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Situation Analysis of Formative Assessment Strategies Used in B.Ed. Honors Programs in Public Teaching Universities of Punjab, Pakistan

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Abstract

The international and national reforms in education have placed a focus on shifting from a transmission-based approach teacher education to competency-based teacher education that is attained through formative assessment. However, only a few empirical studies have delved into conceptualization and identification of formative assessment strategies in the context of Pakistan for prospective teachers' training. The current study is based on situational analysis of identifying formative assessment strategies used by the teacher educators of B.Ed. (Honors) in public teaching universities in Punjab, Pakistan. A cross-sectional survey design was used to collect quantitative data from twenty teacher educators from public and private teacher education institutions using a validated questionnaire. Current practice was assessed using a descriptive statistics analysis, mean rankings and situational gap analysis for four Formative Assessment Strategies namely: Scenario Based Assessment, Justification Based Assessment, Peer Assessment and Self-Reflection. The results show that less structured innovative practices such as written assignments are being employed, although the global teacher educators are already shifted from conventional assessments. National policy and frameworks along with class teachers believe that four practices are not only highly effective in the student engagement component but also have been facing with systemic issues like large class size, less instructional time and more workload. The results offer an empirical foundation for the implementation of structured models of formative intervention in teacher training programs to bridge between the policy requirements and classroom assessment practice.

Keywords: Formative Assessment, Teacher Education, B.Ed. Honors, Student Engagement, Critical Thinking, Situational Analysis, Pakistan.

Introduction

The traditional model in higher education teaching and learning has been accepted and implemented like a religious book without any change. While traditional models of higher education in teacher education institutions, have been greatly influenced by the global education reforms in the last ten years by on-going assessment strategies (Altschuld & Kumar, 2010; Black & Wiliam,

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1998, 2009) across the world. That reforms and transformation in education systems have changed the curriculum and classroom instruction into more realistic practical systems that emphasize the twenty-first century skills for education such as critical thinking, problem-solving, teamwork and self-directed learning (Darling-Hammond et al., 2020) rather content memorization of courses. The macro level imperatives in assessment system are more important for the prospective teachers. The urgent reforms in educational assessment keep the system alive and globally relatable. In teacher education the shift towards innovative strategies is crucial because students need to learn and understand modern strategies of formative and summative assessment within their own classrooms than implement them professionally in their future classrooms (Darling-Hammond et al., 2020).

Assessment literacy and reflective practice and student-centered instruction in Pakistan's context are specifically mentioned in the National Education Policy (Government of Pakistan NEP, 2009) and National Professional Standards for Teachers (Government of Pakistan NPST, 2009). Yet in all these directions of progressive policy change classrooms in higher education in Pakistan are still bathed in the culture of examining someone, memorizing rote subjects, testing at the end of the semesters and not getting the right set of grades. The policy intentions and classroom practice are a pedagogical challenge in B.Ed. Honors that need to address. To understand the gap between policy and its implementation in classrooms need a systematic assessment to identify the reasons behind. One of the initial steps to identify the gap is situational analysis that provide opportunity to examine what is there, what is missing and what is required to address an issue or challenge.

Despite the extensive literature available which contains a general discussion on formative assessment, there is very little empirical research on the use of advanced formative assessment approaches like Scenarios Based Assessment (SBA), Justification Based Assessment (JBA), Peer Assessment (PA) and Self-Reflection (SR) in the context of teacher education in Pakistan. The present situational analysis is an attempt to fill this gap of empirical studies, and examines the current scenario of the formative assessment practices and perceived value of the contribution of teacher educators of B.Ed. in public university in Punjab towards student engagement and critical thinking and challenges faced by them in the adoption of formative assessment.

Situational analysis is systematic process of analyzing the situation, conditions, strengths, weaknesses, needs and gaps that exist in the situation before designing or implementing an educational programme or intervention. It gives evidence to allow the intervention to meet actual not assumed needs (Witkin & Altschuld, 1995). Situational analysis is the preliminary assessment in order to examine the existing educational context, the context challenges, and the practices of the stakeholders. Information gathered help, inform intervention and decision making (Altschuld & Kumar, 2010) that is appropriate for a broader research context in which the situational analysis is administered. Situational analysis or needs assessment is a process to identify the gap between the actual situation “what is” and the desired situation “what should be”, to create effective educational tasks in programmes (kaufman and Guerra, 2013).

Situational Analysis is a systematic investigation of the state of the assessment practices that are in place in a specific educational setting in order to understand the existing assessment practices, how they are perceived, and what needs to be modified before designing an intervention for a doctoral level research studies. It provides empirical evidence to inform decisions on selecting

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contextually appropriate strategies and provides a base to design an intervention that is responsive to participants' needs, instead of assumptions (Witkin & Altschuld, 1995; Altschuld & Kumar, 2010).

