EVALUATING THE EFFICACY OF CURRICULUM-EMBEDDED FORMATIVE ASSESSMENT TECHNIQUES AT ELEMENTARY LEVEL

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Abstract
Evaluating curriculum efficacy involves analyzing content and delivery using assessment results. Curriculum efficacy is the process to determine how formative assessment improves instructional strategies and students learning outcomes. The current study was designed to evaluate the efficacy of English curriculum-embedded formative assessment techniques at the elementary level. Formative assessment techniques, four dimensions: role play, inquiry, discussion, and concept map was used as data collection tools. This descriptive study was based on a survey design. The Self-administered Formative Assessment Techniques Questionnaire for Teachers (FATQT) was used to collect data from elementary school teachers. The sample of the study consisted of 300 teachers selected through a simple random sampling technique. The collected data were analyzed employing mean, Median, standard deviation, and an independent sample t-test to explore the phenomenon.   The results of the study showed that there existed no significant difference between male and female respondents regarding the use of formative assessment techniques but the mean score of male respondents (M = 3.44, SD = .55) was greater (M = 3.39, SD = .46) than female respondents. The results of the study revealed no significant difference between urban and rural urban respondents but the mean score of urban respondents (M= 3.42, SD = .50) was less (M = 3.40, SD = .52) than that of rural respondents. The results of the study revealed no significant difference between science teachers' and arts teachers' perceptions, but the mean score of science teachers (M = 3.06, SD = .57) was greater (M = 2.92, SD = .52) than arts teachers. On the basis of the results of the study, it was recommended that Punjab Education, Curriculum, Training and Assessment Authority (PECTAA) organized curriculum based formative assessment techniques training for proper implementation of the curriculum, enhancing students' engagement and learning skills. School management motivates English teachers to practice formative assessment techniques during teaching-leaning process for effective curriculum implementation.

Keyword: Efficacy of curriculum, evaluation, curriculum-embedded formative assessments.

Introduction

The national curriculum was revised to ensure standardization among public, private, and Madrasah institutions. The Single National Curriculum (SNC) English 2022 equips students with literacy and communication skills. The SNC English 2022 is divided into four competencies: A) oral communication Skills, B) Reading and critical thinking, C) vocabulary and grammar, and D) writing. There are seven standards. There are three benchmarks for competency-A, three benchmarks for competency-B, three benchmarks for competency-C, and one benchmark for competency-D. Thre are fifty-nine (SLOs) student learning outcomes (Government of Pakistan, 2022). Curriculum is a tool used to achieve efficacious educational objectives. Curriculum efficacy refers to the extent to which a curriculum achieves its SLOs. It involves evaluating how effectively the content, instructional strategies, and assessment methods support students' learning. Instructional methods and assessments should support the curriculum's intent (Wiggins & McTighe, 2005). Effective curricula improve students' achievements and foster higher-order thinking. Teachers' understanding and delivery of the curriculum affect its success. The effective curriculum depends on alignment of curriculum content, instructions, and assessments (Fullan, 2015).

Assessment refers to collecting and interpreting information to make decisions about the teaching-learning process. Assessment measures the intended learning outcomes of students. There are two major types of assessment: summative assessment and formative assessment, used to assess students' learning outcomes. Summative assessment is used to measure students' achievement at the end of a specific learning period. This type of assessment involves high-stake test to make a decision about learning content. Formative assessment refers to a low-stakes assessment used at the classroom level to monitor teachers' instructional strategies and provide feedback to students' learning progress. Teachers used formative assessment results to improve instructional strategies to meet learners' needs. Learners used formative assessment feedback as a learning progression tool to identify learning gaps (Clark, 2010; Pellegrino & Goldman, 2008). The SNC English 2022 has formative assessment techniques of role play, debates, presentations, discussions, and concept map for teaching - learning process (Government of Pakistan, 2022). One aspect of curriculum implementation requires alignment between curriculum standards and formative assessment through the ownership of teachers and students in learning process (Stiggins, 2001). Successful implementation of formative assessment required ownership of assessment, clarity of teaching-learning aligned with learning targets stated in the curriculum, and teacher-student involvement in assessment opportunities (Black & Wiliam, 1998; Stiggins, 2001). Formative assessment provides timely feedback and guides for instructional decisions, aligning teaching practice with students' needs (Brookhart, 2010). Previous studies reported diverse results about curriculum-embedded formative assessment techniques. There is a lack of systematic empirical studies to measure how embedded formative assessment is associated with students' achievements. Most of the existing evidence relies on teachers' qualitative observational reports. Despite theoretical support, there remains insufficient empirical evidence to clarify which curriculum-embedded formative assessment practices were better at the elementary level. This gap needed a more focused, context-based study that gauges the efficacy of curriculum-embedded formative assessment techniques to enhance student learning outcomes. This study seeks to address the gap in curriculum-embedded formative assessment techniques.

