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Impact of Teacher Professional Development on Assessment Practices in Pre-Tertiary Institutions in the Northern Region of Ghana

Hassan Mubarik Iddrisu[1]; Simon Alhassan Iddrisu[2]

[1] The West African Examinations Council (WAEC), Ghana

[2] Institute for Distance and Continuing Learning (IDCL), University for Development Studies, Tamale, Ghana

E-mail: Ih.mubarik@yahoo.com

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Abstract

Assessment is an important tool in education which is used to measure student learning, provide feedback, and inform instructional decisions. However, many teachers, especially in developing countries, lack the requisite skills to design and implement effective assessments. This study, guided by Guskey's Model of Teacher Change, investigates the impact of teacher professional development (PD) on assessment knowledge, effective use of assessment strategies, and confidence in conducting assessments among pre-tertiary school teachers in the Northern Region of Ghana. A quantitative research design was employed, surveying 335 teachers using a structured questionnaire. Independent samples t-tests revealed that teachers who participated in PD demonstrated higher assessment knowledge ($M = 4.12$ vs. 3.45, $p = 0.000$) and greater confidence in conducting assessments ($M = 4.25$ vs. 3.62, $p = 0.000$) than their non-participating counterparts. A Pearson correlation analysis ($r = 0.524$, $p = 0.000$) indicated a moderate positive relationship between PD and effective assessment use. Regression analysis showed that PD significantly predicted assessment knowledge ($\beta = 0.412$, $p = 0.000$, $R^2 = 0.170$), effective assessment use ($\beta = 0.524$, $p < 0.001$, $R^2 = 0.274$), and confidence ($\beta = 0.398$, $p = 0.000$, $R^2 = 0.159$). the study concluded that teachers who participated in continuing professional development acquired more knowledge and skills in using assessment strategies effectively. It thus recommended the structuring of PD programmes and the integration of assessment literacy in teacher training, so as enhance institutional support to teachers' assessment practices. These interventions are essential for improving educational quality and student learning outcomes.

Keywords: *Assessment Literacy; Assessment Practices; Educational Quality; Guskey's Model of Teacher Change; Teacher Professional Development*

Introduction

Assessment is a fundamental component of education, which basically serves as a tool for measuring student learning, providing feedback, and informing teaching practices (Suskie, 2018). It plays a very important role in shaping instructional decisions, identifying learning gaps, and ensuring every structured educational objective is met. Assessment practices do not only influence individual student achievement but also influence curriculum planning, teacher effectiveness, and institutional accountability (Radwan, 2023). According to Tomlinson et al. (2013), when assessments are effectively designed and implemented in the classroom, they will provide valuable insights into student progress, helping teachers tailor their instruction to meet diverse learning needs. Alternatively, poorly crafted assessments can lead to inaccurate evaluations, misinterpretations of student abilities, and ineffective teaching interventions.

Amadio et al. (2015) further opined that, effective assessment practices contribute significantly to student academic success, curriculum development and the overall educational quality. However, the effectiveness of assessment largely depends on teachers' knowledge, their skills, and the ability to implement good assessment strategies. Teachers must be well vexed in various assessment techniques, including formative assessments, summative assessments, diagnostic assessments, and performance-based evaluations. With all these methods, each serves a unique purpose in assessing student learning and guiding instructional strategies. Unfortunately, many teachers, especially in developing countries, do not have the required expertise to conduct reliable and valid assessments, resulting in inconsistencies in student evaluation and learning outcomes (Pholphirul et al., 2023). The absence or inadequacy of formal training of teachers in assessment literacy often leads to challenges such as ineffective feedback systems, use of outdated assessment methods, and difficulties in interpreting student performance data (Mellati & Khademi, 2018).

Botha (2014) stated that teacher professional development (TPD) is a very important component when equipping educators with the necessary skills to design, administer, and interpret various forms of assessment. With well-structured TPD programmes, teachers can improve their knowledge in assessment, adopt innovative assessment procedures, and engage in practices that will enhance their instructional decisions (Chhetri, 2022). Professional development in assessment includes training on best practices in test design, grading procedures, data-driven decision-making, and the integration of technology in assessment. Guskey (2000) clearly stated the importance of TPD, explaining that when teachers receive continuous training, they become better equipped to use assessment results to improve teaching effectiveness and support student learning. Furthermore, TPD fosters a culture of lifelong learning among educators, encouraging them to stay updated with emerging assessment trends and policies in the profession (Edu, 2025).

