



Vol. 3 No. 12 (December) (2025)

Investigating the Implementation of Constructivist Pedagogy in Primary Education: A Comparative Study of Public and Private Schools

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ABSTRACT

The global educational landscape is undergoing a significant transformation, moving away from traditional, teacher-centered instruction toward learner-centered, activity-based approaches. This shift, driven by constructivist pedagogy, emphasizes the development of critical thinking, collaboration. While constructivism has achieved global prominence, its practical application varies considerably across diverse educational settings. This study aims to provide an empirical comparison of the extent to which constructivist principles and associated assessment techniques are being utilized in public and private primary schools in Islamabad. This research specifically investigates key facets of constructivist pedagogy such as teaching methodologies, roles of teachers and learners, influence of educational institutions within this paradigm, and a balanced investigation of the strengths and limitations of constructivist practices. A descriptive causal-comparative research design was adopted, employing a quantitative survey method. The study population was composed of all female primary school teachers within both public and private institutions across Islamabad. To ensure robust and balanced representation, a stratified random sampling technique was used to select a sample Yamane's sample size formula ($n = N / (1 + Ne^2)$, with $e = 0.07$ margin of error), was used the recommended sample size was approximately 180 teachers. Data were gathered using a structured questionnaire. Data were analysed using descriptive statistics (mean and standard deviation) and independent-samples t-tests to determine statistically significant differences between two groups. The analysis revealed statistically significant differences in the adoption of constructivist pedagogies and assessment strategies between public and private primary schools. Private sector schools generally exhibited a higher frequency and breadth of constructivist implementation. These findings hold important educational implications for policy development and pedagogical reform.

Key words: Constructivism, Pedagogy, Assessment, Role of Teachers and Students.

Introduction

In the context of rapid global changes and the increasing demand for 21st-century skills such as problem-solving, knowledge construction, inquiry, collaboration, flexibility, and lifelong learning traditional teacher-centred pedagogies grounded in rote memorization have become insufficient. To meet these emerging demands, education must shift toward paradigms that support active learning and knowledge creation. Constructivism, as an educational philosophy, offers such a paradigm. Constructivism posits that learners actively construct their own knowledge based on prior experiences, through inquiry, reflection, and social interaction. Rather than receiving transmitted knowledge passively, students engage with meaningful tasks, explore, and build understanding in a way that



Vol. 3 No. 12 (December) (2025)

aligns with real-life contexts.

Moreover, according to this philosophy, the role of the teacher changes from information provider to facilitator, guide, and mediator of learning. Early childhood and primary education often criticized for overemphasis on memorization in many contexts can especially benefit from constructivist approaches to foster deeper understanding, critical thinking, problem-solving, and transferable skills. The research is fundamentally underpinned by Constructivism, the theory asserting that knowledge is actively constructed by the learner through the integration of new experiences with prior understanding, positioning students as engaged participants in meaning-making (Phillips, 1995).

This foundation prescribes a learner-centred pedagogy that shifts the teacher's role to a facilitator, emphasizes core principles such as active, inquiry-based learning, the use of authentic real-world problems, collaborative social negotiation, and the provision of scaffolding to build autonomy (Pelech & James, 2010). Complementing this is the constructivist approach to assessment, which replaces traditional recall-focused methods with formative, continuous, and performance-based evaluations including portfolios and projects—designed to measure deeper understanding, critical thinking, and social skill development (The Insurance Universe). However,

Despite the clear alignment of these practices with 21st-century skill demands, empirical literature reveals a divergence in implementation: while some international studies suggest private schools are more inclined toward student-centred practices (Acat, Karadağ & Kaplan, 2012), localized research, including studies in Khyber Pakhtunkhwa, Pakistan, indicates that both public and private sectors often default to traditional, teacher-centered instruction (Inverge Journals). This implementation gap is often exacerbated in public schools due to systemic constraints like large class sizes, resource deficiencies, and inadequate professional support (Gao et al., 2025), underscoring the critical role of institutional context in realizing pedagogical reform (GESR Journal).

Methodology

Research Design

The study follows a descriptive, causal-comparative design. The goal is to compare the application of constructivist pedagogical principles and assessment practices between public and private primary (female) schools in Islamabad.

Population

The target population consisted of all female primary school teachers in public and private schools in Islamabad Capital Territory (ICT). According to the latest available government records:

Public female primary teachers: 620

Private female primary teachers: 1,150

Total population: 1,770

These figures were obtained from official datasets provided by the Federal Directorate of Education (2023), PEIRA (2023), and the Ministry of Federal Education and Professional Training (2023), all of which maintain updated school and teacher statistics for Islamabad.

