation in secondary schools, especially in India, faces several challenges. One of the major obstacles is the lack of awareness and conceptual clarity among teachers and school administrators regarding the nature and purpose of competencies. Many educators continue to rely on traditional teaching methods that emphasize content delivery and examination performance rather than skill mastery and application (Kumar & Saha, 2021). Without adequate orientation and professional development, teachers find it difficult to translate curriculum-based competencies into classroom practices that promote active and experiential learning.

Another significant challenge is the assessment system, which remains largely examination-oriented. Despite policy reforms such as the National Education Policy (NEP, 2020) advocating outcome-based evaluation, schools continue to depend on summative tests that measure factual recall rather than competencies such as problem-solving, collaboration, and creativity. The transition from knowledge-based assessment to performance-based assessment requires new tools, rubrics, and teacher training in formative evaluation methods (CBSE, 2021). Additionally, large class sizes, inadequate infrastructure, and lack of learning resources restrict opportunities for personalized and project-based learning that are essential in competency-based systems (NCERT, 2017).

Socio-economic disparities also pose a challenge. Schools in rural and under-resourced areas often lack access to digital tools and trained educators, leading to uneven implementation of competency-based pedagogy across regions (UNESCO, 2020). Moreover, parental and societal expectations that prioritize high scores in board examinations over skill mastery further limit the adoption of innovative approaches. Hence, for successful implementation of CBL, systemic reforms are required, including curriculum restructuring, teacher capacity building, continuous assessment mechanisms, and stakeholder sensitization.

In summary, while competency-based learning promises to make education more meaningful and learner-centered, realizing its full potential in secondary schools demands a paradigm shift from content coverage to competency mastery. A sustained commitment from policymakers, educators, and communities is essential to overcome these challenges and build an education system that truly equips learners for life and work in the 21st century.

5. Role of Teachers in Implementing Competency-Based Learning in Secondary Schools

Teachers play a central and transformative role in the successful implementation of Competency-Based Learning (CBL) at the secondary school level. As facilitators of learning, they are responsible for translating curriculum objectives and learning outcomes into classroom practices that promote the acquisition of essential competencies among students. In the CBL framework, the teacher's role extends beyond knowledge transmission to guiding learners through experiences that develop problem-solving, creativity, critical thinking, and collaboration skills (NCERT, 2017). This shift demands a change in teachers' professional identity—from "knowledge providers" to "learning designers" who plan, facilitate, and assess learning experiences based on measurable competencies (OECD, 2018).

Teachers are instrumental in creating a learner-centered environment, where students progress at their own pace based on mastery rather than time-bound coverage of syllabus. They design learning activities that integrate real-life contexts, project-based learning, and cross-disciplinary connections, thereby making learning more relevant and meaningful (CBSE, 2021). In competency-based classrooms, teachers also use formative and diagnostic assessments to monitor student progress, provide timely feedback, and adapt instruction according to individual learning needs. This continuous assessment approach aligns with the National Education Policy (NEP, 2020), which emphasizes competency-focused pedagogy and the need for flexibility in curriculum and assessment practices.

However, to fulfill this transformative role, teachers require adequate professional training and institutional support. Many educators in India are not yet fully equipped with the pedagogical and assessment skills necessary for implementing CBL effectively. Therefore, capacity-building programs, workshops, and mentoring initiatives are essential for helping teachers understand how to design competency-based lessons, use performance rubrics, and integrate technology for personalized learning (Kumar & Saha, 2021). The District Institutes of Education and Training (DIETs), State Councils of Educational Research and Training (SCERTs), and NCERT play a pivotal role in strengthening these competencies among teachers through pre-service and in-service training programs.

Moreover, teachers serve as agents of educational change, bridging the gap between policy intentions and classroom realities. Their perception, motivation, and commitment directly influence the effectiveness of competency-based reforms (Fullan, 2019). By fostering a growth mindset and creating inclusive learning environments, teachers can nurture students' confidence and curiosity—essential traits for lifelong learning. Hence, empowering teachers through sustained professional development and reflective practice is vital for realizing the goals of competency-based education and achieving the broader vision of the NEP 2020.