With all the increasing emphasis on TPD, there is still limited empirical research, particularly in Ghana, that quantifies the extent to which PD influences assessment practices. While globally, several studies have highlighted the importance of PD in improving teacher performance and student success (Al-Mahdi & Purinton, 2022; Nawab et al., 2021), fewer studies have specifically examined its impact on teachers' ability to conduct effective assessments. The lack of data on its impact creates a gap in understanding how professional development initiatives can be optimized to support teachers in implementing assessment practices. This study seeks to fill that gap by employing a quantitative approach to assess the impact of TPD on teachers' assessment practices. By investigating the relationship between PD and teachers' knowledge in assessment, the study aims to provide empirical evidence that can inform policy decisions and the development of targeted training programmes for educators. The findings from this study will contribute to the ongoing discussions on the role of continuous teacher training in improving educational outcomes particularly in the context of assessment driven instruction.

Theoretical Framework

This study is grounded in Guskey's Model of Teacher Change (2002), which emphasizes on the relationship between professional development, teacher beliefs, and student learning outcomes (Guskey, 2002). Guskey posits that for professional development to be effective, it must lead to changes in teachers' classroom practices, which will subsequently result in improved student performance. According to Guskey's model, teachers initially engage in professional development activities, which influence their instructional methods and assessment strategies. As they observe positive changes in student learning, their attitudes and beliefs toward professional development are reinforced, creating a continuous cycle of improvement.

This framework aligns well with the focus of this study, as it highlights the importance of well-structured PD programmes in shaping teachers' assessment practices. It again suggests that when teachers undergo meaningful professional development in assessment practices, they are more likely to implement best practices that enhance student learning. By applying Guskey's Model, this study seeks to determine whether PD initiatives significantly influence teachers' assessment literacy, implementation of diverse assessment methods, and data-driven decision-making in the classroom.

Research Objectives

This study was guided by the following objectives and these included to:

1. examine the relationship between teacher professional development and teachers' assessment literacy.
2. investigate the impact of teacher professional development on the effective use of assessment strategies.
3. analyze the extent to which teacher professional development influences teachers' confidence in conducting assessments.

Research Questions

The study seeks to answer the following questions:

1. To what extent does teacher professional development influence teachers' assessment knowledge?
2. What is the relationship between teacher professional development and the effective use of assessment strategies?
3. What is the impact of teacher professional development on teachers' confidence in conducting assessments?

Methodology

Research Design

This study adopted a quantitative research design using a descriptive survey approach to examine the impact of teacher professional development (TPD) on assessment practices. Using the quantitative approach, it allowed for the collection of numerical data that was statistically analyzed to identify trends

and relationships (Gelo et al., 2008). The descriptive survey method enabled the researchers to gather detailed information on teachers' professional development experiences and their assessment practices.

Population and Sampling

The target population of this study consisted of pre-tertiary school teachers in the Northern Region of Ghana. This included teachers from public and private schools, with various subject specializations such as Mathematics, Science, English language, and Social Studies, among others.

The choice of pre-tertiary school teachers in the Northern region was based on the need to assess assessment practices within a diverse educational setting. The region has a mix of urban and rural schools, each with distinct challenges regarding teacher training and assessment implementation. By targeting teachers from various backgrounds, this study aimed to provide a comprehensive analysis of how TPD influences classroom assessment strategies.

Sampling Technique

A stratified random sampling technique was employed to ensure adequate representation of teachers based on teaching experience, subject area, and gender. The population was first divided into three strata: years of teaching experience (early-career, mid-career, and experienced teachers), subject area (sciences, mathematics, languages, and social sciences), and gender (male and female teachers). Within each stratum, simple random sampling was applied to select participants. This approach ensured that the sample reflected the diversity of teachers in terms of experience, subject specialization, and gender.

Sample Size

To determine the appropriate sample size for this study, Cochran's formula (1977) for sample size estimation was used. This formula is suitable when the population size is unknown or very large and ensures that the sample is statistically representative (Chow et al., 2017; Hansen et al., 2007).

The initial estimated sample size using Cochran's formula was 385. However, after data collection, 335 teachers successfully responded to the questionnaire, yielding an effective response rate. This final sample size was deemed sufficient for statistical analysis, as it still maintained an adequate level of precision and representativeness for the study.

