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# Teacher Professional Development Strategy Based on Human Performance Technology (HPT) to Improve the Quality of Authentic Evaluation

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## Abstract

The need to improve assessment quality in 21st-century learning highlights the importance of authentic assessment in developing students' critical thinking, creativity, and problem-solving skills. However, many elementary school teachers still face difficulties in designing authentic assessment effectively. This study aims to analyze the performance gap of teachers in designing authentic assessment and to formulate intervention strategies based on Human Performance Technology (HPT) to improve assessment design quality. The research employed a quantitative descriptive approach using a performance gap analysis design. The participants were 11 teachers from SDN Plemehan 2 Sumobito, Jombang Regency, selected purposively. Data were collected through a questionnaire based on five HPT components and analyzed using descriptive statistics with SPSS version 26. The results show that the overall average score falls into the good category, with the highest score in the motivation component (mean = 4.09; 81.8%) and the lowest in knowledge and skills (mean = 3.07; 61.4%). These findings indicate that teachers have strong motivation to implement authentic assessment but still require improvement in conceptual understanding and technical skills in assessment design. Based on the identified performance gaps, several intervention strategies are recommended, including practice-based micro training, strengthening data-driven feedback systems, developing Professional Learning Communities (PLC), and optimizing school technological resources. The study proposes an HPT-based teacher professional development framework that is contextual, measurable, and sustainable, which can serve as a strategic model to improve the quality of authentic assessment implementation in elementary schools.

**Keywords:** authentic assessment, Human Performance Technology, teacher professional development, elementary education.

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## INTRODUCTION

Designing quality assessments is at the heart of meaningful learning. Authentic assessments, which reflect real-world performance, have been shown to support deeper learning and enhance teachers' competency in designing assessments oriented toward 21st-century skills. Recent literature



reviews demonstrate that authentic assessment practices enhance assessment validity and foster students' higher-order thinking skills (Vlachopoulos & Makri, 2024; Hains-Wesson & le Roux, 2024).

Despite empirical evidence supporting the effectiveness of authentic assessments, many teachers still face challenges in designing quality assessments. Numerous studies indicate a gap in teacher performance in understanding the principles, implementing, and consistently assessing authentic assessment results. This gap is generally caused by limited conceptual knowledge, technical skills, and a lack of supportive work environments conducive to teacher professional development (Ventista & Brown, 2023). Bridging this gap requires a systematic, measurable, and results-oriented approach. One approach that can be used is Human Performance Technology (HPT). This approach emphasizes root cause analysis of individual and organizational performance, so that the resulting solutions are not limited to training but also encompass non-training factors such as motivation, work processes, resources, and organizational support.

The teacher performance gap in designing authentic evaluations is reflected in the mismatch between actual teacher performance and expected performance. Teachers may understand assessment theory but are unable to apply it effectively to produce assessment instruments that are authentic, contextual, and aligned with learning outcomes. As a result, the assessments used often do not reflect students' actual abilities, have low validity for higher-order thinking skills, and fail to utilize alternative forms of evidence in their assessments. The limitations of conventional training programs, which tend to be one-way and not based on performance needs analysis, mean that the root causes of the problem are not fully addressed (Gaikwad et al., 2023).

The Human Performance Technology (HPT) approach offers a systematic, evidence-based framework for analyzing and closing teacher performance gaps in designing authentic evaluations. Through the stages of performance analysis, root cause analysis, intervention selection, implementation, and evaluation, this approach not only highlights individual teacher capabilities but also examines systemic barriers that impact overall performance. The analysis is conducted to identify the root causes of gaps, whether they stem from knowledge, skills, motivation, work environment, or resource availability. This approach has been widely used in education and training due to its ability to explain the relationship between organizational needs and individual performance in a measurable manner (Carley Corporation, 2022; EdTechBooks, n.d.; 24/7 Teach, 2024). Furthermore, interventions can be designed in the form of practice-based micro-training, collaborative assessment design, provision of rubrics and work aids, and improvements to school work processes to ensure continuous improvement in the quality of assessment design and teacher professionalism.