6. Strategies for Effective Implementation of Competency-Based Learning in Secondary Schools

The successful implementation of Competency-Based Learning (CBL) in secondary schools requires a comprehensive and systemic approach that addresses curriculum, pedagogy, assessment, teacher capacity, and school management practices. Since CBL focuses on developing students' ability to apply knowledge and skills in authentic contexts, its effectiveness depends on how well teaching-learning processes are aligned with clearly defined learning outcomes. The National Education Policy (NEP, 2020) emphasizes the need for flexible curricula, learner-centered pedagogy, and formative assessments to enable holistic and competency-oriented education. Therefore, effective implementation of CBL in India calls for strategic planning at multiple levels — from classroom practices to institutional and policy frameworks.

One key strategy is the redesign of curriculum and instructional materials to reflect explicit competencies and learning outcomes. Curriculum developers and teachers should collaboratively identify core competencies for each subject area and design learning modules that integrate knowledge with real-world applications. The NCERT (2017) learning outcomes framework provides a foundation for mapping competencies at different grade levels. Learning activities should include project-based tasks, problem-solving exercises, simulations, and collaborative assignments that engage students in experiential learning (UNESCO, 2020). Such approaches promote deeper understanding and help learners demonstrate mastery of competencies through authentic performance.

Another essential strategy is the strengthening of teacher professional development. Teachers must be trained to design competency-based lesson plans, adopt differentiated instruction, and use assessment rubrics effectively. Pre-service teacher education institutions, such as DIETs and SCERTs, should integrate competency-based pedagogy and assessment literacy into their training curricula (Kumar & Saha, 2021). Regular in-service programs, workshops, and peer-learning communities can further enhance teachers' capacity to implement CBL effectively.

In addition, schools need to adopt competency-based assessment systems that move beyond rote memorization toward continuous, formative evaluation. Assessment tools such as performance tasks, portfolios, reflective journals, and rubrics can help capture evidence of student learning more comprehensively (CBSE, 2021). Technology can play a transformative role in tracking learning progress, providing personalized feedback, and facilitating adaptive learning experiences (OECD, 2018).

Finally, institutional leadership and community engagement are crucial for sustaining CBL practices. School leaders must create a supportive environment that encourages innovation, collaboration, and flexibility in teaching-learning processes. Involving parents, industry partners, and local communities can make competency-based learning more relevant and context-specific, fostering a sense of ownership and accountability among all stakeholders.

In essence, effective implementation of competency-based learning in secondary schools requires a coordinated effort that combines curriculum innovation, teacher empowerment, continuous assessment, and systemic support. When executed holistically, these

strategies can transform Indian secondary education into a dynamic, inclusive, and outcome-driven system that nurtures every learner's potential.

7. Learning Competencies Across Key Domains

Reading and Comprehension Skills

Reading and comprehension skills are foundational competencies that enable learners to decode, interpret, and construct meaning from written texts. They involve not just recognizing words but also understanding ideas, analysing information, and evaluating textual content. In secondary education, these skills extend to reading a variety of texts—literary, informational, and technical—while identifying main ideas, supporting details, tone, and purpose. According to NCERT (2017), effective comprehension is a multidimensional process involving literal understanding, inferential reasoning, and critical evaluation. Strengthening these skills enhances students' academic performance across all subjects, as reading is central to knowledge acquisition, language proficiency, and independent learning.

Communication and Language Competencies

Communication and language competencies encompass the ability to express thoughts, ideas, and emotions effectively through oral, written, and non-verbal modes. These skills are essential for collaboration, interpersonal understanding, and professional success. As highlighted in the National Education Policy (NEP, 2020), proficiency in language empowers learners to engage meaningfully in academic and social interactions. At the secondary level, communication competencies include active listening, articulate speaking, coherent writing, and effective use of digital communication tools. Teachers play a vital role in developing these competencies through classroom discussions, debates, presentations, and writing tasks that encourage confidence and fluency.