The existing study (situational analysis) was carried out as a cross-sectional survey to find out the formative assessment practices which are being used in a semester in the B.Ed. teachers' education program. Through that analysis data from teacher educators were collected at single point of time to attain specific objectives of main study in terms of context, problems, innovation, and situation of formative assessment in classrooms. Data were analyzed using mean rank, percentage and frequency measures to collect empirical evidence of how formative assessment look right now in public teaching universities classrooms. Cross-sectional survey provided ease to collect data at one go and overtime data collection from participants was not required methodologically. The four Improved Formative Assessment Practices (IFAPs) for the intervention were selected from literature review and based on results were confirmed. These practices included: (1) Scenario Based Assessment; (2) Justification Based Assessment; (3) Peer Assessment and (4) Self-Reflection. The situational analysis findings helped to design the large scale longitudinal qualitative intervention for main research study by creating a contextual ground for the qualitative strand. That analysis further guide researcher how to be relevant and responsive to the identified needs which must be considered while conducting main mixed-methods research study.

Literature Review

Educational Reforms and Competency-Based Teacher Education

The restructuring and transformation of education, which has occurred all over the world, has changed the way higher education assessment is structured from a purely 'knowledge transfer' approach to a competency approach (Black & Wiliam, 1998). The value of pedagogical models supporting the involvement of learners in higher order thinking in sustainable educational development has been emphasized by international organizations like UNESCO, OECD and WEF in previous years (Mc Evoy, 2017). A teacher preparation programme is crucial for assessment reforms, shift from traditional summative assessments since otherwise, teachers entering the profession do not have opportunities to experience formative assessment and inquiry-based learning during the teaching training degrees (Darling-Hammond et al., 2020).

Formative Assessment in Higher Education

Formative assessment is an effective practice, and is widely accepted as a best practice for driving instructional improvements. Summative assessment is the assessment of learning that evaluates final objectives of a course, degree or program. In contrast, formative assessment is the process of establishing feedback loops for students to identify their errors, misconceptions, and/or misrepresentation to modify their learning approach towards higher-order thinking (Sadler, 1989; Black & Wiliam, 1998, 2009). In multiple research studies Nicol and Macfarlane-Dick (2006) suggested formative feedback as the most effective tool when it facilitate the development of higher-order thinking competencies and active engagement. Self-learning, assessment or examination can be defined as formative assessment practice to judge the learner's capacity to self-regulate his/her cognitive learning. Furthermore, Hattie and Timperley (2007) discovered the following large effect sizes for peer feedback at the task, process and self-regulation levels on achievement. The peer-assessment and self-regulation appear to be effective strategies of as-

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sessment in literature and used frequently in educational intervention to attain specific objectives.

Student Engagement in Higher Education

According to Fredrick and colleagues (Fredricks, Blumenfeld, & Paris, 2004) student engagement is a phenomenon that has many faces, Bond et al., (2020) considered it a term that has multi dimensions such as behavioral and cognitive engagement. Moreover, Kahu presented student engagement phenomenon with its behavioral, emotional, cognitive and social aspects (Kahu, 2013).

Students are motivated to learn and engage in work with interest, remain active in group discussions and use deep thinking strategies to understand the course topics if they continuously monitor or assessed during instructions (Kahu, 2013). The main research study revealed that the students' involvement and perseverance are highly dependent on the assessment atmosphere in the classroom; if assessments ask students to actively participate and reflect with them, the level of involvement and perseverance of students can be increased. In the present study the engagement concept is used with three dimensions of behavioral, emotional-cognitive and social engagement grounded in formative assessment environment. By highlighting four formative practices this situational analysis study collected empirical evidence of their partial, inconsistent and informal presence in B.Ed. classrooms.

Critical Thinking in Teacher Education

Critical thinking is considered to be a higher education goal (Facione, 1990) and a core competency for good teaching (Halpern, 2014). It includes aspects of analysis, evaluation of evidence, warranted inferences, interpretation and understanding of complex contexts, justifiable explanations, and self-regulation of thinking processes (Facione, 2015; Ennis, 2018).

Though formative assessment has been used to develop and enhance students' higher-order thinking skills such as problem-solving, critical thinking and inference for nineteen century (Scriven, 1967; Black & Wiliam, 1998), but after the exposure to artificial intelligence the need to use the AI tools, these competencies are required more than ever in classrooms now (Cañadas, 2023). It is time to use teacher education course curriculum to develop core teaching competencies required for new era of technology and artificial intelligence (Ahsan & Butt, 2025). During intervention four formative assessment practices planned to enhance students' critical thinking that further enables prospective teachers to analyze own learning issues, support assessment decisions and improve their reflection in examination with that experience.