The novelty of this research lies in the application of the HPT systemic approach in the context of authentic assessment design, which has previously focused more on conventional training. This research integrates various complementary interventions—such as micro-training, collaborative assessment design, and the use of evaluative rubrics—whose effectiveness is tested through empirical evidence in the form of teacher assessment results and student learning artifacts (Hains-Wesson, 2024;



Vlachopoulos, 2024). The purpose of this research is to analyze actual teacher performance, identify root causes of gaps, and design and evaluate HPT-based interventions relevant to the school context. The research results are expected to produce a practical, measurable Performance Technology-based teacher professional development model that can be integrated into the formal education system to improve the quality of authentic assessments and student learning outcomes.

## METHODS

This study employed a quantitative descriptive approach with a performance gap analysis design based on the Human Performance Technology (HPT) framework. This approach was chosen because it provides a factual picture of the gap between actual teacher performance and expected performance in designing authentic evaluations, as well as identifying the causal factors influencing this gap. The HPT model is deemed appropriate because it is systematic, measurable, and results-oriented, with analysis stages that include performance analysis, cause analysis, intervention selection, and evaluation (ISPI, 2022; Stolovitch & Keeps, 2011). This study's design was non-experimental, in which the researcher did not manipulate variables but instead focused on collecting and analyzing empirical data from the field to identify the root causes of teacher performance problems within the context of authentic assessment.

The study subjects consisted of 11 elementary school teachers working at SDN Plemahan 2 Sumobito in Jombang Regency, East Java. Participants were selected using a purposive sampling technique, which selects samples based on specific criteria relevant to the research focus (Sugiyono, 2021). The teachers selected were those with at least three years of teaching experience, had designed or implemented authentic assessments in the classroom, and were willing to complete the research questionnaire. This number of participants was deemed representative enough to provide an in-depth picture of teacher performance in the local context and sufficient for descriptive quantitative analysis.

The main instrument in this study was a teacher performance questionnaire in designing authentic evaluations compiled based on the dimensions of the HPT approach and authentic assessment indicators as explained by Gulikers, Bastiaens, and Kirschner (2004). The following is a table of the questionnaire instrument distributed to teachers at SDN Plemahan 2 Sumobito to analyze Human Performance Technology:

**Table 1.** Research Statement Indicators and Items

No	HPT Component	Indicator
1	Knowledge and Skills	Understanding the basic concepts of authentic assessment
2		Ability to formulate learning objectives aligned with authentic assessment
3		Skills in developing rubrics and authentic assessment instruments
4		Understanding validity and reliability in assessment
5		Ability to adapt assessment instruments to students' needs
6	Motivation	Internal drive to improve assessment design
7		Belief in the importance of authentic assessment
8		Time commitment and dedication in assessment design
9		Professional confidence in designing assessment



10		Openness to criticism and self-improvement
11	Environment (Work and Organizational Environment)	Leadership support for authentic assessment
12		Peer collaboration in assessment design
13		School policies supporting authentic assessment
14		Conducive teaching schedule and time management
15		Availability of professional collaboration time
16	Feedback	Regular feedback from supervisors or colleagues
17		Quality of data-based feedback
18		Internal school evaluation mechanisms
19		Opportunities to revise assessment design
20		Use of feedback to improve assessment instruments
21	Resources	Access to references and assessment instrument examples
22		Support for educational technology facilities
23		Access to learning resources and professional training
24		Time or funding support for professional development
25		Technological support for assessment data processing