Experiential Learning

Experiential learning refers to the process of learning through direct experience, reflection, and application. Rooted in John Dewey's experiential theory and Kolb's experiential learning model, it promotes active engagement rather than passive reception of knowledge. In the context of competency-based education, experiential learning helps students connect theoretical knowledge to real-world contexts, thereby deepening understanding and retention (Kolb, 2015). Activities such as experiments, field visits, simulations, and community projects enable learners to observe, practice, and apply what they learn. NEP (2020) emphasizes experiential learning as a critical pedagogical approach for fostering curiosity, critical inquiry, and problem-solving ability among students.

Critical Thinking and Problem-Solving

Critical thinking and problem-solving are higher-order cognitive skills that enable learners to analyse information, evaluate evidence, identify patterns, and make informed decisions. These competencies are integral to 21st-century education, preparing students for complex real-world challenges (OECD, 2018). Critical thinking involves questioning assumptions, recognizing biases, and drawing logical conclusions, while problem-solving requires the ability to define issues, generate alternatives, and apply reasoning to reach solutions. In secondary schools, activities such as case studies, research projects, and analytical discussions can nurture these competencies. NEP (2020) stresses the development of such skills to cultivate independent, rational, and reflective learners capable of lifelong learning.

Creativity Competencies

Creativity competencies relate to the ability to generate new ideas, explore possibilities, and innovate across disciplines. Creative thinking allows learners to approach problems from multiple perspectives and devise original solutions. In education, creativity is not limited to the arts but extends to science, technology, and social problem-solving. Encouraging creativity in secondary schools involves fostering curiosity, imagination, and risk-taking through open-ended projects, design thinking, and artistic expression (UNESCO, 2020). The NEP (2020) underscores creativity as a vital competency for holistic development, entrepreneurship, and innovation-driven learning. By cultivating creativity, schools nurture flexible thinkers equipped for dynamic global contexts.

Environmental and Social Competencies

Environmental and social competencies involve awareness, responsibility, and action concerning ecological sustainability and social well-being. These competencies help learners understand the interdependence between humans and the environment, as well as the values of empathy, cooperation, and ethical citizenship. The NCERT Learning Outcomes (2017) and UNESCO's Education for Sustainable Development (ESD) Framework (2020) emphasize that students should be encouraged to make informed choices that promote environmental conservation and social harmony. At the secondary level, integrating environmental projects, community service, and civic education helps students develop sensitivity toward global issues such as climate change, equity, and human rights. Such competencies contribute to nurturing responsible and socially conscious citizens aligned with India's constitutional values and the Sustainable Development Goals (SDGs).

8. Need and Significance of the Study

Education in the 21st century demands a paradigm shift from rote memorization to the development of competencies that prepare learners to apply knowledge meaningfully in real-life situations. The National Education Policy (NEP, 2020) emphasizes *competency-based education* as a key strategy to transform schooling in India, ensuring that students acquire not just cognitive knowledge but also essential skills, values, and attitudes required for holistic growth. In this context, learning competencies such as communication, critical thinking, problem-solving, creativity, and social awareness have become central indicators of educational

quality. Secondary school is a crucial stage where these competencies must be consolidated to prepare learners for higher education, employability, and responsible citizenship.

Despite policy-level initiatives and curriculum reforms, there exists a significant gap between intended learning outcomes and actual student performance in many Indian schools. The effectiveness of competency-based learning largely depends on how teachers perceive, interpret, and implement learning competencies in their classroom practices. Teachers serve as key mediators in transforming curricular goals into learning experiences. Therefore, understanding teachers' perceptions of students' learning competencies provides valuable insights into the current state of teaching-learning processes, the alignment of pedagogy with competency goals, and the challenges faced in achieving desired outcomes (NCERT, 2017; OECD, 2018).

Moreover, teachers' perceptions influence their instructional choices, classroom interactions, and assessment methods. If teachers perceive that students lack competencies in critical areas—such as reading comprehension, communication, or problem-solving—they may adapt their teaching strategies accordingly. Conversely, misperceptions or limited awareness about learning competencies may hinder effective implementation of competency-based education. Thus, analyzing these perceptions is essential for identifying professional development needs, designing targeted training programs, and enhancing curriculum delivery (Kumar & Saha, 2021).