Statement of the Problem

The alignment between curriculum and classroom assessment techniques has promoted to enhance student learning. Formative assessment is a powerful tool, but its integration within the curriculum remains a vibrant discussion. Curriculum-embedded formative assessment techniques provide continuous feedback, promote self-regulated learning, and enhance teaching effectiveness. However, there is a lack of empirical evidence assessing the efficacy of assessment techniques. Understanding how formative assessment techniques influence learning scores can inform policy, guide teacher training, and support alignment of assessment-integrated curricula. There is local and global pressure on the implementation of formative assessment techniques in institutions. So there is a dire need to evaluate the efficacy of curriculum-embedded formative assessment techniques at the elementary level. The findings aim to inform evidence-based practices, curriculum development, and teacher training programs, ensuring that formative assessment methodologies are both theoretically sound and practically effective in real-world educational contexts.

Objectives for the Study

The Objectives of the study were to;
1. To find out the comparison of opinions between genders regarding the efficacy of formative assessment techniques.
2. To find out the comparison of opinions between locales regarding the efficacy of formative assessment techniques.

3. To find out the comparison of opinions between subject streams regarding the efficacy of formative assessment techniques.

Framework of the Study

Assessment framework developed by Black and Wiliam (2009) grounded in learning, pedagogy and assessment. Theoretical foundations justify how curriculum-embedded formative assessments contributed to improving students' learning outcomes. Assessment experts argued that formative assessment is a process to clarify learning intentions, engaging classroom, provide feedback, activate instructional resources, and feedback to generate evidence of students' learning. It supports metacognitive skills, motivation, and self-regulated learning for the academic progress of learners. Formative assessment techniques aligned with curricula may shift learners toward mastery learning.

Significance of the Study

This study is important to inform policymakers, curriculum developers, training institutions, researchers, teachers, and learners regarding curriculum-embedded formative assessment. For policymakers, it provides evidence-based guidance for revising assessment policies to foster a more learner-centered and competency-based education system. Curriculum developers can utilize the results to design more responsive and flexible curricula that embed meaningful assessments rather than relying on summative assessment results. The findings offer practical insights into assessment strategies that can be effectively incorporated within the curriculum to monitor student progress and improve learning outcomes. The study addresses a gap in educational contexts where formative assessment practices are either underutilized or poorly implemented. Formative assessments support instruction to refine pedagogical strategies and ensure that teaching is aligned with learners' needs. Furthermore, this study contributes to the body of knowledge on strengthening the theoretical and practical understanding of formative assessment's role in enhancing academic performance, fostering more equitable and effective education systems.

Literature Review

Literature review of the current study deals with curriculum, formative assessment, and studies focused on curriculum-embedded formative assessment techniques. Sustainable Development Goal-4 (SDG-4) is specifically focused on developing critical thinking, scientific literacy, and problem-solving skills in young learners. SDG-4 goals require trained teachers, relevant curriculum, adequate resources, supportive learning environments, and effective assessment (UNESCO, 2021). Uniform content reduces educational inequality and promotes national cohesion (Government of Pakistan, 2022).

Single National Curriculum of English

The SNC plays a significant role in standardizing learning objectives, instructional strategies, and assessment methods across public, private, and madrassahs at the elementary level (Government of Pakistan, 2022). The SNC emphasizes the reading domain on comprehension, interpretation, and analysis of texts, including stories, essays, and poems, to promote critical thinking. Reading helps to analyze literal and inferential comprehension and evaluate textual elements such as tone, setting, and character motivation. Writing includes descriptive paragraphs, narratives, reports, formal letters, and summaries focused on the writing process, brainstorming, drafting, revising, and editing to improve content, coherence, and accuracy for real-world communication and academic success. Writing develops the ability to produce coherent, organized, and purposeful text. Speaking and listening skills are interactive that enhances social and academic communication. Pronunciation, tone, stress, and non-verbal cues are key components of oral proficiency. The grammar and vocabulary domain focuses on enhancing students' language accuracy and lexical range. It covers grammatical structures such as verb tenses, modals, active/passive voice, and complex sentence formation.

