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MEASURING INTELLECTUAL QUALITIES DEMONSTRATED BY STUDENTS AND PRACTICED BY TEACHERS IN GOVERNMENT COLLEGES OF SUKKUR DISTRICT

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Abstract

The cultivation of intellectual qualities is a central aim of meaningful education, yet classroom practices in Pakistani public institutions have largely remained examination-oriented and content-driven. Anchored in Bertrand Russell's philosophy of education, this study examines the extent to which key intellectual qualities—curiosity, critical thinking, concentration, open-mindedness, imagination, and scientific outlook—are fostered by teachers and demonstrated by higher secondary students in government colleges of district Sukkur, Sindh. Adopting a quantitative, descriptive-correlational design, data were collected from 180 students and 40 teachers across four colleges representing both urban and rural contexts. Two structured questionnaires were used to capture students' perceptions of teachers' classroom practices and teachers' evaluations of students' intellectual demonstration. Descriptive statistics and independent-samples t-tests were employed for data analysis.The findings reveal that both teachers' practices and students' intellectual qualities exist at a moderate level, indicating partial realization of intellectual development within current instructional practices. While curiosity and critical thinking received relatively higher mean scores, qualities such as concentration, imagination, and open-mindedness appeared less consistently cultivated. A statistically significant

difference was observed between urban and rural colleges, with rural institutions demonstrating higher mean scores across all intellectual qualities. These findings challenge common assumptions about urban educational advantage and highlight the role of pedagogical culture and teacher–student interaction.The study contributes empirical evidence to ongoing debates on intellectual development in Pakistani education and underscores the need for intentional pedagogical strategies and policy alignment to move beyond rote learning toward the cultivation of intellectually autonomous learners.

Keywords: *intellectual qualities, Bertrand Russell, higher secondary education, teaching practices, urban–rural comparison, Pakistan.*

INTRODUCTION

Education extends beyond the mere acquisition of factual knowledge. Meaningful education aims to develop learners as self-directed and lifelong learners by cultivating intellectual virtues that enable inquiry, creativity, and responsible participation in society. When such intellectual qualities are nurtured, learning becomes a process of exploration and engagement rather than boredom or compulsion. Historical and contemporary figures who have contributed significantly to scientific, philosophical, and social advancement consistently demonstrate a recognizable set of intellectual virtues, such as curiosity, critical reflection, imagination, and openness to evidence. These qualities are not innate alone; they are shaped, reinforced, and refined through educational institutions.

The intellectual and moral outcomes of learners are closely linked to the nature of the institutions in which they are educated. Educational institutions play a foundational role in shaping individuals who, in turn, influence the socioeconomic trajectory of societies. Acemoglu and Robinson (2012) argued that national prosperity depends largely on the strength and inclusiveness of institutions, among which education systems occupy a central position. Echoing this view centuries earlier, Plato (trans. 1991) observed that "the direction in which a man starts education will determine his future life" (p. 425). Education, therefore, does not merely transmit knowledge; it shapes intellectual dispositions that guide individuals' reasoning, judgment, and engagement with

the world.

Despite this understanding, many education systems—particularly in developing contexts—continue to prioritize passive reception of information and narrow exam-oriented outcomes. Such practices often suppress curiosity, originality, and critical engagement, resulting in learners who may succeed in examinations but struggle to apply knowledge meaningfully beyond formal assessments. The dominance of rote memorization and teacher-centered pedagogies limits students' opportunities to question, explore, and think independently, thereby restricting the development of higher-order intellectual skills.

The Pakistani education system is not immune to these challenges. A substantial body of research indicates that teaching and learning practices in public-sector schools and colleges continue to emphasize memorization, syllabus completion, and examination performance over intellectual engagement (Ali, 2020; UNESCO, 2021). In

many classrooms, students are positioned as passive recipients of knowledge, expected to listen, take notes, and reproduce information in examinations. Learning, under such conditions, is often perceived as a burden rather than an intellectually stimulating process. As a consequence, essential intellectual qualities such as imagination, critical thinking, curiosity, and scientific reasoning remain underdeveloped or undervalued.