Data Collection Instrument

A structured questionnaire was the primary instrument for data collection for the study. The questionnaire was divided into four sections:

1. **Demographic Information** – Included variables such as gender, age, teaching experience, subject area, and prior participation in professional development programmes.
2. **Professional Development Participation** – Assessed the nature, frequency, and type of TPD programmes attended.
3. **Assessment Practices** – Evaluated teachers' knowledge and application of formative, summative, and diagnostic assessments.
4. **Impact of TPD on Assessment Practices** – Measured perceived changes in assessment skills due to TPD participation.

The questionnaire utilized a five-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree) to capture participants' responses regarding their assessment practices and the influence of professional development.

Validity and Reliability

To ensure the validity and reliability of the questionnaire, the instrument was reviewed by experts in educational assessment and research methodology to confirm content and construct validity evidences. A pilot test was conducted with 30 teachers who were not part of the main study, and the questionnaire was refined based on their feedback. The reliability of the instrument was assessed using Cronbach's alpha, which yielded a coefficient of 0.72, indicating an acceptable level of internal consistency and reliability (Agbo, 2010).

Data Collection Procedure

The data collection was conducted over a period of four weeks. Questionnaires were distributed physically to teachers in selected schools, and an online version was made available for those who preferred digital participation. Participants were assured of confidentiality, and an informed consent was obtained before data collection.

Data Analysis

The collected data was analyzed using Statistical Package for the Social Sciences (SPSS). The following statistical techniques were applied:

- **Descriptive Statistics** (Mean, Standard Deviation, Frequencies, and Percentages) summarized demographic data and general trends in assessment practices.
- **Inferential Statistics**:
  - **Pearson Correlation Analysis** and **Independent t-tests;** examined relationships between TPD participation and assessment practices.
  - **Regression Analysis** to assess extent to which TPD predicts three key assessment competencies.

Ethical Considerations

To uphold ethical standards, the study adhered to the following principles:

- **Informed Consent:** Participants were provided with clear information about the study's purpose and their rights before participation.
- **Confidentiality:** Responses were anonymized, and data was securely stored.
- **Voluntary Participation:** Participants had the right to withdraw at any stage without consequences.

Results

This section presents the findings of the study on the impact of teacher professional development (TPD) on assessment practices in pre-tertiary institutions in the Northern region of Ghana. The results are presented according to the research objectives, beginning with demographic data, followed by analysis of data addressing each research question. Various statistical techniques, including t-tests, Pearson

correlation, and regression analysis, were employed to examine the relationship between TPD and teachers' assessment knowledge, effective use of assessment strategies, and confidence in conducting assessments. Below is a summary of the demographic characteristics of the respondents.

Here is a table showing the selected districts with the corresponding number of teacher respondents: These were the participants who took part in the study from various municipalities.

Table 1: Names of Selected Districts with the Corresponding Number of Teacher Respondents

District	Number of Respondents
Tamale Metropolis	75
Sagnarigu Municipality	55
Savelugu Municipality	45
Yendi Municipality	40
Tolon District	35
Kumbungu District	30
Gushegu Municipality	25
Karaga Municipality	20
Zabzugu District	10
Tatale-Sanguli District	10
Total	**335**

Table 2: Demographic Characteristics

Variable	Category	Frequency (N = 335)	Percentage (%)
Gender	Male	187	55.82%
	Female	148	44.18%
Age Group	20-29 years	79	23.58%
	30-39 years	85	25.37%
	40-49 years	90	26.87%
	50 years and above	81	24.18%

Variable	Category	Frequency (N = 335)	Percentage (%)
Teaching Experience	Less than 5 years	73	21.79%
	5-10 years	102	30.45%
	11-15 years	78	23.28%
	More than 15 years	82	24.48%
Subject Specialization	Mathematics	69	20.60%
	Science	66	19.70%
	English	65	19.40%
	Social Studies	55	16.42%
	Others	80	23.88%
Participated in PD	Yes	220	65.67%
	No	115	34.33%

The demographic data presented in Table 2 above provides key insights into the characteristics of the respondents in the study. The gender distribution indicates that, 55.82% of the participants are male, while 44.18% are female, suggesting a slightly higher representation of male teachers in the sample. Regarding age distribution, the majority of respondents fall within the 30-39 (25.37%) and 40-49 (26.87%) age brackets. This indicates that most of the teachers in the study are in their mid to late career stages. Additionally, 21.79% of respondents have less than five years of teaching experience, whereas 30.45% have between 5-10 years, and 24.48% have more than 15 years. This suggests a diverse mix of early-career, mid-career, and experienced teachers, providing a balanced perspective on assessment practices.