At a broader level, the study holds significance for educational planners, administrators, and policymakers who aim to ensure that competency-based frameworks such as those outlined by NCERT (2017) and NEP (2020) are effectively translated into classroom realities. The findings of this research can help bridge the gap between policy and practice by highlighting areas where teachers require conceptual clarity, pedagogical support, or resource facilitation. It can also contribute to refining assessment practices to better measure student competencies beyond academic achievement.

In sum, this study is both timely and relevant in the present educational landscape of India. By analysing secondary school teachers' perceptions of students' learning competencies across domains such as reading comprehension, communication, critical thinking, creativity, experiential learning, and social responsibility, the study aims to provide empirical evidence that supports the ongoing transition toward a competency-based, learner-centered education system envisioned by the NEP 2020.

9. Review of Related Literature

A review of related literature provides a conceptual and empirical foundation for understanding the key variables of the present study—teachers' perceptions and students' learning competencies. It helps identify trends, theoretical perspectives, and research gaps in the area of competency-based education at the secondary school level.

Conceptual Understanding of Learning Competencies

Learning competencies represent a blend of knowledge, skills, values, and attitudes that enable learners to perform effectively in various contexts. According to the Organisation for Economic Co-operation and Development (OECD, 2018), competencies refer to the ability to apply knowledge and skills to meet complex demands. The National Council of Educational Research and Training (NCERT, 2017) defines learning outcomes as statements that describe the expected competencies students should demonstrate at the end of a learning experience. These competencies are reflected through performance indicators such as reading comprehension, problem-solving, communication, and social responsibility.

Kolb (2015) emphasized experiential learning as the foundation of competency development, where knowledge is constructed through reflection on concrete experiences. Similarly, UNESCO (2020) highlighted that competency-based education fosters lifelong learning by linking classroom knowledge with real-world contexts. This paradigm shift has encouraged education systems worldwide to redefine success not in terms of content mastery but in terms of demonstrable competencies and learner agency.

Teachers' Perceptions of Learning Competencies

Teachers' perceptions significantly influence how competency-based learning is implemented and how students' skills are developed. Fullan (2019) noted that teachers act as “change agents” in translating educational reforms into classroom practice. Positive teacher perceptions toward learning competencies enhance the effectiveness of competency-based education, whereas misconceptions or limited awareness can lead to inconsistent implementation.

In a study by Singh and Sharma (2021), secondary school teachers in India demonstrated moderate awareness of competency-based pedagogy but faced challenges in aligning teaching methods with desired competencies. Similarly, Kumar and Saha (2021) found that while teachers valued competencies such as critical thinking and communication, they lacked adequate training to design competency-based assessments. Tondeur et al. (2020) also emphasized that teacher readiness, technological integration, and continuous professional development are essential for implementing competency-oriented education effectively.

Empirical Studies on Learning Competencies

Several empirical studies, both in India and abroad, have explored the development of learning competencies among students. OECD's (2018) Education 2030 report identified key 21st-century competencies—creativity, collaboration, and problem-solving—as predictors of academic and life success. UNESCO (2020) further reinforced the need for developing global citizenship and environmental competencies in school education.

In the Indian context, NCERT (2017) formulated the *Learning Outcomes Framework* to define grade-wise competencies for school learners, while CBSE (2021) integrated competency-based questions into board examinations to promote application-based learning. Research by Rani and Devi (2022) revealed that secondary students show stronger linguistic and social competencies

when teachers use learner-centered pedagogies and experiential approaches. Mehta (2020) reported that schools adopting project-based and collaborative methods achieved higher levels of creativity and problem-solving among learners.

However, studies also point to persistent challenges. Kaur (2021) observed that many secondary teachers still rely on traditional, examination-focused approaches, limiting students' opportunity to demonstrate critical thinking or innovation. The lack of assessment tools and teacher training remains a major barrier to measuring and enhancing learning competencies effectively.

Although numerous studies have examined competency-based learning and 21st-century skills, limited research has focused specifically on teachers' perceptions of students' learning competencies at the secondary school level in India. Most existing studies emphasize either student achievement or curriculum reforms, overlooking how teachers interpret, assess, and support competency development in real classroom settings. Given that teachers' perceptions directly influence their instructional decisions and evaluation methods, there is a need for analytical research that explores these perceptions across multiple domains—reading and comprehension, communication, experiential learning, critical thinking, creativity, and socio-environmental competencies. The present study seeks to fill this gap by providing empirical insights that can guide educational reforms and teacher capacity-building initiatives.