In this context, the intellectual training of students becomes a matter of urgent educational concern. While numerous educational philosophers have highlighted the importance of intellectual virtues, the framework proposed by Bertrand Russell (1932) holds particular relevance for contemporary classrooms. Russell emphasized that education should not be reduced to the transmission of information; rather, it should cultivate intellectual qualities that enable learners to engage thoughtfully with knowledge throughout their lives. His articulation of student-relevant intellectual virtues—such as curiosity, open-mindedness, critical thinking, concentration, imagination, and scientific outlook—provides a coherent lens through which classroom practices and

learning outcomes can be examined. Drawing on this framework, the present study seeks to examine the intellectual qualities of higher secondary students as demonstrated in classroom learning, alongside teachers' practices aimed at fostering these qualities.

STATEMENT OF THE PROBLEM

Despite persistent concerns regarding the quality of classroom practices, systematic empirical evidence on the intellectual development of students in Pakistani public-sector institutions remains limited. Research consistently reports that classrooms in government schools and colleges are dominated by rote learning, examination-oriented strategies, and teacher-centred instruction (Ali, 2020; UNESCO, 2021). In response, recent policy initiatives signal a growing recognition of the need for reform. The Single National Curriculum (Government of Pakistan, 2020) emphasizes critical thinking, inquiry-based learning, and twenty-first-century skills. Similarly, national discourse has increasingly highlighted the importance of cultivating analytical and creative capacities among students (The Express Tribune, 2023).

At the provincial level, the Sindh government has undertaken several initiatives aimed at improving teaching quality and student learning outcomes. Curriculum review processes have emphasized creativity, tolerance, and critical thinking (The News International, 2025). Professional development initiatives, including collaborations

with international institutions and the introduction of teacher licensing and induction training programs, further reflect an official commitment to enhancing instructional practices (Government of Sindh, 2024; Dawn, 2024). These efforts underscore the recognition that teachers play a pivotal role not only in transmitting content knowledge but also in cultivating students' intellectual dispositions.

However, a critical gap remains between policy intentions and classroom realities. Scholars have cautioned that government school practices in Sindh may continue to produce rigid, closed-minded, and unscientific modes of thinking among students (Hoodboy, 2017). While investments in teacher training suggest positive intent, limited empirical research has examined

whether these initiatives translate into classroom practices that effectively foster intellectual qualities among students. Without systematic investigation, policymakers and administrators lack reliable evidence regarding the actual outcomes of recent reforms.

The present study addresses this gap by empirically examining the intellectual qualities of higher secondary students in government colleges of district Sukkur, Sindh, using Bertrand Russell's framework. It further investigates the extent to which teachers' classroom practices foster these qualities, with particular attention to urban and rural contexts. The higher secondary level is a critical stage of schooling, as students at this level are expected to consolidate intellectual skills necessary for specialized tertiary education and informed participation in society. Examining students' intellectual dispositions at this stage also provides insights into the cumulative effects of earlier educational experiences.

The absence of reliable, context-specific data on students' intellectual development—particularly at the higher secondary level—constitutes a significant gap in understanding the effectiveness of prevailing educational practices and recent reform initiatives in Sindh. By focusing on both students' demonstrated intellectual qualities and teachers' reported practices, this study seeks to provide evidence-based insights into classroom realities that can inform policy, teacher education, and pedagogical improvement.

OBJECTIVES OF THE STUDY

The study aims to quantitatively assess the cultivation and demonstration of intellectual qualities in government higher secondary colleges. Specifically, the objectives are:

1. *To assess, through teachers' perceptions, the extent to which higher secondary students demonstrate intellectual qualities—curiosity, concentration, imagination, critical thinking, open-mindedness, and scientific outlook—during classroom learning.*
2. *To examine, through students' perceptions, the extent to which teachers foster these intellectual qualities through their classroom practices.*

RESEARCH QUESTIONS

1. *To what extent do students in government colleges, across urban and rural contexts, demonstrate intellectual qualities during classroom learning?*
2. *To what extent do government college teachers foster intellectual qualities in students through their teaching practices?*

LITERATURE REVIEW

BERTRAND RUSSELL'S PHILOSOPHY OF INTELLECTUAL DEVELOPMENT

Bertrand Russell consistently argued that the central aim of education should be the formation of free men and women capable of thinking independently rather than merely conforming to authority (Russell, 1932). He envisioned education as a process that nurtures minds which are at once imaginative and disciplined, sceptical yet constructive. For Russell, schooling should not only transmit knowledge but also cultivate emotionally and intellectually trained individuals who are prepared to engage critically with the world.