Subject specialization is also well-distributed, with Mathematics (20.60%), Science (19.70%), English (19.40%), and Social Studies (16.42%) all represented, along with 23.88% teaching other subjects. Most notably, 65.67% of the respondents have participated in professional development (PD) programmes related to assessment, while 34.33% have not. This suggests that while a significant proportion of teachers have had exposure to professional development, a sizable percentage still lacks training in assessment practices. These demographic informations provide a strong foundation for further analysis of how professional development influences teachers' assessment practices.

Research Question 1: To What Extent Does Teacher Professional Development Influence Assessment Knowledge?

To analyze this research question, a comparison of assessment knowledge between teachers who participated in professional development (PD) and those who did not was conducted. Below are results as presented in Table 3:

Table 3: Independent Samples t-test for Assessment Knowledge Based on PD Participation

Group	N	Mean	Std. Deviation	t-value	df	Sig. (2-tailed)
Participated in PD (Yes)	219	4.12	0.87	6.345	333	0.000
Participated in PD (No)	116	3.45	0.92			

Table 3 presents the independent samples t-test results revealing a statistically significant difference in assessment knowledge between teachers who participated in PD (M = 4.12, SD = 0.87) and those who did not (M = 3.45, SD = 0.92), t(333) = 6.345, p = 0.000< 0.05. This suggests that professional development has a significant positive impact on teachers' assessment knowledge. From the results above, those who attended PD programmes demonstrated higher levels of competence in assessment practices compared to their counterparts who did not participate. It was thus inferenced from the results that, PD had positive and more significant influence on teachers' competence in assessment and so all teachers should be provided the opportunity to experience it.

Research Question 2: What Is the Relationship Between Teacher Professional Development and the Effective Use of Assessment Strategies?

To understand the relationship between teacher professional development and the effective use of assessment strategies, a Pearson correlation analysis was conducted to examine the relationship between teacher professional development (PD) participation and the effective use of assessment strategies. The results are presented in the Table 4:

Table 4: Pearson Correlation Between Professional Development and Effective Use of Assessment Strategies

Variable	N	Mean	Std. Deviation	r	p-value
Professional Development	335	0.66	0.47	0.524	0.000
Effective Assessment Use	335	3.89	0.81		

The Pearson correlation analysis in Table 4 revealed a moderate positive correlation between professional development and the effective use of assessment strategies (r = 0.524, p = 0.000). The reliability coefficient of 0.524 reported, accounted for 52.4% of the relationship. This indicates that teachers who participated in PD programmes were more likely to implement effective assessment strategies compared to those who did not. The statistically significant result suggests that engaging in PD improves teachers' ability to apply assessment strategies in ways that enhance student learning and instructional effectiveness.

Research Question 3: What Is the Impact of Teacher Professional Development on Teachers' Confidence in Conducting Assessments?

To understand the influence of teacher professional development on teachers' confidence in conducting assessments, an independent samples t-test was conducted to compare the confidence levels of teachers who participated in professional development (PD) and those who did not. The intention was to investigate whether there was any difference in their confidence levels between teachers who participated

in PD and those did not in the way they conducted assessment at their various schools. The results are presented in Table 5:

Table 5: Independent Samples t-test for Teachers' Confidence in Conducting Assessments Based on PD Participation

Group	N	Mean	Std. Deviation	t-value	df	Sig. (2-tailed)
Participated in PD (Yes)	220	4.25	0.79	7.312	333	0.000
Participated in PD (No)	115	3.62	0.85			

Table 5 showed results of the independent samples t-test showing a statistically significant difference in teachers' confidence in conducting assessments between those who participated in PD (M = 4.25, SD = 0.79) and those who did not (M = 3.62, SD = 0.85), t (333) = 7.312, p = 0.000. These results imply that, teachers who engaged in professional development programmes reported higher means representing significantly higher confidence levels in conducting assessments compared to their counterparts who did not participate. It can thus be inferred from the analysis that teachers who benefitted from PD programmes did not only acquire more knowledge but also improved their confidence and competence levels in the delivery of assessment practices in classrooms and schools.