10. Objectives of the study

1. To find out the perceptions of Secondary School Teachers about the Learning Competencies of their students and to classify them.
2. To analyze teachers' perceptions of pupils' Learning Competencies across the following domains:
 - Reading and Comprehension Skills
 - Communication and Language Competencies
 - Experiential Learning
 - Critical Thinking and Problem-Solving
 - Creativity Competencies
 - Environmental and Social Competencies

11. Methodology of the Study:

The present study adopted the survey method to assess the learning competencies of secondary school students as perceived by their teachers. The survey method was considered suitable for this investigation as it enables the systematic collection of data from a large population, facilitating the analysis of trends, attitudes, and perceptions related to educational practices. The sample of the study consisted of 750 secondary school teachers selected from various government, aided, and private schools located in the Krishna, Guntur, and Prakasam districts of Andhra Pradesh. A stratified random sampling technique was employed to ensure adequate representation of teachers across different management types, subject specializations, and geographical areas.

For the purpose of data collection, the investigator developed a standardized instrument titled the Learning Competencies Scale (LCS). The scale comprised 66 items distributed across six key domains: Reading and Comprehension Skills, Communication and Language Competencies, Experiential Learning, Critical Thinking and Problem-Solving, Creativity Competencies, and Environmental and Social Competencies. Each item was framed on a five-point Likert scale ranging from *Strongly Disagree* to *Strongly Agree*. The tool underwent expert validation to ensure content and construct validity. A pilot study was conducted to test its reliability, and the Cronbach's alpha coefficient was found to be 0.94, indicating a high degree of internal consistency and reliability of the instrument.

The investigator personally visited the selected secondary schools in the three districts to administer the questionnaire. Teachers were informed about the objectives of the study, and confidentiality of their responses was assured. The collected data were carefully coded, tabulated, and analysed using appropriate statistical techniques to draw meaningful conclusions about the perceptions of secondary school teachers regarding their students' learning competencies.

12. Data analysis

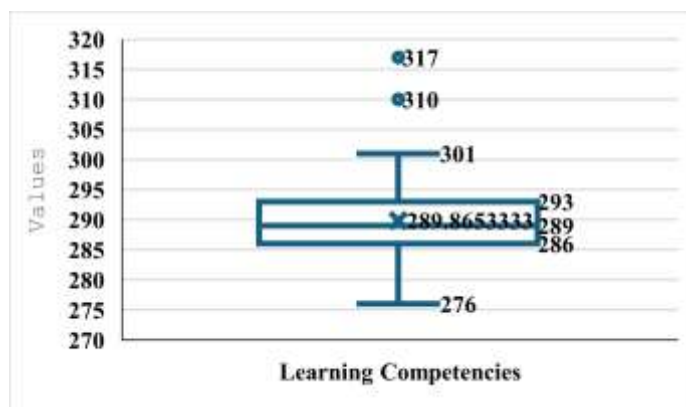
The collected data were analysed using Boxplot Analysis to examine the distribution and variation in teachers' perceptions of students' learning competencies across six key domains. The boxplots provided a clear visual representation of the median, quartiles, and outliers, highlighting differences in the level of competencies perceived by teachers. This method enabled the researcher to identify trends, compare domains, and interpret overall patterns in learning competency development among secondary school students.

Objective-1: To find out the perceptions of Secondary School Teachers about the Learning Competencies of their students and to classify them.

Table 1. Descriptive Statistics of Teachers' Perceptions on Students' Learning Competencies

Statistic	Value
Mean	289.87
Median	289
First Quartile (Q1)	286
Third Quartile (Q3)	293
Interquartile Range (IQR)	7

Minimum	276
Maximum	301
Lower Whisker	276
Upper Whisker	301
Outliers	310, 317



Graph 1. Box Plot Depicting Distribution of Learning Competencies Scores

This box plot represents the distribution of scores for Learning Competencies. The median score is 289, and the interquartile range (IQR) spans from 286 to 293. The minimum and maximum non-outlier scores are 276 and 301, respectively. The mean score, indicated by an “X,” is approximately 289.87. Two outliers, at 310 and 317, suggest that a few individuals demonstrated exceptionally high performance compared to the rest of the group.