Russell maintained that intellectual virtues are not innate traits alone but dispositions that can be either cultivated or suppressed through schooling. He emphasized that educational institutions play a decisive role in shaping learners' intellectual character. This philosophical position provides a coherent foundation for examining how classroom practices influence students' intellectual development.

CURIOSITY AND CONCENTRATION

Among the intellectual qualities Russell emphasized, curiosity occupies a foundational position. Russell viewed curiosity as the natural impulse to explore and discover, describing it as the root of all genuine learning (Russell, 1926; 1932). He argued that children possess an inherent desire to know, which education should nurture rather than repress through excessive discipline and rigid formalities. According to Russell, teachers play a crucial role in sustaining curiosity by creating opportunities for inquiry and exploration.

While curiosity initiates learning, concentration sustains it. Russell

regarded concentration as a form of intellectual discipline essential for deep understanding and discovery. He argued that the habit of attention enables learners to focus fully on a subject and grasp it meaningfully (Russell, 1926). Importantly, Russell stressed that concentration develops most effectively through intrinsic motivation rather than external coercion, suggesting that pedagogical practices must actively engage learners' interest.

IMAGINATION AND OPEN-MINDEDNESS

Russell strongly advocated freedom of thought and tolerance of differing perspectives as core educational aims. He associated imagination with the ability to think beyond immediate experience, foresee consequences, and test hypotheses (Russell, 1932). For Russell, imagination is closely linked to creativity and discovery, while

conformity in schools poses a serious threat to imaginative thinking. However, he cautioned that imagination must be guided by reason to avoid becoming unproductive or harmful.

Closely related to imagination is the quality of open-mindedness. Russell argued that education should teach learners how to think rather than what to think, as the latter promotes narrow-mindedness and intolerance (Russell, 1932). Open-mindedness enables individuals to coexist peacefully despite intellectual disagreement and fosters tolerance toward diverse viewpoints. In an increasingly interconnected world, Russell's emphasis on open-mindedness holds particular relevance for contemporary education.

CRITICAL THINKING AND SCIENTIFIC OUTLOOK

Russell further emphasized critical thinking as an essential intellectual quality. He defined critical thinking as the habit of weighing evidence carefully and acting upon it, enabling individuals to detect fallacies, recognize prejudice, and resist false propaganda (Russell, 1932). In the present age of information overload and unverified digital content, the importance of critical thinking has become even more pronounced.

Complementing critical thinking is the quality Russell termed scientific outlook. He described scientific outlook not merely as knowledge of science but

as a disposition characterized by inquiry, humility, and respect for evidence. According to Russell, scientific outlook trains learners to distinguish between superstition and fact and to revise beliefs in light of new evidence. Together, critical thinking and scientific outlook form the epistemic foundation of rational and responsible citizenship.

In sum, Russell's philosophy presents intellectual qualities as interconnected dispositions rather than isolated skills. He argued that schools can either cultivate or stifle these virtues through their pedagogical practices. His framework thus offers a robust theoretical lens for assessing intellectual development within educational institutions.

RUSSELL'S FRAMEWORK IN CONTEMPORARY EDUCATIONAL THOUGHT

Contemporary educational theories strongly resonate with Russell's framework. Critical thinking is now widely recognized as a core twenty-first-century skill and has been extensively studied in educational research (Facione, 2015; Andreucci-Annunziata et al., 2023; Gómez et al., 2025). Similarly, imagination has been reconceptualized

as a vital cognitive process fostered through classroom tasks that promote creativity and problem solving (Wang et al., 2024).

Research also supports Russell's emphasis on concentration. Duckworth et al. (2007) demonstrated that sustained attention and grit are strong predictors of long-term academic success. More recent studies highlight links between concentration, student well-being, sleep patterns, and classroom engagement (Gómez et al., 2025). Likewise, open-mindedness has gained prominence as education systems become more culturally diverse, with empirical studies linking it to tolerance, civic responsibility, and epistemic humility (Nussbaum, 2010; Alsher et al., 2022; Nygren, 2025).