According to Facione (2015) critical thinking can be evaluated by six dimensions including analysis, evaluation, inference, explanation, interpretation and self-regulation. By using four selected formative assessment practices the large-scale doctoral study intended to assess all those dimensions of critical thinking. In this regard situational analysis is conducted as need identification for the type of assessment practices to enhance students' higher-order thinking competencies through teacher educators' perspectives.

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Scenario-Based Assessment

According to Shavelson (2013) teaching scenarios always helpful for teachers to use as tool for clear conceptual understanding. That scenarios have been used for assessments since last decades successfully in different contexts and education levels. Scenario-based assessments are now well-recognized and established tools for active learning engagement, solving contextual problems, classroom administration and instructional improvement and enhancement of competencies (Shavelson et al., 2019). Students are not required to remember isolated facts, but they must consider the situation thoroughly, think through the options and make informed decisions about possible solutions. Research studies have shown that scenario-based work brings about deep conceptual understanding, situational problem solving and critical thinking in professional fields (Darling-Hammond et al., 2020; Darling-Hammond, 2020).

Justification-Based Assessment

Justifications about assessment ask students to argue about their answers and findings in the light of evidence (Brookhart, 2010; Nicol, 2021). Justification or reasoning not only empowers students to move beyond choosing between right and wrong answers, but also to provide a logical defense for their answers, which can help to increase students' analytical thinking and ability to articulate the explanation (Facione, 2015).

Peer Assessment

Assessment system has changed and still evolving towards more practical ways in higher education level. The purpose of higher education is to prepare students according to twenty-first century education demands and standards. To fulfill the demand and meet the standards, continuous assessment of instructional process is required that can be attained through innovative formative assessment strategies (Boud & Falchikov, 2005). Among multiple strategies of assessment peer-assessment is considered one of the established formative assessment strategies that has potential to improve teaching, learning and twenty-first century competencies including learning engagement and critical thinking (Topping, 1998; (Panadero, Jonsson, & Strijbos, 2016).

Self-Reflection

Self-reflection means that learners look inside themselves to check how much they understand watch how they are learning and come up with ways to fix mistakes (Schön, 1983; Zimmerman, 2002; Panadero, 2017; Panadero, Jonsson & Botella, 2017; Koivuniemi, Panadero, Malmberg, & Järvelä, 2017). Writing in a way to think about things is strongly connected to better understanding learning on your own and growing as a teacher.

Formative Assessment in Teacher Education and Pakistan

Even though teacher education around the world focuses on real-life testing (Darling-Hammond et al. 2020) studies show that teacher educators in areas still use old ways like written assignments, final presentations and end-of-term tests. In Pakistan even though higher education policies talk about learning outcomes there is scarcity of studies on how formative assessment is used in B.Ed. Courses. Most studies look at general management testing, not ways of testing like four selected practices. This shows that there is a need to start collecting information about how things are done now towards assessment for learning in education.

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Methodology

Research Design

This study used a cross-sectional survey (Annan, 2005; Clarke, 2016) to look at how B.Ed. Teacher educators use assessment now. The way the study was set up allowed the researchers to get data about how teachers teach how they feel about their teaching and what problems they face.

Cross-sectional survey (Annan, 2005; Clarke, 2016) provided a snapshot of existing situation in B.Ed. classrooms in terms of assessment for learning methods. Study collected data at single point of time to identify what teachers and students perceived about current and modern innovative formative assessment practices for a course instruction. That analysis further helped to select formative assessment practices and design a qualitative intervention.

Participants

The participants were teacher educators who teach in B.Ed. Programmes in public universities in Punjab, Pakistan. Study used convenience sampling technique to get perspectives about formative assessment practices from twenty B.Ed. teachers (N = 20) for the research. Details about the participants are in Table 1.

Instrumentation

A questionnaire was set up and tested to collect data. This questionnaire had questions about the participants' background and also some questions that asked them to choose from 1 to 5 on how much they agreed with given statements of questionnaire. The collected data further measured how teachers use assessment strategies, how often they use them in better ways, how they think these ways help students and what problems they face. They responded to open-ended questions in the end of survey that provide an insight about potential use of formative assessment strategies for specific goals and for certain period of time during class instruction.