Table 1

Shows the Population of the study

Sector	Population (N)	Data Source (2023)
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Vol. 3 No. 12 (December) (2025)

Sector	Population (N)	Data Source (2023)
Public	620	Federal Directorate of Education
Private	1,150	PEIRA
Total	1,770	Ministry of Federal Education and Professional Training

Sampling Technique

A stratified random sampling technique was applied. The population was divided into two strata public and private school teachers to ensure proportional representation from both sectors. Stratification is recommended when subgroups differ significantly and must be represented adequately (Kumar, 2019; Cohen et al., 2021). Furthermore, Within each stratum, schools were selected using simple random sampling, while teachers were included based on availability and willingness, following ethical guidelines

Sample Size

Given resource, time, and access limitations, a statistically manageable yet representative sample was selected. Therefore, by Using Yamane's sample size formula ($n = N / (1 + Ne^2)$, with $e = 0.07$ margin of error), the recommended sample size was approximately 180 teachers. A proportionate sample was taken from each stratum:

Public sector: $620/1,770 \times 180 \approx 63$ teachers

Private sector: $1,150/1,770 \times 180 \approx 117$ teachers

Therefore, the final sample consisted of:

Total Sample Size = 180 Teachers

Public sector: 63 teachers from 15 schools

Private sector: 117 teachers from 28 schools

This approach ensured that the sample accurately reflected the broader teacher population in Islamabad (Ministry of Federal Education and Professional Training, 2023; PEIRA, 2023). Schools within each stratum were selected using simple random sampling, and teachers within the selected schools were chosen based on availability and willingness, following standard ethical protocols.

Table 2

Shows the sample of the study

Sector	Sample Size (n)	Number of Schools Selected
Public	63	15
Private	117	28
Total	180	43

Rationale

Stratified sampling was used to ensure comparability between public and private schools, as these sectors differ significantly in teacher deployment, training, and pedagogical autonomy (Federal Directorate of Education, 2023). Random selection minimized researcher bias, while the final sample size of 180 balanced feasibility and statistical robustness, consistent with recommendations from established methodological literature (Gay et al., 2020; Kumar, 2019). Due to time, access, and resource limitations, results are representative but not fully generalizable to the entire district, a limitation commonly acknowledged in field-based educational research (McMillan & Schumacher, 2019).



Vol. 3 No. 12 (December) (2025)

Data Collection Instrument

A self-administered questionnaire was developed, incorporating items related to:
Use of constructivist pedagogical principles (teaching methodology, classroom management, use of AV aids, lesson planning, differentiated instruction, student-centred activities)

Assessment practices (traditional and constructivist assessment techniques)

Teachers' perceptions regarding their roles and challenges

Validity and reliability

Content validity of research instrument were checked by the experts of the relevant field all the ambiguous item were deleted as suggested by the experts.

Reliability of the research instrument were carried out by Cronbach alpha the Cronbach alpha value for each variable were 0.8 which indicates that instruments have strong reliability.

Data Analysis

Data were analysed using SPSS. Descriptive statistics (means, standard deviations, percentages) and inferential statistics (independent-samples t-test) were applied.

Descriptive statistics:

Table 3

Descriptive Statistics for Constructivist Pedagogical Practices

Sector	n	Mean (M)	SD	Interpretation
Public	63	3.9226	0.50382	High
Private	117	4.5595	0.47910	Very High
Total	180	4.2411*	0.520**	High

Table 4

Descriptive Statistics for Constructivist Assessment Techniques

Sector	n	Mean (M)	SD	Interpretation
Public	63	2.8734	~0.50	Moderate
Private	117	3.6705	~0.55	High
Total	180	3.4211*	~0.61	Moderate–High

Inferential statistics

Table 5

**Inferential Statistics Comparing Public and Private School Teachers
Independent Samples t-test Results for Constructivist Pedagogy and Assessment**

Variable	Sector	n	Mean (M)	SD	t-value	df	p-value	Interpretation
Constructivist Pedagogical Practices	Public	63	3.9226	0.50382	-10.132	178	< .001	Private significantly higher



Vol. 3 No. 12 (December) (2025)

Variable	Sector	n	Mean (M)	SD	t-value	df	p-value	Interpretation
Constructivist Assessment Techniques	Private	117	4.5595	0.47910				
	Public	63	2.8734	~0.50	-8.412	178	< .001	Private significantly higher
	Private	117	3.6705	~0.5				

Results and Findings

Pedagogical Principles

Data show that private school teachers reported a significantly higher mean (M = 4.5595, SD = .47910) for use of constructivist pedagogical practices compared to public school teachers (M = 3.9226, SD = .50382). The t-test (t = -10.132, df = 272, p < .001) indicates a **statistically significant difference**, supporting the hypothesis that private schools employ constructivist pedagogy more intensively than public schools.