Vocabulary includes learning word formation through affixes, understanding idiomatic expressions, and using contextual clues to deduce word meanings. Mastery in grammar and vocabulary strengthens clarity in written and spoken language. Vocabulary acquisition is essential for reading comprehension and writing fluency, making this domain a critical support system for other language skills. Oral communication involves listening and speaking skills required for effective interpersonal interaction (Government of Pakistan, 2022). Writing fosters deeper cognitive engagement with language and provides learners with the opportunity to reflect and refine their thoughts. Grammar ensures correctness in writing and oral expression. Oral communication reinforces active use of language through structured expression (Wiggins & McTighe, 2005).

Evaluation refers to the process of determining the effectiveness, efficiency, and relevance of a curriculum in achieving its intended learning outcomes. It involves collecting and analyzing data to make informed judgments about the curriculum's quality and areas for improvement. Evaluation plays a central role in the curriculum improvement process. Evaluation helps policymakers, curriculum developers, and teachers assess whether the educational objectives are being met and supports decision-making for curriculum revision and development. Ornstein and Hunkins (2018) defined curriculum evaluation as a process of delineating, obtaining, and providing useful information for judging decision alternatives. Effective evaluation provides reliable and valid evidence about how well curriculum objectives are being achieved. It supports alignment between objectives, content, instruction, and assessment.

Curriculum Efficacy

Curriculum efficacy refers to the extent to which a curriculum effectively achieves its intended learning outcomes and educational objectives. It involves evaluating how well the content, instructional strategies, and assessment methods promote student learning, engagement, and skill development. Curriculum efficacy is assessed through continuous evaluation of the curriculum's design, implementation, and outcomes to ensure that it aligns with students' needs and societal expectations. It is not only about content accuracy but also about the real-world application, relevance, and adaptability of the curriculum in diverse educational settings. Effective curricula are dynamic and responsive, enabling meaningful learning experiences and contributing to students' overall academic growth (Ornstein& Hunkins, 2018).

Curriculum efficacy refers to the extent to which the curriculum integrates teaching, learning, and evaluation. Evaluating curriculum efficacy involves analyzing content and delivery, using evidence-based indicators such as assessment results, feedback from teachers and students, and educational impacts on society (Glatthorn et al., 2018). According to Posner (2004), curriculum efficacy refers to how effectively a curriculum achieves its intended goals and outcomes. This involves evaluating whether the curriculum successfully facilitates the desired learning, skill development, and behavioral changes in students. Posner assessed curriculum efficacy dimensions: alignment with objectives, learner outcomes, implementation fidelity, adaptability and responsiveness, evaluation, and feedback. Curriculum efficacy is not merely about the content of the curriculum itself, but how well it is implemented, adapted, and sustained within the broader process of educational change. Efficacy improves when teachers understand the curriculum deeply and have the skills to adapt it to diverse student needs. Curriculum efficacy is linked with instructional coherence, which refers to the alignment between curriculum objectives, instructional practices, learning activities, and assessments. Furthermore, curriculum efficacy maximizes when there is a clear alignment between standards and assessments. Then Instruction promotes higher-order thinking and real-world application. Curriculum efficacy focuses on results-oriented outcomes. It required systematic

evaluation using performance data and stakeholder input. It depends on instructional coherence, which means curriculum, instruction, and assessment must be aligned (Glatthorn et al., 2018; Wiggins & McTighe, 2005). Curriculum efficacy is evaluated in terms of how well a curriculum meets its intended goals and produces desired educational outcomes. It focuses on continuous improvement of curriculum (Stufflebeam & Coryn, 2014). According to Tanner and Tanner (2007), curriculum efficacy refers to the effectiveness of a curriculum in achieving its intended goals and educational outcomes. It involves evaluating how well the curriculum supports student learning, promotes intellectual growth, and addresses societal and individual needs. Curriculum efficacy is not just about content delivery, but about how well the curriculum stimulates critical thinking, creativity, and democratic values.

Assessments

Assessment is an integral part of the teaching-learning process. There is emphasizes for a shift toward formative assessment that supports student learning and development. The constructivist view of learning presents that knowledge is actively built by the learner and assessment provides meaningful feedback that helps students understand their learning progress and guides future learning (Shepard, 2000). There are three pillars of assessment: cognition, observation, and interpretation. Cognition focuses on understanding how students learn and process knowledge. Observation involves gathering evidence of student learning through tasks aligned, and interpretation involves using tools and theories to make valid inferences from student performance. Assessment**s** help teachers to make informed decisions about instruction and enable students to monitor and guide their own learning. Formative and summative assessment practices stress the importance of aligning assessments with instructional objectives and standards (Andrade & Cizek, 2010; Nitko & Brookhart, 2014). Teachers need to improve their knowledge of assessment techniques (Siggins, 2001)