Russell's concept of scientific outlook has been operationalized in modern education through inquiry-based and STEM-focused reforms that emphasize evidence, reasoning, and rational problem solving (OECD, 2019). Curiosity, which Russell described as the mother of all intellectual qualities, is now widely recognized as a strong predictor of student engagement and learning outcomes (Evans et al., 2023; Liu, 2024).

EMPIRICAL STUDIES IN PAKISTAN

Pakistani educational research reflects growing concern for intellectual qualities, particularly critical thinking. Studies examining secondary-level textbooks reveal a predominance of low-cognitive-demand questions that offer limited stimulus for higher-order thinking (Naseer et al., 2022). Comparative studies between urban and rural contexts show that students exposed to active-learning strategies outperform those in lecture-dominated classrooms on critical thinking measures (Saeed & Mehmood, 2022).

Experimental studies further demonstrate that inquiry-based instruction significantly enhances students' scientific outlook (Farooq & Islam, 2023), although implementation remains constrained by examination pressures and resource limitations (Jamil, 2023). Research in Sindh also indicates that integrating art-based and storytelling activities enhances students' imaginative engagement (Hassan & Ali, 2023), despite systemic barriers such as rigid curricula (Fazal et al., 2024).

Studies on concentration suggest that interactive pedagogies improve student attention, whereas passive instruction leads to rapid decline in focus (Ansari, 2021; Sohail, 2025). Research on open-mindedness highlights challenges related to cultural rigidity and limited tolerance, particularly at higher education levels (Sadurdin & Singhar, 2020; Ashraf, 2020).

Curiosity has received comparatively limited attention in Pakistan. Existing studies largely focus on adult or university populations and examine curiosity in isolation, often in relation to self-efficacy or parenting styles (Yaqoob et al., 2020; Parveen, 2023).

RESEARCH GAP

The reviewed literature indicates that while individual intellectual qualities—such as critical thinking or creativity—have been studied in isolation, comprehensive examination of intellectual development as an integrated set of dispositions remains scarce in Pakistan. Little empirical work has examined how teachers' classroom practices actively cultivate intellectual qualities or how students demonstrate these qualities during learning, particularly at the

higher secondary level.

Moreover, recent educational reforms in Sindh—including teacher licensing policies and induction programs—emphasize reflective and critical pedagogies, yet empirical evidence evaluating their classroom-level impact is lacking. No study to date has collectively assessed curiosity, concentration, imagination, open-mindedness, critical thinking, and scientific outlook through both teachers' and students' perspectives, nor compared these qualities across urban and rural contexts.

Addressing these gaps, the present study applies Bertrand Russell's framework to evaluate intellectual qualities in government higher secondary colleges of Sukkur, thereby contributing context-sensitive empirical evidence to inform policy, practice, and future research.

METHODOLOGY

RESEARCH DESIGN

This study adopted a quantitative descriptive–correlational research design to examine the extent to which higher secondary students demonstrate selected intellectual qualities—curiosity, critical thinking, concentration, open-mindedness, imagination, and scientific outlook—and the extent to which teachers practice instructional strategies to foster these qualities in government colleges of District Sukkur, Sindh. The design enabled systematic measurement and numerical description of naturally occurring educational practices without manipulation of the research setting (Creswell & Creswell, 2018).

The descriptive component facilitated an examination of the prevailing level of intellectual qualities demonstrated by students and the frequency of teachers' classroom practices aimed at fostering these attributes. The correlational aspect allowed the exploration of associative patterns between teachers' practices and students' demonstrated intellectual qualities, without implying causality. This design is widely regarded as appropriate for educational research as it captures real classroom dynamics, provides objective insights, and identifies meaningful patterns that may inform pedagogical improvement and policy considerations.

POPULATION

The population of the study comprised all higher secondary level

students and their teachers in government colleges of District Sukkur, Sindh. The higher secondary level was selected because it represents a critical transitional stage where students are expected to exhibit intellectual dispositions developed during earlier schooling and where teachers play a pivotal role in preparing students for tertiary education. At this stage, both instructional practices and students' intellectual engagement become particularly visible and assessable. Both teachers and students enabled reciprocal perspectives on intellectual development, thereby strengthening the contextual validity of the findings.