Interpretation

The boxplot illustrates the distribution of secondary school teachers’ perceptions of students’ learning competencies. The mean score was 289.87, with the interquartile range (IQR) extending from 286 (Q1) to 293 (Q3), indicating that most teachers rated student learning competencies as moderately high and closely clustered around the mean. The median value (289), which lies within this range, confirms the central tendency of teacher responses.

The minimum and maximum observed values within the whiskers were 276 and 301, respectively, suggesting that teachers generally held favorable views of students’ learning competencies. However, a few outliers at 310 and 317 indicate that some teachers rated student competencies exceptionally high, possibly reflecting distinct classroom contexts or particularly capable student groups.

The narrow IQR reflects limited variability in the data, suggesting a consistent pattern in teacher perceptions across the sample. This consistency implies a shared understanding among teachers regarding the general level of students’ learning competencies. Nonetheless, the higher outlier scores may highlight exemplary learning environments or effective instructional practices that could be studied and shared.

Finding:

Secondary school teachers generally perceived their students’ learning competencies as moderately high ($M = 289.87$), with minimal variability and a few exceptionally high ratings indicating outstanding performance in select contexts.

Discussion

The analysis of secondary school teachers’ perceptions of students’ learning competencies indicates an overall positive evaluation. The mean score of 289.87 and the interquartile range (286–293) demonstrate that most teachers view their students as possessing well-developed learning competencies, including comprehension, application, critical thinking, and knowledge transfer abilities. This consistency in ratings reflects a generally favourable assessment of students’ academic capabilities.

These findings align with the broader educational perspective that learning competencies are foundational to academic success and are strongly influenced by curriculum design, teacher expectations, and instructional quality (Darling-Hammond et al., 2020). The clustering of teacher responses around a narrow range suggests a shared perception across schools, indicating relative uniformity in teaching effectiveness and student performance.

The outliers at 310 and 317, however, suggest that some teachers observed significantly higher levels of student competency. These deviations may be attributed to effective pedagogical innovations, enriched classroom environments, or the implementation of differentiated instructional strategies. Such practices align with research emphasizing that active learning, inquiry-based teaching, and formative assessment contribute substantially to enhanced learning outcomes (Hattie, 2009).

Furthermore, the National Education Policy (NEP) 2020 underscores the importance of developing learning competencies to foster holistic, flexible, and interdisciplinary learners (Ministry of Education, 2020). The relatively high mean scores observed in this study suggest that teachers are beginning to witness the positive outcomes of competency-based education, which encourages practical application, creativity, and problem-solving rather than rote memorization.

Despite these encouraging findings, attention must be given to ensuring equitable learning opportunities across diverse educational contexts. The variability indicated by the high outliers may point to disparities in resources, instructional support, or teacher preparedness. As Fullan (2011) emphasizes, sustainable improvements in learning outcomes require systemic approaches that integrate teacher professional development, school leadership, and student engagement.

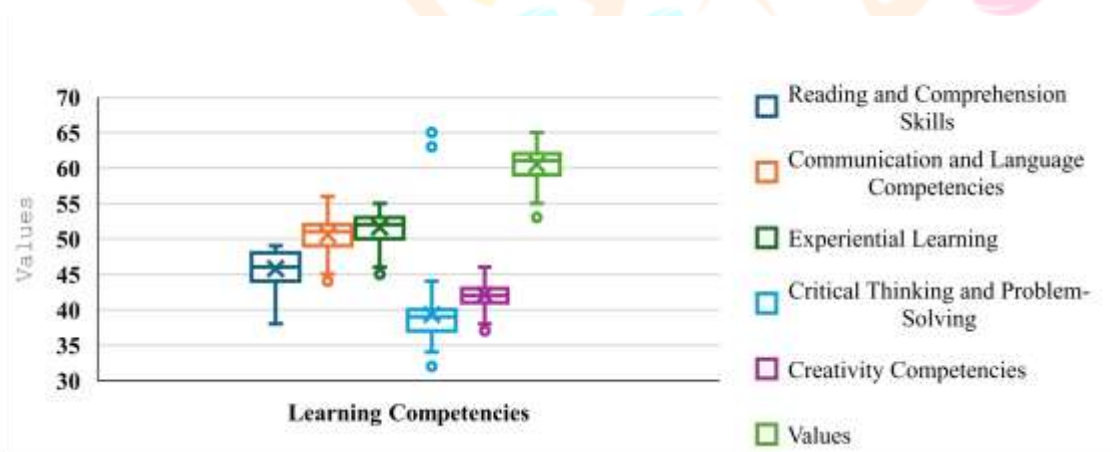
Overall, the results reflect a promising trend toward the enhancement of learning competencies among students, while also highlighting the need for continued efforts to ensure that all learners benefit from high-quality, competency-based education.