Formative Assessment

Formative assessment is an ongoing process used by teachers and students to gather and interpret evidence of learning. Its primary objective is to improve instruction and student achievement. There is a shift in educational practice from summative assessment to formative assessment to improve learning. Teachers ensure effective curriculum embed formative assessment in daily teaching, providing real-world classroom implementation (Andrade & Cizek, 2010). Formative assessment is important to guide teaching and support learning (Wiggins & McTighe, 2005). Formative assessment influence students 'academic achievement. Black and Wiliam (1998) discuss that improving formative assessment within classrooms is one of the most powerful ways to enhance student learning and raise academic standards. They highlight that formative assessment is embedded in everyday classrooms and conclude that major changes in teacher practice, professional development, and policy are necessary to realize the benefits of formative assessment in improving student outcomes. There are various formative assessment strategies such as feedback, questioning, peer, and self-assessment (Andrade & Cizek, 2010). Formative assessment is conceptualized in different ways in the literature, such as assessment for learning, diagnostic assessment, and data for decision making (Antoniou & James, 2014; Van der Kleij et al., 2015). Some practitioners recognize formative assessment as an instrument that provides feedback (Dunn & Mulvenon, 2009). A formative assessment varies on a continuum from planned for instruction to curriculum-embedded assessment (Hopster-den et al., 2019). Formative assessment strategies, such as concept maps, feedback loops, and peer-assessment, enhance students' achievement across multiple cognitive levels. They reviewed existing studies on the effects of formative assessment on student achievement and concluded that formative assessment enhances learning. Formative assessment is considered an ongoing strategy during teaching that gauges

students' understanding and enables teachers to address learning gaps proactively (Wiggins & McTighe, 2005).

Curriculum-Embedded English Language Assessment Techniques

Darling-Hammond and Adamson (2014) claimed that traditional standardized assessments failed to measure the skills needed in the 21st century, such as critical thinking, collaboration, problem-solving, and creativity. Successful implementation of assessments improves student engagement and educational outcomes. Performance assessment tools support deeper learning and better reflect student understanding. They emphasize the need to shift from rote learning toward authentic learning through formative assessment that prepares students for future learning and career life. Formative assessment is not separated from instruction but integrated into teaching and learning processes. They reported four foundational principles of embedded assessment systems: It must be aligned with models of student cognition and learning progress. Assessments should reflect students' growth over time, capturing progress along learning trajectories. Assessments must inform and support instructional decision-making (Wilson & Sloane, 2000).

Cummings, Maddux, and Richmond (2008) explored curriculum-embedded performance assessment (CEPA) as a practical and effective alternative to traditional assessment methods in assessments. The CEPA allows for authentic, ongoing assessment of student learning outcomes while being integrated into regular coursework. This reduces the need for additional testing sessions and minimizes disruption to instruction. The efficiency of CEPA utilizes tasks students already complete as part of their academic work, such as projects, presentations, and portfolios. These tasks are evaluated using standardized rubrics, enabling instructors to assess content knowledge and skill development consistently. The CEPA improves alignment between teaching, learning, and assessment. It enhances student engagement due to the real-world relevance of tasks. It involves faculty in the assessment process, leading to better-informed instructional decisions.

Kesolani and Ogan Bekiroglu (2019) reported that formative assessment incorporated into Inquiry-Based Learning (IBL) enhances student learning and engagement. The researchers claim that formative assessment and IBL share core educational principles such as promoting student-centered learning, critical thinking, and reflective practice. Formative assessment provides feedback, identifying learning gaps, and informing instructional adjustments. The stages of inquiry-based learning, questioning, investigating, analyzing, and formative assessment strategies; peer assessment, self-assessment, feedback loops, and questioning embedded in each stage support learning progression. Formative assessment integration not only improves students' conceptual understanding and inquiry skills but also fosters a sense of ownership and motivation in learning. Formative assessment is ongoing monitoring, teacher/peer feedback, and aligning with clear learning goals. Continuous peer and teacher feedback helped clarify learning goals and enhance learners' self-confidence and competence perception (Kerekovic, 2021).