Situational Analysis and Results

Data analysis identified seven commonly used traditional assessment practices in B.Ed. classrooms at public teaching institutions. Situational analysis collected university teachers' perceptions about the use of four improved formative assessment practices to improve learning engagement and higher-order thinking and further used in large scale PhD research study intervention. By using descriptive statistics overall frequency of each formative assessment practice mean and standard deviation were calculated and each practice was ranked with the values of mean. The results are presenting in below tables:

Demographic Information

Table 1: Demographic Information of Teacher Participants (N = 20)

Variable	Category	f	%
Gender	Male	12	60.0
	Female	8	40.0

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Highest Qualification	MPhil	13	65.0
	PhD	7	35.0
Teaching Experience	Less than 5 years	3	15.0
	5–10 years	7	35.0
	11–15 years	6	30.0
	More than 15 years	4	20.0
Type of Institution	Public Universities	15	75.0
	Public colleges	5	25.0

As in Table 1 most of the people were male (60.0%) had MPhil degrees (65.0%) and 35.0% had PhDs. Most of them worked in universities (75.0%) and had between five and fifteen years of teaching experience.

Current Formative Assessment Practices

Table 2: Current Formative Assessment Practices Used by B.Ed. Teachers (N = 20)

Assessment Practice	Mean	SD	Rank	Interpretation
Classroom discussion	4.55	0.51	1	Always
Written assignments	4.45	0.60	2	Often
Oral questioning	4.35	0.59	3	Often
Feedback on assignments	4.20	0.70	4	Often
Student presentations	4.10	0.64	5	Often
Quiz/Short tests	3.95	0.73	6	Often
Reflective writing	3.50	0.80	7	Sometimes–Often

Interpretation: The table shows that teacher educators use a lot of ways of testing. Classroom discussions (M = 4.55) and written assignments (M = 4.45) are the most used. Reflective writing (M = 3.50) is used the least showing that ways that help with understanding and thinking are not used much.

Four Formative Assessment Strategies

Table 3: Frequency of Using the Four Formative Assessment Strategies (N = 20)

Formative Assessment Strategies	Mean	SD	Rank	Interpretation
Self-Reflection	3.75	0.71	1	Often
Scenario-Based Assessment	3.45	0.79	2	Sometimes–Often
Justification-Based Assessment	3.18	0.74	3	Sometimes
Peer Assessment	2.90	0.86	4	Sometimes

Interpretation: Among the ways Self-Reflection was used most (M = 3.75) and Peer Assessment (M = 2.90) and Justification-Based Assessment (M = 3.18) were used only once in a while. This shows that there is a need to start using ways in training teachers.

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Contribution of Formative Assessment to Perceived Student Engagement

Table 4: Teachers' Perceptions of the Contribution of four strategies to Student Engagement (N = 20)

Assessment Strategy	Behavioral Engagement	Emotional–Cognitive Engagement	Social Engagement	Overall Mean
Scenario-Based Assessment	4.28	4.36	3.82	4.15
Justification-Based Assessment	4.18	4.20	3.70	4.03
Peer-Assessment	3.95	4.02	4.45	4.14
Self-Reflection	4.08	4.60	3.60	4.09

Interpretation: BE= Behavioral Engagement, ECE = Emotional-Cognitive Engagement, SOE = Social Engagement

Contribution of Formative Assessment to Perceived Critical Thinking

Table 5: Teachers' Perceptions of the Contribution of four strategies to Critical Thinking (N = 20)

IFAP as Strategy	AE	IR	EJ	IC	ER	Overall Mean
Scenario-Based Assessment	4.35	4.30	4.12	4.45	3.92	4.23
Justification-Based Assessment	4.40	4.22	4.70	4.15	3.88	4.27
Peer-Assessment	4.05	4.10	4.28	4.02	4.15	4.12
Self-Reflection	4.08	4.18	4.15	4.20	4.68	4.26

Interpretation: As shown in Table 5 teachers saw ways that the strategies help with thinking. Justification-Based Assessment was best at helping students explain and justify (M = 4.70) Scenario-Based Assessment was best at helping students understand (M = 4.45) and Self-Reflection was best at helping students think about themselves (M = 4.68).

Challenges in Implementing the Four Formative Assessment Strategies

Table 6: Challenges in Implementing the Four Formative Assessment Strategies (N = 20)

Implementation Challenge	Mean	SD	Rank
Large class size	4.30	0.63	1
Limited instructional time	4.15	0.69	2
Heavy workload	3.95	0.72	3
Lack of teacher training in IFAPs	3.85	0.78	4
Difficulty monitoring peer assessment	3.70	0.84	5
Students' unfamiliarity with reflective writing	3.55	0.81	6

Interpretation: Big classes and not enough time are the biggest problems for using better ways (Table 6). Large classes (M = 4.30) and not enough teaching time (M = 4.15) are the issues.