A multiple linear regression analysis was conducted to examine the extent to which teacher professional development predicts three key assessment-related competencies: 1. Assessment Knowledge, 2. Effective Use of Assessment Strategies and 3. Confidence in Conducting Assessments. The independent variable in the regression model was Professional Development Participation (Yes = 1, No = 0), while the dependent variables were teachers' assessment knowledge, effective use of assessment strategies, and confidence in conducting assessments. The results are presented in the Table 6:

Table 6: Multiple Regression Analysis Results

Dependent Variable	B	Std. Error	Beta (β)	t-value	p-value	R^2	Adjusted R^2
Assessment Knowledge	0.658	0.089	0.412	7.394	0.000	0.170	0.167
Effective Use of Assessment	0.733	0.084	0.524	8.726	0.000	0.274	0.271
Confidence in Assessment	0.610	0.085	0.398	7.176	0.000	0.159	0.156

The regression analysis results presented in Table 6 demonstrates that participation in professional development (PD) significantly influences teachers' assessment knowledge, as indicated by a positive and statistically significant B coefficient (B = 0.658, p = 0.000 < 0.05). This suggests that teachers who engaged in PD programmes tend to have higher knowledge in assessment strategies compared to their counterparts who do not participate. The Beta coefficient (β = 0.412) further indicates a moderate effect size, signifying that PD plays a meaningful role in enhancing teachers' understanding of assessment practices. The model explains 17.0% (R^2 = 0.170) of the variance in assessment knowledge, signifying that PD contributes significantly to teachers' assessment literacy, while other external factors might also account for the rest of the outcome.

Regarding the effective use of assessment strategies, the regression results showed the strongest impact of PD participation on teachers' ability to apply assessment strategies effectively. The B

coefficient (B = 0.733, p = 0.001< 0.05) suggests that teachers who have undergone PD are better equipped to implement various assessment techniques in their classrooms. The effect size, as shown by the Beta coefficient (β = 0.524), is the highest among all three dependent variables, indicating that PD has a substantial impact of over 52.4% on how teachers utilize assessment strategies. The model accounts for 27.4% (R^2 = 0.274) of the variance in effective assessment use, suggesting that nearly one-third of the improvement in assessment practices can be attributed to participation in PD programmes. This emergent position reinforces the importance of implementing continuing professional learning opportunities for teachers to enhance their assessment competencies.

Similarly, the results indicate that PD significantly boosts teachers' confidence in conducting assessments, with a B coefficient (B = 0.610, p = 0.001). This means that teachers who have received PD training feel more assured in their ability to design, administer, and interpret assessments effectively. The Beta coefficient (β = 0.398) suggests a moderate impact, while the model explains 15.9% (R^2 = 0.159) of the variance in assessment confidence. Though this is slightly lower than the variance explained in the other two variables, it still confirms that PD positively influences teachers' competence in assessment-related tasks. The findings collectively highlight the necessity of sustained professional development initiatives to enhance teachers' expertise and confidence in conducting effective assessments, ultimately improving student learning outcomes.

Discussion

The objectives of these study sought to explain the pivotal roles teacher professional development (PD) in enhancing their knowledge in assessment practices. The results indicated that teachers who participated in PD programmes exhibited significantly higher knowledge assessment than those who did not engage in such training. These results aligned with Guskey (2002) Model of Teacher Change, which posits that teachers' professional growth occurs in a sequential manner: beginning with changes in their practices, followed by changes in student outcomes, and ultimately leading to changes in teachers' beliefs and attitudes. The significant improvement in assessment knowledge among teachers in this study suggests that PD serves as the foundation for the initial change in teaching practices, equipping educators with essential knowledge to design, administer, and interpret assessments effectively. However, the moderate effect size (β = 0.412) indicates that while PD is crucial, other external factors such as teaching experience, institutional support, and access to assessment resources also play a role in shaping teachers' assessment competencies.

Beyond assessment knowledge, this study found that PD had the strongest impact on teachers' effective use of assessment strategies (β = 0.524, R^2 = 0.274). This indicates that teachers who participated in PD programmes were more likely to implement effective assessment strategies compared to those who did not. The statistically significant result suggests that engaging in PD improves teachers' ability to apply assessment strategies in ways that enhance student learning and instructional effectiveness. This finding supports Guskey's assertion that professional development fosters practical application before influencing teachers' beliefs. Teachers who undergo structured training gain hands-on experience in employing diverse assessment methods, including formative and summative assessments, authentic assessments, and data-driven decision-making processes. This is consistent with prior studies emphasizing that PD programmes that focus on practical skill-building rather than just theoretical knowledge are more likely to influence classroom practices (Chhetri, 2022; Edu, 2025; Nawab et al., 2021). The substantial effect observed in this study further reinforces that for PD to be effective, it must provide teachers with opportunities to apply new assessment strategies in their instructional settings, gradually leading to more sustainable and meaningful changes in assessment practice.