Curriculum-Embedded Formative Assessment Techniques

Role play

Role play is a formative assessments technique in which students are assigned specific roles and act out scenarios that reflect real-life situations or concepts being studied. This method provides an interactive and experiential approach to learning, allowing students to apply theoretical knowledge in a simulated, practical context (Brookhart, 2010). Role play serves as a teaching and assessment tool, as it enables teachers to observe students' communication skills, problem-solving abilities, and application of subject knowledge in real time (Heritage, 2010). Formative assessment is important for the capacity to promote active engagement and higher-order thinking. Students are required to think critically, make

decisions, and respond spontaneously, which offers insight into their understanding and misconceptions (Sadler, 1989). The teacher can provide immediate feedback during or after the activity, facilitating continuous improvement (Black & Wiliam, 1998). Moreover, role play fosters collaboration, empathy, and perspective-taking, all of which are essential 21st-century competencies (Voogt & Roblin, 2012). Role play is used to assess reading, writing, speaking, and listening skills during learning English. Role play is also used to assess grammar, vocabulary, and pronunciation through active engagement of learners. Role play is a dynamic formative assessment technique that bridges theory and practice, engages students actively in the learning process, and provides valuable feedback for both learners and educators. Role-play significantly improves achievement, and teachers rated it effective for formative assessment in Saudi Arabia (Keezhatta, 2020). Role-play in English contexts and its effect on skill development, relevant to formative assessment discussions (Aura, 2023). Lavanya (2024) demonstrated how role-play supports formative assessment of soft-skills, transferable to EFL contexts. Zhang (2024) reviews how formative techniques like role-play bolster English language learners' performance. Wu and Yu (2025) stated that, though not specific to role-play, it underscores the emotional dimension essential to formative strategies that include role-play.

Inquiry

Inquiry as a formative assessment technique involves engaging students in structured exploration and problem-solving activities that require them to pose questions, collect and analyze data, and draw evidence-based conclusions. This approach shifts the learning process from passive reception of information to active knowledge construction, allowing teachers to evaluate students' understanding in real time (Bell et al., 2010). Through inquiry, teachers can assess higher-order thinking skills such as critical analysis, synthesis, and evaluation, as students are required to explain their reasoning and justify their findings (Hmelo-Silver, Duncan, & Chinn, 2007). Inquiry tasks provide multiple checkpoints for feedback, enabling both teachers and learners to identify misconceptions and knowledge gaps during the learning process rather than at its conclusion as a formative assessment. This iterative feedback loop helps to guide instructional adjustments and supports students in refining their investigative methods, reasoning processes, and conceptual understanding (Black & Wiliam, 2009). Inquiry-based formative assessment fosters student autonomy, motivation, and engagement, as learners take ownership of their learning journey. Embedded formative assessment within inquiry significantly enhances conceptual learning. Questioning used in inquiry frameworks for English language classrooms enhances cultural responsiveness and dialogue quality (Koksalan & Ogan-Bekiroglu, 2024).

Discussion

Discussion as a formative assessment strategy engages students in interactive dialogue to facilitate deeper understanding, critical thinking, and collaborative learning. In the discussion technique, students actively exchange ideas, respond to peers' perspectives, and construct meaning through verbal interaction. Teachers use discussion not only to promote student participation but also to gather ongoing evidence of learners' comprehension, reasoning, and misconceptions (Brookhart, 2017). Formative assessment through discussion allows instructors to assess both the content knowledge and communication skills of students in real time. It encourages higher-order thinking by prompting learners to analyze, evaluate, and synthesize information rather than merely recall facts (Anderson & Krathwohl, 2001). Teachers use open-ended questions, Socratic questioning, and peer-led conversations to stimulate deeper engagement. Discussion as a formative assessment is an important tool to provide an immediate feedback loop. Teachers can clarify misunderstandings, reinforce correct concepts, and adjust instructional strategies during the conversation. Moreover, discussions create a learner-centered environment that fosters collaboration and shared responsibility for

learning outcomes (Shepard, 2000). Discussions enhance student motivation, promote reflective thinking, and contribute to long-term academic achievement by developing cognitive, social, and emotional skills. Thus, discussion is a dynamic formative assessment technique that bridges assessment and instruction through ongoing dialogue.

Concept Maps

A concept map is a graphical representation of relationships among concepts, typically arranged hierarchically with connecting lines and linking phrases to illustrate the nature of these relationships (Novak & Cañas, 2008). As a formative assessment technique, concept mapping allows teachers to assess students' understanding of a topic by making their mental models visible. By constructing a concept map, students actively organize and integrate new knowledge with prior understanding, promoting deeper learning (Hay, Kinchin, & Lygo-Baker, 2008). In formative assessment, concept maps serve both diagnostic and instructional purposes. Teachers can use them to identify misconceptions, gaps in knowledge, and the depth of students' conceptual connections. They also facilitate feedback, enabling instructors to provide targeted support to improve comprehension (Kinchin, 2014). Additionally, concept maps encourage metacognitive awareness, as students reflect on the structure and completeness of their understanding. The effectiveness of concept mapping in formative assessment lies in its visual and interactive nature, which fosters active engagement, supports collaborative learning, and offers an ongoing measure of conceptual development. This makes concept maps a valuable tool for enhancing students' academic achievement through continuous monitoring and feedback.