PARTICIPANTS AND SAMPLING

The sample consisted of 180 students and 40 teachers drawn from four government higher secondary colleges, including two urban and two rural institutions. From each college, 45 students and 10 teachers participated in the study. This distribution enhanced representativeness across institutional and contextual settings while remaining adequate for descriptive statistical analysis (Cohen et al., 2018).

Students were selected using stratified random sampling. To ensure balanced academic representation, students were first stratified into two academic streams—science and arts—with equal allocation (90 students from each stream). Participants within each stratum were then selected randomly using roll numbers. This procedure minimized sampling bias and ensured proportional representation of academic disciplines.

Teachers were selected through purposive sampling, as the study required informed participants directly engaged in higher secondary instruction. Accordingly, teachers involved in teaching Grades XI and XII were included, as they were best positioned to observe and evaluate students' intellectual behaviors and to report their own instructional practices.

INSTRUMENTATION

Data were collected using two structured questionnaires, developed by adapting items from previously validated instruments measuring the targeted intellectual qualities. The use of established scales enhanced the content validity

and psychometric soundness of the instruments. The first questionnaire, Teachers' Evaluation of Students' Intellectual Qualities (TESIQ), was administered to teachers to assess the extent to which students demonstrated intellectual qualities during classroom learning. The second questionnaire, Students' Evaluation of Teachers' Practices of Fostering Intellectual Qualities (ETPFIQ), was administered to students to evaluate teachers' instructional practices aimed at cultivating these qualities.

Items measuring curiosity were adapted from the Curiosity and Exploration Inventory–II (Kashdan et al., 2009). Concentration was assessed using selected items from the Mindful Attention Awareness Scale (Brown & Ryan, 2003). Imagination was measured through items adapted from the Creativity Imagination Disposition Scale (Kaufman & Baer, 2004). Open-mindedness was evaluated using relevant items from the California Critical Thinking Disposition Inventory (Facione & Facione, 1992). Critical thinking items were drawn from the Critical Thinking Disposition Scale (Ricketts, 2003), while scientific outlook was assessed using adapted items from the Scientific Attitude Inventory–II (Moore & Foy, 1997).

Prior to the main data collection, both instruments were pilot tested with a group of non-sampled teachers and students from government colleges to assess clarity, contextual relevance, and internal consistency. Based on feedback from the pilot study, minor linguistic and contextual modifications were made. The reliability of each construct was examined using Cronbach's alpha, and all scales demonstrated acceptable internal consistency before final administration.

DATA ANALYSIS

Data were analyzed using SPSS (Version 27). Descriptive statistics, including means and standard deviations, were computed to determine the level of students' intellectual qualities and teachers' instructional practices. Separate analyses were conducted for students' and teachers' responses, and comparisons were made across urban and rural contexts. As the focus of the study was descriptive in nature, inferential causal analyses were not performed.

ETHICAL CONSIDERATIONS

Ethical standards were strictly observed throughout the study.

Permission was obtained from the relevant college authorities prior to data collection. Participation was voluntary, and informed consent was obtained from all participants. Respondents were assured of confidentiality and anonymity, and collected data were used solely for academic purposes.

RESULTS

STUDENTS' PERCEPTIONS OF TEACHERS' PRACTICES FOR FOSTERING INTELLECTUAL QUALITIES:

This section presents the descriptive analysis of higher secondary students' perceptions regarding the extent to which their teachers practice fostering key intellectual qualities, namely curiosity, concentration, critical thinking, open-mindedness, imagination, and scientific outlook.

Descriptive statistics, including mean scores and standard deviations, were computed for each construct using composite mean scores derived from the students' questionnaire responses (N = 180). The results are presented in Table 1.