Additionally, the study found that participation in PD significantly increased teachers' confidence in conducting assessments ($\beta = 0.398$, $R^2 = 0.159$), further supporting Guskey's (2002) argument that teacher beliefs and attitudes change only after experiencing success in practice. Teachers who participated in PD likely gained confidence after seeing the positive impact of improved assessment practices on student learning outcomes. Previous studies have also reported similar findings, indicating that when teachers receive continuous training, they become more self-assured in designing assessments, analyzing results, and making data-informed instructional decisions (Chhetri, 2022; Nawab et al., 2021). However, the relatively lower R^2 value for this variable suggests that, in addition to PD, other elements such as peer collaboration, school leadership support, and prior teaching experience also contribute to teachers' competence in assessment. This finding highlights the need for a holistic approach to teacher professional growth, where PD is supplemented by mentorship, peer learning, and ongoing institutional support.

Overall, these findings validate Guskey's Model of Teacher Change, demonstrating that effective PD programmes must first equip teachers with assessment knowledge, then facilitate changes in their practices, and ultimately lead to increased confidence and a shift in beliefs about assessment. This study highlights the need for well-structured, continuous PD programmes that focus on practical assessment training, reflective practice, and real-world application. Given the increasing emphasis on data-driven instruction and competency-based learning, education policymakers and school administrators must prioritize PD initiatives that integrate hands-on assessment training, real-time feedback mechanisms, and sustained teacher support (Nawab et al., 2021). Future research should further explore the long-term impact of PD on teachers' assessment practices and examine additional factors such as school culture, technology integration, and policy support that may enhance or hinder PD effectiveness in improving assessment literacy.

Conclusion

This study has exposed the significant impact teacher professional development (PD) has in improving assessment practices, highlighting its role in enhancing assessment knowledge, effective use of assessment strategies, and in increasing teacher confidence. Grounded in Guskey's (2002) Model of Teacher Change, the findings suggested that PD serves as a catalyst for initial changes in practice, which subsequently lead to improved student outcomes and shifts in teachers' beliefs about assessment. The results emphasize that, structured, continuous, and practice-oriented PD programmes are essential for equipping teachers with the necessary skills to conduct reliable and meaningful assessments. However, the study also revealed that, while PD plays a crucial role, other contextual factors such as school support, access to resources, and peer collaborations are other potential factors that can influence its effectiveness. To maximize the benefits of PD, stakeholders in education should invest in well-designed training programmes that incorporate hands-on application, mentorship, and sustained follow-up support. Future research should explore longitudinal effects of PD on assessment practices and investigate how other teacher factors or characteristics such as length of service, academic qualifications, work environment and gender, contribute to teachers' assessment efficacy in diverse educational settings.

Recommendations

These recommendations were made based on the findings of the study:

1. Education stakeholders, including the Ministry of Education and teacher training institutions, should design and implement structured, continuous, and practice-based professional development (PD) programmes that equips teachers with modern assessment techniques, data-driven decision-making skills, and strategies for obtaining effective feedback from learners. PD

sessions should include collaborative learning, and real-time classroom applications to ensure that teachers acquire both theoretical knowledge and practical assessment skills.

2. The National Council for Curriculum and Assessment in designing teacher education curricula for the pre-service and in-service levels should integrate comprehensive courses on assessment literacy. This will equip teachers with the necessary competencies before they enter the classroom and ensure that continuous assessment training is embedded in their professional growth. Universities, colleges, and teacher training institutions should review their curricula to emphasize formative and summative assessment techniques, grading fairness, and the use of technology in assessment.

3. Policymakers at the Ministry of Education should ensure that teachers have access to assessment tools, technology, and institutional support necessary for implementing effective assessment practices. This includes regular assessment workshops, mentorship programs, peer collaborations, and digital tools that help teachers design and analyze student assessments efficiently. School leaders should also create a supportive environment that encourages teachers to experiment with new assessment strategies and refine their practices based on student needs.

4. To ensure the effectiveness of professional development programs, education authorities should establish regular monitoring and evaluation mechanisms that assess the impact of PD on teachers' assessment practices. This can be achieved through teacher feedback surveys, classroom observations, and student performance analysis. By systematically evaluating PD initiatives, stakeholders can identify gaps, refine training content, and develop targeted interventions that further enhance teachers' assessment competencies and overall instructional effectiveness.

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