Students' Academic Achievement

Students' academic achievement refers to the scores of students in their educational assessment through grades and other academic indicators. It is the extent to which a student has attained their educational goals. Achievement is measured through standardized tests, grade point averages (GPA), and subject-specific assessments. Academic achievement predicts future educational success. Academic achievement enhances self-esteem and personal development. It reflects the effectiveness of teaching and learning processes. It informs policy decisions and curriculum reforms. Academic achievement improves through using formative assessment and feedback. Students' academic achievement is a comprehensive concept that reflects how well students perform in their educational activities. It is shaped by a combination of personal, familial, institutional, and societal factors and serves as a critical measure of educational success and effectiveness**.** The efficacy refers to assessing how effective or successful something is. In this context, the focus is on determining how well certain formative assessment techniques work. Curriculum-Embedded means assessment is part of the daily teaching process, directly tied to the lessons and curriculum. Efficacy refers to the ability to produce desired results. Curriculum-embedded formative assessment techniques refer to assessment methods that are integrated into regular classroom instruction and learning activities. The elementary level focuses the study on grades 6-8 years of schooling. The study aims to determine whether integrating formative assessment methods into everyday teaching helps to improve the academic success of elementary school students. Formative assessment helps teachers adapt their instruction based on real-time student feedback. Formative assessment encourages student engagement and ownership of learning. It can lead to better long-term understanding and higher achievement, especially in foundational years (Brookhart, 2013).

Previous Studies Regarding Curriculum-Embedded Formative Assessment Techniques

The previous studies reported diverse results about formative assessment and academic achievement. Formative assessments foster engagement and metacognition among students. Formative assessment techniques were peer assessment, self-reflection, and

descriptive feedback during the teaching learning process. Formative assessment practices shed light on the efficiency of the curriculum.

A study was framed by Mehmood et al. (2012) to explore the effect of formative assessment on the academic performance of secondary school students in Punjab, Pakistan. The current study was an experimental pretest/post-test control group design to compare the academic outcomes of students using formative assessment strategies. The sample of the study consisted of 60 students in 10th grade. The formative assessment practices, such as quizzes, feedback, peer assessment, and questioning, were used to collect data from students. The results of the study declared formative assessment scores of students significantly higher than those in the control group. This improvement in performance was attributed to increased engagement, timely feedback, and opportunities for self-reflection and improvement.

A study was structured by Nawaz and Akbar (2022) to explore the gap between written formative assessment techniques and actual classroom practices regarding the national curriculum for physics 2006 in Punjab, Pakistan. The sample of a study consisted of 361 teachers working in public sector schools of Punjab. The data were collected through a 5-point Likert-type rating scale of a self-developed questionnaire. Mean, percentage, standard deviation, and the independent sample t-test were used to measure differences among urban and rural teachers' formative assessment techniques. The results of the current study exhibited that 60% formative assessment techniques were in use, and 40% gap existed between written and implemented formative assessment techniques in the national curriculum. Results further declared no significant difference between the usage of assessment techniques by teachers' locality, but urban teachers were using more formative assessment techniques as compared to rural teachers. The result of the study emphasizes the need for capacity building of teachers and curriculum alignment with assessment practices.

A study was designed by Decristan et al., (2015) to explore formative assessment and classroom practices that influence students' understanding of science in elementary schools in Germany. The quasi-experimental design involved 60 science classes, implementing a professional development program to train teachers in formative assessment practices. Embedded formative assessment techniques such as questioning, feedback, and diagnostic assessment were used during instruction to monitor and support learning. Classroom process quality was measured in terms of cognitive activation, classroom management, and teacher support. The findings of the study reported that formative assessment positively influenced students' science understanding. The positive influence of formative assessment on student achievement was strongest in classrooms with higher levels of cognitive activation and supportive teacher-student relationships.

A study was structured by Shavelson et al., (2008) to explore the effect of curriculum-embedded formative assessment (CEFA) on student learning. The study was quasi-experimental to explore the influence of middle school sciences curricula. The results of the study claimed that there was alignment between the curriculum and formative assessment. Formative assessments helped teachers identify misconceptions and adjust instruction accordingly. CEFA supports student learning and instructional improvement, especially when teachers are trained to interpret and respond to assessment data.