Assessment Techniques

Similarly, for assessment practices, private sector teachers reported higher use of constructivist assessment techniques (M = 3.6705) compared to public sector teachers (M = 2.8734), with t = -8.412 (df = 272, p < .001), showing a significant difference in assessment approaches between the two sectors.

Interpretation

These findings suggest that private primary schools in Islamabad are more likely to implement constructivist pedagogy and assessment practices than public schools. Public schools, in contrast, tend to rely more on traditional, teacher-centred instruction and conventional assessment (e.g., pen-and-paper tests), often neglecting formative, student-centred, or differentiated assessment.

Qualitative responses (open-ended items) also revealed that public school teachers often lack resources, training, and institutional support, which hinders the application of constructivist methods. Private schools, although better positioned, report challenges related to workload, maintaining activity-based learning for all students, and meeting parental expectations for exam-oriented instruction

Discussions

The results align with previous literature indicating that institutional context matters strongly in pedagogical implementation (e.g., availability of resources, teacher motivation, curriculum flexibility, school leadership) (Tooley & Dixon, 2006; Gao et al., 2025; Frontiers, 2022).

The greater use of constructivist pedagogy in private schools may be due to smaller class sizes, better teacher motivation, more autonomy in curriculum and assessment decisions, and availability of resources (teaching materials, AV aids) factors often lacking in public schools. This difference underscores equity issues: children in under-resourced public schools may miss out on pedagogies that promote critical thinking, creativity, and lifelong learning skills.

However, the study also confirms common criticisms: constructivist pedagogy is resource-intensive, demands skilled facilitation, and can be difficult to implement uniformly especially in large, resource-constrained public-school settings (Shah, 2019;



Vol. 3 No. 12 (December) (2025)

Machumu & Zhu, 2017). Therefore because of these constraints, extensive adoption may not be feasible. Rather, incremental integration starting with small, teacher-supported interventions, targeted teacher training, hybrid of direct instruction and constructivist activities might be more realistic.

Conclusions

It was concluded from the results of the study that Private schools in Islamabad demonstrate stronger alignment with constructivist teaching and assessment practices. Public schools face systemic constraints leading to reliance on traditional instructional and assessment methods. Teacher preparedness, institutional support, and assessment culture significantly shape the adoption of constructivist pedagogy.

Challenges of Constructivist Pedagogy

While the constructivist approach where learners actively build knowledge through experience and reflection offers significant pedagogical advantages, its implementation in educational settings presents several well-documented criticisms and practical challenges. These issues often revolve around resource demands, assessment validity, and systemic compatibility.

Resource and Time Demands

The implementation of genuinely constructivist teaching is inherently resource-intensive, making it difficult to scale and sustain, especially in resource-constrained environments.

Increased Planning and Facilitation Time:

Teachers adopting a constructivist role shift from transmitting knowledge to acting as facilitators, coaches, and scaffolds (Christie, 2005; Honebein, 1996). This role demands significantly more time for lesson planning, creating open-ended, authentic tasks, diagnosing students' misconceptions, and providing individualized guidance to support diverse learning paths.

Need for Smaller Class Sizes and Materials:

Collaborative, hands-on, and inquiry-based learning, which are hallmarks of constructivism, often require smaller class sizes for effective teacher-student interaction and management. Furthermore, it necessitates the provision of manipulative materials, primary sources, and real-world tools that can be costly and difficult to maintain (Shah, 2019; Machumu & Zhu, 2017).

Assessment Difficulties and Standardized Testing Mismatch

Evaluating the deep, constructed knowledge that constructivism aims to foster is challenging within conventional educational systems.

Difficulty in Objective Evaluation:

Standardized tests, typically designed to measure the recall of discrete facts, often fail to capture the complex outcomes of constructivist learning, such as critical thinking, problem-solving, creativity, and metacognitive growth (Teachng.com, n.d.).

Focus on Process over Product:

Constructivist assessment emphasizes the process of knowledge construction (e.g., in portfolios, performance tasks, and learning logs) rather than solely the final "correct" answer (Bufkin & Bryde, 1996). Designing and reliably scoring these alternative



Vol. 3 No. 12 (December) (2025)

assessments requires specialized training and can introduce subjectivity, making it difficult to ensure fairness and comparability across students or schools.