Factors contributing to the gaps analyzed included knowledge and skills, motivation, feedback, work environment, and resource availability (Hancock-Niemiec, 2004). Each question used a five-point Likert scale, ranging from strongly disagree (1) to strongly agree (5), to measure respondents' level of agreement with each statement (Sugiyono, 2021). The data collection procedure was carried out in several stages, including preparation, implementation, and verification. In the preparation stage, researchers developed the questionnaire and obtained official permission from the schools where the research was conducted. The implementation stage involved distributing the questionnaire directly to participants, followed by teachers completing it independently based on their experience in designing authentic assessments. After all data was collected, researchers checked the completeness and consistency of responses and then screened valid data for further analysis. This approach ensured that the analyzed data represented the actual conditions of teacher performance in the field (Miles, Huberman, & Saldaña, 2014).

The data obtained were analyzed using quantitative descriptive analysis and performance gap analysis in accordance with the Human Performance Technology (HPT) model. Descriptive analysis is used to describe the level of teacher performance achievement based on the average score (mean) of each indicator on the research instrument.

The data analysis stage was carried out through Performance Gap Analysis by comparing the average actual performance score ( $X_{aktual}$ ) and the ideal performance score ( $X_{ideal}$ ) on each dimension of authentic assessment using the formula  $Gap = X_{ideal} - X_{aktual}$ . In this case,  $X_{ideal}$  is the expected optimal performance standard, while  $X_{aktual}$  is the score obtained by the teacher based on the questionnaire results; the difference between the two indicates the magnitude of the performance gap. The gap value is then classified into three categories, namely a low gap (0.00–0.50) indicating performance close to expectations, a medium gap (0.51–1.00) indicating the need for performance improvement, and a high gap (>1.00) indicating the need for priority intervention (Stolovitch & Keeps, 2011). To identify the factors causing the gap, a cause analysis was conducted by calculating the



percentage contribution of the five main dimensions in the Human Performance Technology (HPT) model, namely knowledge/skills, motivation, feedback, work environment, and resources (ISPI, 2022), using the formula  $P_i = (f_i / \Sigma f) \times 100\%$ , where  $P_i$  is the percentage of the  $i$ -th factor,  $f_i$  is the frequency of responses to that factor, and  $\Sigma f$  is the total frequency of all responses. The factor with the highest percentage was identified as the dominant cause of the teacher performance gap in designing authentic evaluations. All quantitative data were then processed using SPSS version 26 software to calculate the mean value, standard deviation, and classification of the level of gap, thus producing an objective and accurate analysis as a basis for developing a contextual, measurable, and sustainable HPT-based teacher performance improvement intervention model at the elementary school level.

## RESULTS AND DISCUSSION

The analysis of teacher performance questionnaire results in designing authentic assessments was conducted based on the five main components of the Human Performance Technology (HPT) framework: Knowledge and Skills, Motivation, Environment, Feedback, and Resources. Each component reflects causal factors that potentially influence teacher performance, both instructional and non-instructional (Stolovitch & Keeps, 2011; ISPI, 2022).

Measurements were conducted using a five-level Likert scale with scores of 1–5, with a score of 5 indicating the expected ideal level of performance. The actual mean score indicates the teacher's level of achievement in each component, while a gap analysis ( $5 - \text{mean}$ ) was used to identify the difference between actual performance and the ideal standard. Furthermore, the percentage of achievement was calculated to illustrate the proportion of the teacher's performance level to the maximum possible score.

The results of this analysis provide an overview of areas of strength and weakness in teacher performance in designing authentic assessments. Components with high average scores indicate factors that are already effectively supporting teacher performance, while components with low scores indicate a need for further intervention or support. A summary of the analysis results per HPT component is presented in the following table.