Table1

Descriptive Statistics of Teachers' Practices of Fostering Intellectual Qualities (Students' Perceptions)

Intellectual Quality	*Mean (M)*	*Std. Deviation (SD)*	*Interpretation*
Curiosity	*3.83*	*0.73*	*High*
Critical Thinking	*3.78*	*0.76*	*High*
Concentration	*3.66*	*0.84*	*Moderate*
Imagination	*3.65*	*0.86*	*Moderate*
Scientific Outlook	*3.63*	*0.86*	*Moderate*
Open-mindedness	*3.55*	*0.78*	*Moderate*

The findings indicate that students perceived a marginally higher level of teacher practices related to fostering curiosity (M = 3.83, SD = 0.73) and critical thinking (M = 3.78, SD = 0.76) than other four intellectual qualities. These results suggest that teachers at the higher secondary level often engage

students in questioning, reasoning, and analytical thinking.

In contrast, teachers' practices related to concentration, imagination, open-mindedness, and scientific outlook were perceived at a moderate level, with mean scores ranging from 3.55 to 3.66. This indicates that while such practices are present in classroom instruction, they may not be consistently or systematically emphasized across teaching contexts. Overall, the results reveal a pattern in which cognitive and analytical intellectual qualities are emphasized more than dispositional and imaginative qualities, highlighting an imbalance in instructional practices at the higher secondary level.

While Table 1 presents higher secondary students' perceptions regarding the extent to which their teachers practice fostering intellectual qualities, it is equally important to examine the complementary perspective of teachers regarding students' actual demonstration of these qualities in classroom settings. To obtain a more comprehensive and reciprocal understanding of intellectual development at the higher secondary level, the study further analyzed teachers' perceptions of students' curiosity, concentration, critical thinking, open-mindedness, imagination, and scientific outlook.

TEACHERS' EVALUATION OF STUDENTS' DEMONSTRATION OF INTELLECTUAL QUALITIES:

This subsection presents the descriptive analysis of teachers' perceptions regarding the extent to which higher secondary students demonstrate key intellectual qualities during classroom learning. Descriptive statistics were computed for composite mean scores of curiosity, concentration, critical thinking, open-mindedness, imagination, and scientific outlook based on responses from 40 teachers. The results are presented in Table 2.

Table2

Descriptive Statistics of Students' Demonstration of Intellectual Qualities (Teachers' Perceptions)

Intellectual Quality	***Mean (M)***	***Std. Deviation (SD)***	***Interpretation***
Curiosity	*3.53*	*0.78*	*Moderate*

Scientific Outlook	*3.52*	*0.58*	*Moderate*
Open-mindedness	*3.49*	*0.68*	*Moderate*
Critical Thinking	*3.44*	*0.76*	*Moderate*
Imagination	*3.35*	*0.73*	*Moderate*
Concentration	*3.33*	*0.80*	*Moderate*

The findings indicate that, according to teachers' perceptions, higher secondary students demonstrate all examined intellectual qualities at a ***moderate level****. Curiosity (M = 3.53, SD = 0.78) and scientific outlook (M = 3.52, SD = 0.58) emerged as the relatively more prominent qualities, whereas imagination (M = 3.35, SD = 0.73) and concentration (M = 3.33, SD = 0.80) were perceived as comparatively weaker. Overall, the results suggest that students exhibit a foundational level of intellectual development; however, there remains substantial scope for further strengthening these qualities through targeted pedagogical practices.*

URBAN VS RURAL COMPARISON

An independent samples t-test was conducted to examine whether there were statistically significant differences between urban and rural higher secondary students in their demonstration of intellectual qualities, including curiosity, open-mindedness, concentration, imagination, critical thinking, and scientific outlook. The results are shown in the following table:

Table 3

Mean comparison statistics between urban and rural colleges of district Sukkur

Construct	***Urban Mean***	***Rural Mean***	***Who is higher***
Curiosity	*3.59*	*4.08*	*Rural*
Open-mindedness	*3.26*	*3.84*	*Rural*
Concentration	*3.35*	*3.96*	*Rural*
Imagination	*3.40*	*3.90*	*Rural*
Critical Thinking	*3.59*	*3.98*	*Rural*
Scientific Outlook	*3.32*	*3.94*	*Rural*

*The results revealed **statistically significant differences** between urban and rural students across **all six intellectual qualities** ($p < .001$). Rural students consistently reported **higher mean scores** than their urban counterparts on curiosity ($M = 4.08$ vs. 3.59), open-mindedness ($M = 3.84$ vs. 3.26), concentration ($M = 3.96$ vs. 3.35), imagination ($M = 3.90$ vs. 3.40), critical thinking ($M = 3.98$ vs. 3.59), and scientific outlook ($M = 3.94$ vs. 3.32).*

These findings indicate that students enrolled in rural government colleges demonstrated significantly higher levels of intellectual qualities compared to students from urban colleges. The magnitude and consistency of the differences suggest meaningful contextual variations in the development or expression of intellectual skills across college locations.