Objective-2. To analyze teachers' perceptions of secondary school pupils' Learning Competencies across six key domains: Reading and Comprehension Skills, Communication and Language Competencies, Experiential Learning, Critical Thinking and Problem-Solving, Creativity Competencies, and Environmental and Social Competencies using boxplot analysis.

Table 3. Descriptive Statistics on Teachers' Perceptions of Learning Competencies of Secondary School Pupils

Learning Competencies Area	Minimum	Q1	Median	Q3	Maximum	Mean
Reading and Comprehension Skills	38	44	45	48	49	45.77
Communication and Language Competencies	44	48	49	52	56	50.75
Experiential Learning	45	50	51	53	55	51.93
Critical Thinking and Problem-Solving	32	37	39	40	44	39.89
Creativity Competencies	37	41	42	43	46	42.79
Environmental and Social Competencies	53	59	60	62	65	60.91

Note. N = 750. Q1 and Q3 represent the first and third quartiles, respectively. Mean values are calculated from teacher responses across each Learning Competencies area.



Graph 2. Boxplot Showing Teachers' Perceptions of Learning Competencies of Secondary School Pupils Across Six Areas

The boxplot illustrates the distribution of teachers' perceptions across six domains of students' Learning Competencies: Reading and Comprehension Skills, Communication and Language Competencies, Experiential Learning, Critical Thinking and Problem-Solving, Creativity Competencies, and Environmental and Social Competencies. Each box represents the interquartile range (Q1–Q3), the horizontal line within the box indicates the median, and the “x” symbol denotes the mean. The whiskers extend to the minimum and maximum values, while individual data points represent outliers beyond the typical range.

Interpretation

Figure 2 presents the distribution of secondary school teachers' perceptions of pupils' Learning Competencies across six core domains: Reading and Comprehension Skills, Communication and Language Competencies, Experiential Learning, Critical Thinking and Problem-Solving, Creativity Competencies, and Environmental and Social Competencies.

Among these domains, Environmental and Social Competencies recorded the highest average score (M = 60.91), suggesting that teachers view students as particularly strong in socially responsible and values-based learning. The narrow interquartile range (55–65) and the absence of outliers indicate a high level of agreement among teachers, reflecting a consistent perception of student performance in this domain. This was followed by Experiential Learning (M = 51.93) and Communication and Language Competencies (M = 50.75), where responses were closely clustered around the median, indicating stable and moderately positive perceptions of students' functional and communicative abilities.

Conversely, Critical Thinking and Problem-Solving (M = 39.89) and Creativity Competencies (M = 42.79) received comparatively lower mean scores. These domains also exhibited wider interquartile ranges and the presence of low outliers (as low as 32 and 37, respectively), suggesting greater variability and less favourable assessments. This indicates that teachers perceive these higher-order cognitive and creative skills as weaker areas requiring further instructional emphasis. Reading and Comprehension Skills (M =

45.77) occupied a mid-range position but displayed noticeable variation, implying that while some students demonstrate strong reading abilities, others may need additional support.

Overall, the results highlight teachers' perceptions of students as being more competent in environmental awareness and experiential learning, while identifying critical thinking and creativity as areas needing focused pedagogical attention to foster deeper understanding and innovation.