**Table 2.** Analysis of HPT Per Component

No	HPT components	Actual Mean	Standard Deviation	Gap (5 - Mean)	Percentage of Achievement	Category
1	Knowledge & Skills	3.07	0.36	1.93	61.4%	Fair
2	Motivation	4.09	0.29	0.91	81.8%	Good
3	Environment	3.73	0.25	1.27	74.6%	Good
4	Feedback	3.66	0.24	1.34	73.2%	Good
5	Resources	3.63	0.27	1.37	72.6%	Good

The analysis results in Table 2 show that there is variation in teacher performance achievement levels across the five main components of Human Performance Technology (HPT). In general, the highest average achievement was found in the Motivation aspect, while the lowest score was found in the Knowledge & Skills aspect. This indicates that motivationally, teachers have a willingness and



positive attitude toward developing authentic assessments, but still face limitations in the conceptual and technical aspects of their implementation.

The Knowledge & Skills component achieved an actual mean score of 3.07 with a gap of 1.93 and an achievement percentage of 61.4%, which falls into the "Sufficient" category. This finding indicates that teachers have a basic understanding of authentic assessment, but have not yet fully mastered technical aspects such as validity, reliability, and the development of rubrics appropriate to the learning context. According to Stolovitch and Keeps (2011), gaps in knowledge and skills are often the primary cause of low performance, as cognitive and procedural competencies directly influence individual work outcomes. In the educational context, Wiggins (2013) emphasized that authentic assessment requires a deep understanding of the concept of meaningful tasks (real-world tasks) and measurable performance indicators, making teachers' technical skills in designing them crucial. Therefore, increasing teacher capacity through practice-based training, coaching, and lesson study is highly recommended to close the gap in this component.

The Motivation component ranked highest with a mean score of 4.09, a gap of 0.91, and an achievement percentage of 81.8%, categorized as "Good." These results indicate that teachers have a strong intrinsic drive to improve assessment design and a positive belief in the importance of authentic assessment for student competency development. According to Robinson & Robinson (1995) and Hutchinson (2011), motivation is a key driving factor in professional performance because it influences an individual's willingness to apply skills in real-world contexts. In the school context, high teacher motivation is a crucial foundation for the successful implementation of learning and assessment innovations, although this is not always accompanied by improved technical skills (Hains-Wesson, 2024).

These three components categorized as "Good," with an average achievement percentage between 72.6% and 74.6%, but still have a gap of around 25–30% from the ideal performance standard. This indicates that school organizational support, including policies, a collaborative culture, professional feedback, and learning resources, is functioning well but has not yet reached full optimization. According to Rummeler and Brache (2013), individual performance in an organization is heavily influenced by the work systems and environmental support within which they operate. Furthermore, ISPI (2022) emphasizes that environmental supports and resources are non-instructional factors that are often the root cause of performance gaps, particularly when teachers lack adequate access to technology, quality feedback, or collaborative opportunities. In the context of this study, schools already provide adequate support mechanisms and facilities, but they need reinforcement in the form of ongoing training, peer review practices, and data-driven monitoring systems to ensure continued improvement in teacher performance.