A study was framed by Yin, Tomita, and Shavelson (2014) to gauge the influence of embedded formative assessment aligned with short-term learning progressions on promoting students' conceptual understanding and achievement in science. A quasi-experimental design with three instructional conditions was used to explore the phenomenon. The Findings of the study showed that significantly enhanced students' conceptual change and science achievement compared to both the informal and control groups.

Research Methodology

This study is based on positivist philosophy; quantitative methods and survey design. For the current study, through a simple random sampling technique, a sample of 300 elementary school teachers was selected to collect data from the district of Lahore. For this study self-structured Formative Assessment Techniques Questionnaire for Teachers (FATQT) was developed to collect data from teachers. The Likert-type FATQT consisted of four dimensions: role play, inquiry, discussion, and concept map as English curriculum-embedded formative assessment techniques. Validity and reliability of FATQT were ensured and calculated. Five experts were selected to validate the content validity of the questionnaire. The overall reliability of the 26 items of the FATQT was .887. Key considerations include informed consent; confidentiality, anonymity, and voluntary participation were ensured. The researcher personally visited the selected school to collect data from the respondents. Lahore consisted of five tehsils: Lahore City, Cantt, Model Town, Raiwind, and Shalimar. Ethical considerations are critical in research to protect the rights, dignity, and well-being of the participants.

Data Analysis and Interpretation

The collected data were analyzed using mean, standard deviation, and an independent samples t-test to measure statistically significant differences between three independent groups: male and female, urban and rural, and science and arts teacher streams.

Table 1: *Descriptive analysis of factors of the formative assessment technique*

Dimensions	M	SD
Role Play	3.61	1.02
Inquiry	3.49	1.11
Discussion	3.57	1.09
Concept Maps	4.05	1.15

Overall M= 3.68, SD= 1.09

The table 1 identifies the existing level of formative assessment techniques by teachers, descriptive analysis was applied. It indicated that the mean score of the dimensions between 3.49 and 4.05, and overall, M = 3.68, SD = 1.09, which means that respondents agreed with all the factors of formative assessment technique.

Table 2: Differences of opinion between genders regarding formative assessment

Factors	Gender	N	M	SD	t	df	P
Role Play	Male	160	3.56	.51	-1.95	301	.05*
	Female	145	3.67	.42			
Inquiry	Male	160	3.52	.63	.697	302	.48
	Female	145	3.47	.57			
Discussion	Male	160	3.65	.42	3.56	295	.00**
	Female	145	3.47	.45			
Concept Maps	Male	160	3.03	.66	.815	303	.41
	Female	145	2.97	.42			
Total	Male	160	3.44	.55	.780	300	.23
	Female	145	3.39	.46			

The table 5 showed the comparison between gender groups regarding formative assessment. Independent sample t-test was applied that showed that there was a significant difference about role play while mean score of male respondents (M= 3.56, SD= .51) was less (M= 3.67, SD= .42) than female respondents. There was not a significant difference about the factor inquiry while mean score of male respondents (M= 3.52, SD= .63) was greater (M= 3.47, SD= .57) than female respondents. There was a significant difference about the factor

discussion while mean score of male respondents (M= 3.65, SD= .42) was greater (M= 3.47, SD= .45) than female respondents. There was a significant difference about the factor concept maps while mean score of male respondents (M= 3.03, SD= .66) was greater (M= 2.97, SD= .42) than female respondents. There was not a significant difference while mean score of male respondents (M= 3.44, SD= .55) was greater (M= 3.39, SD= .46) than female respondents.

Table 3: Differences of opinion between localities regarding formative assessment

Factors	Category	N	M	SD	t	df	p
Role Play	Urban	204	3.66	.45	2.63	184	.00**
	Rural	101	3.51	.49			
Inquiry	Urban	204	3.52	.64	.948	303	.34
	Rural	101	3.45	.51			
Discussion	Urban	204	3.54	.43	-1.37	190	.17
	Rural	101	3.62	.46			
Concept Maps	Urban	204	2.98	.50	-.947	303	.34
	Rural	101	3.04	.64			
Total	Urban	204	3.42	.50	-.78	245	.21
	Rural	101	3.40	.52			

Table 6 determined the difference of opinion of the respondents about formative assessment, independent sample t-test was conducted. It was showed a significant difference regarding the factor role play while mean score of urban respondents (M= 3.66, SD= .45) was greater (M = 3.51, SD = .49) than rural respondents.