Finding

Teachers perceived secondary school pupils as most competent in environmental and social learning, while identifying critical thinking and creativity as the least developed areas.

Discussion

The analysis of teachers' perceptions across the six domains of student learning competencies reveals distinct variations in how secondary school pupils are perceived in terms of their skill development. Among these domains, Environmental and Social Competencies received the highest mean score ($M = 60.91$), indicating that teachers perceive students as highly aware of environmental issues and actively engaged in socially responsible behaviours. This finding underscores the positive impact of values-based education and community-oriented learning experiences, aligning closely with the *National Education Policy (NEP) 2020* emphasis on citizenship, sustainability, and ethical education (Ministry of Education, 2020).

Moderate performance in Experiential Learning ($M = 51.93$) and Communication and Language Competencies ($M = 50.75$) suggests that students demonstrate reasonable proficiency in applying knowledge to practical contexts and expressing their ideas effectively. These outcomes reflect the influence of activity-based and collaborative learning approaches increasingly adopted in schools, which have been shown to enhance engagement, participation, and communication skills (Darling-Hammond et al., 2020; Shier, 2019).

Conversely, the relatively lower mean scores in Critical Thinking and Problem-Solving ($M = 39.89$) and Creativity Competencies ($M = 42.79$) highlight an ongoing challenge in nurturing higher-order cognitive and innovative abilities—core elements of 21st-century education (Trilling & Fadel, 2009). The wider interquartile ranges and presence of low outliers within these domains indicate variability in instructional exposure to inquiry-driven learning, problem-solving opportunities, and creativity-enhancing tasks. As Brookhart (2010) emphasizes, fostering these skills requires intentional instructional design, incorporating metacognitive practices, reflective questioning, and interdisciplinary project work to cultivate critical and creative thinking among students.

Reading and Comprehension Skills, which recorded a mid-range mean score ($M = 45.77$), reflect mixed teacher perceptions regarding students' ability to interpret, analyse, and synthesize written information. This finding highlights the continued importance of strengthening foundational literacy and promoting deep reading comprehension strategies, particularly in the context of today's information-dense academic environment (Snow, 2010).

Overall, these results underscore the need for a balanced instructional framework that not only reinforces students' social and experiential learning but also actively promotes cognitive flexibility, innovation, and literacy development. Aligning classroom practices with 21st-century competency frameworks, supported by ongoing teacher professional development and curricular innovation, can help ensure more equitable, holistic, and future-ready learning outcomes for all students.

13. Educational Implications:

1. Curriculum planners should integrate more activities that enhance critical thinking and creativity among secondary school students.
2. Teacher training programs should emphasize competency-based pedagogies that foster higher-order thinking skills.
3. Schools should implement project-based and experiential learning approaches to strengthen real-world problem-solving abilities.
4. Continuous assessment and feedback systems should be developed to monitor students' progress across all competency domains.
5. Environmental and social learning practices can be used as models to improve engagement and skill development in other learning areas.

14. Conclusion

The present study explored secondary school teachers' perceptions of their students' learning competencies across six major domains—reading and comprehension, communication, experiential learning, critical thinking and problem-solving, creativity, and environmental and social competencies. The findings revealed that teachers generally perceived students' overall learning competencies as moderately high, with notable strength in environmental and social learning. This suggests that students demonstrate awareness and responsibility in social and ecological contexts, reflecting the growing emphasis on value-based and community-oriented education in schools. The high reliability of the Learning Competencies Scale and the consistency of responses across districts indicate that teachers possess a fairly uniform understanding of students' capabilities within the current competency-based educational framework.

However, the study also highlighted areas requiring improvement, particularly in the domains of critical thinking and creativity, which were perceived as least developed among students. These findings point to the need for curriculum innovation, experiential pedagogies, and assessment reforms that go beyond rote learning to nurture analytical reasoning and creative expression. Strengthening teacher capacity through targeted professional development programs can further enhance the effective implementation of competency-based learning. Overall, the study emphasizes the importance of aligning classroom instruction with the goals of the National Education Policy (2020), thereby ensuring that secondary education equips learners not only with knowledge but also with the competencies essential for lifelong learning and global citizenship.

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