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Qualitative Themes from Teachers' Open-Ended Responses

Table 7: Qualitative Themes from Teachers' Open-Ended Responses (N = 20)

Identified Theme	Representative Participant Quotation	f	%
Classroom discussion dominates baseline practice	*"Discussion is the easiest way to monitor understanding in large classes."*	17	85
Self-reflection fosters metacognition	*"Reflection helps students recognize their cognitive strengths and weaknesses."*	15	75
Scenario-based tasks bridge theory and practice	*"Real classroom scenarios compel students to think analytically rather than memorize."*	14	70
Justification tasks eliminate guessing	*"Students must explain why an answer is valid instead of guessing blindly."*	13	65
Peer-assessment builds collaborative judgment	*"Students learn professional standards by evaluating each other's work."*	12	60
Systemic constraints limit innovation	*"Oversized classes and packed syllabi make consistent formative implementation difficult."*	16	80

Conclusion and Implications

This study shows that B.Ed. Teacher educators in Punjab know that better ways of assessing students learning and overall instruction are formative assessment strategies that help students get involved and think better. Unfortunately, teachers still use old ways of assessment. They face problems like only conceptual memorization without analytical evaluation and active learning engagement. This study shows that there is a need to create and use better testing methods to fill the policy and practice gap in teacher education system of Pakistan. In teacher education to match what the country education policy claim and recommend and national education framework suggest and what actually happens in the classroom research is an efficient method. Current research study took the initiative to address that policy and practice gap.

Learner-centered assessment has been gaining more and more importance, making formative assessment a crucial skill to foster student engagement, self-regulated learning and critical thinking in higher education. Research of the present day shows that there are often learning obstacles that students face, such as cognitive, motivational, emotional and collaborative learning issues, and they need continuous feedback and learning opportunities throughout the learning process (Koivuniemi et al., 2017). In this context, the self-regulated learning theory is the theory that describes how effective learners actively monitor, evaluate and regulate their cognitive, behavioral, and emotional processes to attain learning objectives (Zimmerman, 2002; Panadero, 2017). Formative assessment strategies that prompt students to reflect on their learning process, to track their progress and to check their performance have been linked to greater metacognitive awareness, self-efficacy and academic performance (Panadero et al., 2017). Likewise, feedback-based assessment has been identified as a key process for engaging students in their learning processes and not merely as recipients of knowledge (Nicol & Macfarlane-Dick, 2006). All these findings indicate that formative assessment is more than just an assessment of learning outcomes, but it also sets the stage for meaningful participation and deep thinking.

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Self-Reflection, Peer Assessment, Scenario-Based Assessment, and Justification-Based Assessment are emerging forms of assessment that involve learners in analyzing information, justifying decisions, assessing evidence, and collaborating in knowledge construction are gaining attention. Peer Assessment encourages discussion, positive feedback, and collective responsibility for learning and Self-Reflection enhances the capacity to recognize strengths, identify learning needs, and to plan future learning (Topping, 1998, 2009; Panadero et al., 2016). Similarly, genuine assessment practices like Scenario Based Assessment and Justification Based Assessment allow students to apply their theoretical knowledge to real-life situations, construct reasoned arguments, and show critical thinking by providing evidence-based decision making (Shavelson, 2013; Shavelson et al., 2019; Halpern, 2014; Facione & Gittens, 2015). Despite this emerging evidence, many contexts in which teachers are trained fail to fully implement such practices of formative assessment, especially in developing countries where assessment is still largely based on the traditional examination-oriented approach. Moreover, the literature has not considered the simultaneous use of these four practices of formative assessment in one intervention to improve student engagement and critical thinking of prospective teachers. To fill this gap the present study explores the effectiveness of a combined formative assessment intervention, namely Self-Reflection, Peer Assessment, Scenario Based Assessment and Justification Based Assessment in a Pakistani teacher education setting.

National frameworks such as national standards for teacher education (Arshad, 2020) and international organizations like UNESCO (Mc Evoy, 2017) emphasized on continuous assessment of learning in education programs at every level so the twenty-first century demands can be met. Assessment for learning provide a systematic framework to continuously track instructional progress towards national professional standards for future teachers and international educational goals for sustainable development simultaneously. The selection of four formative assessment strategies and implementation in real classrooms ensured to assess the global recommendations and demands of twenty-first century quality education relevant to the context of Pakistani teaching universities. Situation analysis displayed the real need of assessment for learning practices that have potential to improve instruction and overall quality of education in a program or degree.

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