There was no significant difference regarding the factor inquiry while mean score of urban respondents (M= 3.52, SD = .64) was greater (M= 3.45, SD = .51) than rural respondents. There was no significant difference regarding the factor discussion while mean score of urban respondents (M = 3.54, SD = .43) was less (M = 3.62, SD = .46) than rural respondents. There was no significant difference regarding the factor concept maps while mean score of urban respondents (M = 2.98, SD = .50) was less (M = 3.04, SD = .64) than rural respondents. To determine the difference of opinion of the respondents about formative assessment, independent sample t-test was conducted. It was not showed a significant difference while mean score of urban respondents (M = 3.42, SD = .50) was less (M = 3.40, SD = .52) than rural respondents.

Table 4: Differences of opinion between subject stream of respondents about formative assessment

Factors	Category	N	M	SD	t	df	p
Role Play	Science	177	3.59	.50	-1.0	294	.25
	Arts	128	3.65	.43			
Inquiry	Science	177	3.45	.62	-1.5	285	.13
	Arts	128	3.55	.57			
Discussion	Science	177	3.51	.42	-2.85	261	.00**
	Arts	128	3.65	.45			
Concept Maps	Science	177	3.06	.57	2.20	286	.02**
	Arts	128	2.92	.52			
Total	Science	177	3.40	.52	-3.15	281	.10
	Arts	128	3.44	.49			

The table 7 described the comparison between groups of subject streams regarding formative assessment, independent sample t-test was conducted. The statistical values show that there was not a significant difference about the factor role play while mean score of science

teachers (M= 3.59, SD= .50) was less (M= 3.65, SD= .43) than arts teachers. To determine the comparison between groups of subject streams regarding formative assessment, independent sample t-test was conducted. There was no a significant difference about the factor inquiry while mean score of science teachers (M= 3.45, SD= .62) was less (M= 3.55, SD= .57) than arts teachers. There was a significant difference about the factor discussion while mean score of science teachers (M= 3.51, SD= .42) was less (M= 3.65, SD= .45) than arts teachers. There was a significant difference about the factor concept maps while mean score of science teachers (M= 3.06, SD= .57) was greater (M= 2.92, SD= .52) than arts teachers. There was not a significant difference while mean score of science teachers (M= 3.40, SD= .52) was less (M= 3.44, SD= .49) than arts teachers.

Findings

- Use of formative assessment techniques of role play (M = 3.61, SD = 1.02).
- Use of formative assessment techniques of inquiry (M = 3.49, SD = 1.11).
- Use of formative assessment techniques of discussion (M = 3.57 and SD = 1.09).
- Use of formative assessment techniques of concept maps(M = 4.05 and SD = 1.15).
- There was no significant difference while mean score of male respondents (M = 3.44, SD = .55) was greater (M = 3.39, SD = .46) than female respondents.
- There was no significant difference while mean score of urban respondents (M= 3.42, SD= .50) was less (M= 3.40, SD= .52) than rural respondents.
- There was no significant difference while mean score of science teachers (M= 3.40, SD= .52) was less (M= 3.44, SD= .49) than arts teachers.

Discussion

Curriculum embedded formative assessment techniques enhance student learning and are aligned with teaching methods. Formative assessment techniques, such as role play, inquiry, discussion, and concept maps, are important curriculum assessments for English. The results of the current study showed that teachers are using the formative assessment technique. There was no significant difference between male and female respondents, but male respondents (M= 3.44, SD= .55) were greater (M = 3.39, SD= .46) than female respondents. There was no significant difference between urban and rural respondents, but urban (M = 3.42, SD = .50) was less (M = 3.40, SD = .52) than rural respondents. There was no significant difference between science and arts teachers, but science (M = 3.40, SD = .52) was less (M= 3.44, SD = .49) than arts teachers. The current study is consistent with Nawaz and Akbar (2022) to find out gaps between written formative assessment techniques and actual classroom practices regarding the National Curriculum physics 2006 from Pakistan's perspective. The results of the current study exhibited that 60% formative assessment techniques were in use, and 40% gap existed between the written and implemented formative assessment techniques of the national curriculum 2006. Results declared no significant difference between the usage of assessment techniques by teachers' locality, but urban teachers were using more formative assessment techniques as compared to rural teachers.

Conclusion

It was **concluded** that the respondents agreed with the statements of formative assessment. There was a significant difference of opinion was reported between gender groups regarding the factors in the play and discussion. Moreover, a significant difference between areas of respondents only in the factor of role plays. Additionally, there was also a significant difference between subject streams of respondents about the factors of discussion and concept maps.

Recommendations

On the basis of the results of the study, it was recommended that Punjab Education, Curriculum, Training And Assessment Authority (PECTAA) organized curriculum based formative assessment techniques for proper implementation of the curriculum and enhancing students' engagement and learning skills. School management motivates teachers practice formative assessment techniques for effective curriculum implementation.

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