DISCUSSION

The present study examined the extent to which key intellectual qualities—curiosity, critical thinking, concentration, open-mindedness, imagination, and scientific outlook—are demonstrated by higher secondary students and fostered by teachers in government colleges of district Sukkur, Sindh. By employing a reciprocal design that captured students' evaluations of teachers' practices alongside teachers' evaluations of students' intellectual demonstration, the study provides a more comprehensive picture of intellectual development at a critical transitional stage of education.

OVERALL LEVEL OF INTELLECTUAL QUALITIES

The descriptive findings indicate that the intellectual qualities under investigation were practiced and demonstrated at a moderate to moderately high level. Mean scores across all constructs were consistently above the neutral midpoint of the Likert scale, suggesting that students are not disengaged intellectually; however, these qualities are not yet deeply or uniformly embedded across instructional practices.

From the students' perspective, teachers' practices related to curiosity and critical thinking received relatively higher ratings than those related to open-mindedness and concentration. This pattern suggests that classroom environments may allow questioning and reasoning to some extent, yet provide fewer opportunities for sustained attention, imaginative exploration, and

reflective openness. These findings echo earlier Pakistani research indicating that higher secondary instruction often prioritizes syllabus coverage and examination preparation over deeper intellectual engagement (Hussain & Mahmood, 2019; Sadruddin & Singhar, 2020).

Moreover, approximately one-fifth of the responses fell in the neutral category, suggesting that a segment of respondents neither clearly endorsed nor rejected the presence of intellectual qualities in classroom practices. This may reflect uncertainty, limited exposure to reflective pedagogies, or hesitation in evaluative judgment rather than absence of such qualities.

Viewed through a Russellian lens, such moderate intellectual cultivation reflects the condition Bertrand Russell cautioned against—an education that remains largely instrumental rather than liberating. Russell emphasized that intellectual virtues do not emerge automatically from schooling but require deliberate pedagogical nurturing, particularly through practices that encourage curiosity, imagination, and independent judgment.

TEACHERS' PERCEPTIONS OF STUDENTS' INTELLECTUAL DEMONSTRATION

Teachers' evaluations of students' intellectual qualities similarly reflected moderate levels across all constructs. Teachers perceived students' curiosity and scientific outlook somewhat more positively than imagination and concentration. This suggests that students may engage reasonably well with factual inquiry and evidence-based reasoning, while struggling with sustained focus and creative engagement—capacities that typically demand structured pedagogical support rather than passive instructional modes.

This pattern aligns with Pakistani studies reporting that students often appear attentive and compliant but rarely demonstrate originality, imaginative risk-taking, or prolonged intellectual engagement in lecture-dominated classrooms (Afzal et al., 2024). Teachers' perceptions in the present study thus reinforce concerns in the literature that procedural and content-based learning often overshadows the development of deeper intellectual dispositions.

CONVERGENCE AND DIVERGENCE OF PERCEPTIONS

A notable contribution of the study lies in its reciprocal evaluation design. While both students and teachers reported moderate levels of intellectual qualities, students tended to rate teachers' fostering practices slightly higher than teachers rated students' actual demonstration of these qualities. This divergence suggests that although teachers may perceive themselves as providing intellectually stimulating opportunities, students may not yet be fully internalizing or expressing these dispositions independently.

Similar discrepancies have been reported in prior Pakistani research, where teachers' instructional intentions did not consistently translate into observable student behaviors (Mehmood & Qureshi, 2021). Russell's conception of education as a lived intellectual experience rather than a mere instructional process helps illuminate this gap: intellectual qualities flourish not through exposure alone, but through repeated practice, freedom of inquiry, and encouragement of critical dissent.