Teacher Readiness, Training, and Resistance

Shifting from a traditional, teacher-centred paradigm to a student-centred, constructivist one requires a fundamental change in teacher mindset and skill set.

Lack of Training and Confidence:

Many educators were trained in and are accustomed to traditional, transmissive models of instruction (Asrat, 2017). They may lack the practical experience, confidence, or necessary deep subject matter knowledge required to guide student inquiry effectively, leading to a resistance in shifting to a purely facilitative role (Giis Nagpur Glossary, 2025; Mansfield & Hinchliffe, 2005).

Increased Workload Perception:

Teachers frequently perceive the constructivist approach as placing an increased workload burden on them due to the demands of customizing the curriculum, tracking individual progress, and managing complex classroom dynamics (Mansory & Karlsson, 2005).

Classroom Management and Learner Resistance

The dynamic, interactive, and less-structured nature of constructivist classrooms can pose significant challenges for classroom management and student adaptation.

Complexity in Management:

Learner-centred, collaborative environments, especially in overcrowded classes, can lead to classroom management complexity, with potential for the learning process to become disorganized or for dominant students to control interactions, inadvertently neglecting quieter learners (Gupta, 2011; The Limitations of Constructivism, n.d.).

Student and Parent Expectation Mismatch:

Students accustomed to rote learning and parents who prioritize exam-oriented teaching may initially resist or be confused by open-ended, problem-based, or less-structured constructivist methods. Some students may, in fact, prefer the explicit structure and clear expectations of teacher-directed instruction when first encountering discovery-based tasks (Blignaut et al., 2014; Sakata et al., 2021).

Equity Concerns and Systemic Disparities

While constructivism aims for deeper, more relevant learning, its high resource demands can exacerbate existing educational inequities.

Widening Gaps in Low-Resource Settings:

The need for specialized materials, lower student-to-teacher ratios, and intensive professional development means that schools in low-resource settings are often unable to implement constructivist methods effectively. This leads to unequal implementation of "modern" pedagogy, potentially widening the educational gap between well-funded and under-resourced schools (Tam, 2000; Simply Psychology, 2025).

Focus on Cognitive Factors:

Critics argue that some constructivist models focus primarily on cognitive factors, potentially overlooking crucial contextual factors in the learning environment, such as available resources and learners' diverse socio-cultural backgrounds, which are critical for truly equitable learning (Ackermann, 2001). Addressing equity requires a focus on accommodations based on unique student circumstances, which resource-intensive constructivist models can make difficult to provide universally (National University, 2023).



Vol. 3 No. 12 (December) (2025)

Recommendations

Policy and Funding:

The government should prioritize primary education by allocating dedicated budgets for training, resources, and infrastructure to support constructivist pedagogies and assessment practices.

Teacher Professional Development:

Organize in-service training, workshops, and continuous professional development for public school teachers to build capacity in constructivist teaching, classroom management, differentiated instruction, and formative assessment.

Curriculum Reform:

Develop integrated, activity-based, interdisciplinary curricula that encourage student-centered learning, problem-solving, and real-world application.

Assessment Reform:

Replace or supplement traditional pen-and-paper tests with formative and performance-based assessments — portfolios, projects, peer/self-assessment, observational checklists, and progress-records.

Infrastructure and Resources:

Provide activity rooms, AV aids, teaching materials, and smaller class sizes to facilitate hands-on and collaborative learning.

Parental and Community Engagement:

Raise awareness among parents and community about the benefits of constructivist education — promote understanding of active learning, creative thinking, and lifelong learning rather than rote memorization and exam-oriented teaching.

Pilot Programs and Scaling:

Introduce pilot constructivist programs in selected public schools, monitor progress, and scale gradually — allowing adaptation to local contexts and resource constraints.

Limitations of the Study

The instrument is a self-report questionnaire, subject to social desirability bias.

Lack of classroom observations or direct measurement of student outcomes limits the ability to assess actual learning gains, rather than teacher self-reports.

Parental and student perspectives were not included thereby missing stakeholder views beyond teachers.

Future Research Directions

Conduct mixed-method studies incorporating classroom observations, student performance data, and qualitative interviews with teachers, students, and parents.

Expand to other districts and include male and co-educational schools for broader generalizability.

Explore longitudinal effects of constructivist pedagogy on student learning outcomes, creativity, and lifelong learning skills.

Investigate cost-effective strategies for implementing constructivist pedagogies in low-resource public school contexts.



Vol. 3 No. 12 (December) (2025)

Examine the role of educational technology multimedia, e-learning, blended learning in supporting constructivist pedagogy and formative assessment.

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Vol. 3 No. 12 (December) (2025)

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