**Table 3.** Proposed Intervention Strategies to Improve Teachers' Performance

<b>HPT Component</b>	<b>Identified Problems</b>	<b>Proposed Intervention Strategies</b>	<b>Forms of Implementation in Elementary Schools</b>
1. Knowledge & Skills	Teachers have not fully mastered the concepts and techniques of authentic assessment (validity, reliability, rubrics, and alignment with learning objectives).	- Practice-based microlearning workshops.- Peer mentoring among experienced teachers.- Case-based simulation for assessment design.	- Conduct weekly 2-hour workshops focusing on rubric development and student work analysis.- Develop a collaborative "Authentic Assessment Item and Rubric Bank."- Use contextual case studies aligned with the Merdeka Curriculum.
2. Motivation	Teachers show high motivation but lack consistency in implementing authentic assessment due to administrative workload and time constraints.	- Strengthening motivation through performance-based reward systems.- Personal goal setting.- Recognition of teachers' best practices.	- Provide monthly awards for "Innovative Teacher in Authentic Assessment."- Include authentic assessment as an annual performance indicator.- Organize inspirational sharing sessions among teachers.
3. Environment (Work Environment)	Policy support and collaborative schedules are not yet formally structured.	- Strengthening school policies on collaborative time.- Integrating authentic assessment into lesson planning and teacher meetings.- Instructional leadership by the principal.	- Establish biweekly Professional Learning Community (PLC) sessions.- Develop internal school guidelines for authentic assessment.- The principal conducts thematic supervision related to assessment design.
4. Feedback	Feedback on teachers' assessment design is not systematic and not yet data-driven.	- Develop peer review and coaching feedback systems.- Use student assessment results as feedback for teacher performance.- Apply standardized observation rubrics.	- Establish an Assessment Review Group among teachers.- Use standardized school assessment evaluation rubrics.- Conduct reflection on student assignments at the end of each semester.
5. Resources	Supporting facilities and resources (technology, training materials, funding) are available but not optimally utilized.	- Utilize technology for assessment design and analysis.- Increase access to online training (LMS, webinars).- Manage school funding for professional development.	- Integrate authentic assessment into the school LMS (e.g., Google Classroom, Padlet).- Provide digital training modules on authentic assessment.- Allocate school operational funds for teacher professional development activities.

Based on the results of the performance gap analysis and the proposed intervention strategies presented, it can be concluded that improving teacher performance in designing authentic evaluations cannot be achieved solely through improving individual competencies, but requires an integrated approach between strengthening teachers' personal capacity and developing the school's organizational system. From a Human Performance Technology (HPT) perspective, performance gaps are usually influenced by a combination of factors such as knowledge, motivation, work environment, feedback systems, and resource availability, so effective interventions must be systemic and sustainable. Therefore, schools need to implement an HPT-based training model that focuses on systematically identifying performance gaps, followed by targeted interventions such as practice-based training, professional mentoring, and authentic assessment design simulations. In addition, it is important for schools to build a reflective and collaborative culture through the establishment of a Professional



Learning Community (PLC), thematic supervision of assessments, and professional discussion forums that allow teachers to share good practices, reflect on learning outcomes, and develop evaluation innovations collectively. Performance improvement efforts also need to be supported by data-driven feedback mechanisms, such as through analysis of student learning outcomes, evaluation of assessment rubrics, and peer review systems, so that teachers obtain objective information for continuous improvement in assessment design. Furthermore, optimizing technological resources and school funding support are crucial factors in ensuring the sustainability of authentic assessment innovations, for example through the use of digital learning platforms, assessment data analysis tools, and technology-based professional development programs. Thus, implementing a teacher performance improvement strategy enables schools to build a teacher performance improvement system that focuses not only on individuals but is also integrated into the governance of educational organizations that is adaptive, measurable, and oriented towards continuously improving the quality of learning (Stolovitch & Keeps, 2011; ISPI, 2022).

## CONCLUSIONS

Based on the research results, it can be concluded that the performance of elementary school teachers in designing authentic assessments is in the "Good" category, but there are still significant gaps in the knowledge and skills aspect (Knowledge & Skills). Although teachers show high motivation in developing authentic assessments, limitations in conceptual understanding and technical skills remain major obstacles to effective implementation. The Human Performance Technology (HPT) approach has proven relevant to analyzing and addressing these gaps because it is able to systematically identify the causal factors of performance, both from an individual and organizational perspective. The proposed intervention strategies—including practice-based micro-training, a data-driven feedback system, the development of a Professional Learning Community (PLC), and the optimization of technological resources—can be a comprehensive solution to continuously improve the quality of authentic assessment design. The implementation of the HPT-based professional development model is expected to not only improve teacher competence but also strengthen the culture of authentic, collaborative learning evaluation, and be oriented towards improving the quality of education in elementary schools.

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K.M.A: Data Curation; Writing – Original Draft Preparation

S: Writing – Review & Editing; Resources

I.Z.R: Writing – Review & Editing; Analysis

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