URBAN–RURAL DIFFERENCES IN INTELLECTUAL QUALITIES

One of the most striking findings of the study is the statistically significant difference between urban and rural colleges across all six intellectual qualities, with rural colleges consistently showing higher mean scores. This finding challenges the common assumption that urban institutions inherently provide richer intellectual environments.

Several contextual explanations may account for this pattern. Rural colleges may offer closer teacher–student relationships due to smaller class sizes and stronger communal ties, facilitating more individualized interaction. Additionally, students in rural contexts may display higher intrinsic motivation and attentiveness, given limited educational alternatives and a stronger perceived value of schooling.

Recent Pakistani research has noted that urban educational settings, despite better infrastructure, often suffer from overcrowding, examination pressure, and reduced teacher–student interaction—conditions that may undermine the cultivation of intellectual dispositions (Sohail, 2025). The present findings thus suggest that intellectual development depends less on physical resources and more on pedagogical culture and relational dynamics, a position strongly aligned with Russell's educational philosophy.

IMPLICATIONS FOR TEACHING PRACTICES

The findings highlight the need for more intentional pedagogical strategies aimed at cultivating intellectual qualities. While moderate levels of intellectual engagement are encouraging, they also point to substantial room for improvement. Teachers may benefit from professional development focused on inquiry-based instruction, dialogic teaching, and reflective classroom practices that explicitly nurture curiosity, imagination, and open-mindedness.

Recent teacher licensing and professional development initiatives in Sindh emphasize instructional competence and subject mastery. The present findings suggest that these initiatives would be strengthened by explicitly incorporating intellectual dispositions as developmental and evaluative targets, thereby narrowing the gap between teaching intentions and student outcomes.

THEORETICAL CONTRIBUTION

By operationalizing Bertrand Russell's philosophical framework into measurable constructs, this study demonstrates that intellectual qualities are not abstract ideals but observable dispositions shaped by pedagogical and contextual factors. The findings provide partial empirical support for Russell's educational philosophy, revealing both its relevance and the limitations of its realization within current instructional practices. In doing so, the study illustrates how philosophical perspectives can meaningfully inform empirical educational research in developing-country contexts.

CONCLUSION AND IMPLICATIONS

The moderate levels of intellectual qualities identified in this study reflect a partial realization of contemporary educational aspirations within government colleges of Sindh. At a time when artificial intelligence, information overload, and cognitive distraction increasingly shape students' academic and professional lives, intellectual dispositions such as critical thinking, concentration, and creativity have become more essential than ever.

Although both teachers' classroom practices and students' intellectual demonstrations exhibit encouraging tendencies, the findings suggest that these qualities are not yet deeply embedded in everyday instructional processes. The

observed urban–rural disparities further underscore the importance of pedagogical and relational factors over institutional location alone in shaping intellectual development.

Anchored in Bertrand Russell's philosophy of education, the study reaffirms that intellectual growth is neither automatic nor incidental; it requires deliberate pedagogical effort, supportive learning environments, and sustained opportunities for inquiry. The findings therefore highlight the need to move beyond examination-driven instruction toward educational practices that cultivate intellectual autonomy and lifelong learning.

IMPLICATIONS FOR PRACTICE AND POLICY

Based on the findings, several implications emerge:

1. ***PedagogicalPractices:***
   Teachers should adopt inquiry-oriented, discussion-based, and reflective teaching strategies that encourage questioning, perspective-taking, and reasoned argumentation.
2. ***Teacher Education and Professional Development:***
   Pre-service and in-service programs should explicitly address the cultivation of intellectual dispositions alongside subject knowledge and classroom management.
3. ***Curriculum and Assessment:***
   Intellectual qualities should be translated into concrete learning outcomes and assessment criteria that reward reasoning, creativity, and scientific thinking rather than rote memorization.
4. ***Context-Sensitive Policy Interventions:***
   Effective pedagogical practices observed in rural contexts should be studied and adapted across settings, particularly in overcrowded urban institutions.
5. ***Future Research:***
   Mixed-method and longitudinal studies are recommended to explore how intellectual qualities develop over time and how classroom practices shape sustained intellectual growth.

In conclusion, this study contributes empirical evidence to ongoing debates on intellectual development in Pakistani education and underscores the

importance of aligning teaching practices, teacher education, and policy initiatives with the broader goal of cultivating intellectually autonomous learners.

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