The Performative Teaching Inventory: Instrument Development and Estimates of Reliability and Validity

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ABSTRACT: Engaged pedagogy through performative teaching emanates from a teaching philosophy that recognizes the importance of making teaching and learning processes into reality through actively engaging students. This study ascertained to develop and validate an instrument that measures performative teaching techniques. A review of relevant and recent literature on teaching practices was done which led to the writing of the items in the instrument evaluated by subject matter experts (SMEs). A total of 100 teachers participated in the initial test administration. The adequacy indicator of the sample KMO=0.868 indicating that the sample data were enough for Exploratory Factor Analysis (EFA) through Principal Component Analysis (PCA) of extracting factor loadings based on the eigenvalue greater than 1. Results yielded valid items and extracted four (4) factor loadings around .511 to .830 while Cronbach's Alpha indicates the instrument is internally consistent. The development of the final instrument was based on the results of the evaluation of the instrument's reliability and validity. For purposes of recognition, the instrument was named "Performative Teaching Inventory for Teachers (PTI)."

KEYWORDS: Performative teaching inventory, instrument development , engaged pedagogy

1.0 INTRODUCTION

Recent advancements in research highlight the role that teaching approaches play in shaping students' abilities. An approach gaining recognition for its effectiveness is engaged pedagogy, teaching, which focuses on actively involving students in the teaching and learning process. This pedagogical approach, rooted in the philosophy of creating interactive learning experiences, aligns with the RVM pedagogy's goal of learner's development through interactive learning methods. According to Aubrey et al. (2022) involving learners in tasks is essential for achieving desired learning outcomes. Incorporating engagement into teaching practices not ensures high quality instruction but also prioritizes student centered and experiential learning to cater to individual student needs.

Despite having an understanding of these teaching principles, educators who are deeply involved in classroom instruction have noticed a gap in assessing these teaching methods. When examining related literature, it becomes evident that there is a lack of tools for evaluating teaching strategies. While Peterson et al. (1985) created a system for evaluating teaching, their findings suggest that effective teaching behaviors are similar across different educational settings. Stes et al. (2010) explored the Approaches to Teaching Inventory (ATI) in education and Che Md Ghazali et al. (2017) developed an inventory for assessing higher order thinking skills (HOTs) among school teachers, both of which offer insights, into evaluating teacher performance. However, collectively these studies indicate areas that have yet to be explored for performative teaching regarding the integration of technology specific variations and the long-term impact of teaching behaviors.

Therefore, this research aims to bridge this gap by developing a novel instrument specifically designed to measure the utilization of performative teaching strategies. This research aims to bridge this gap by developing a novel instrument specifically designed to measure the utilization of performative teaching strategies. Such an instrument will not only be crucial for understanding and enhancing the quality of teaching practices but also for ensuring that educational experiences are effectively aligned with contemporary pedagogical standards and students' diverse needs.

1.1 Objectives of the Study

The goal of this study was to develop and validate an instrument to measures the utilization of the teachers of performative teaching strategy. Subsequently, this led to extract and evaluate the Performative Teaching Inventory for Teachers (PTI) factor structure and internal consistency.

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2.0 METHOD

A total of 100 public and private Senior High School teachers from the Division of Iligan City, Philippines participated in the initial test of administration of the instrument. This constituted 30% male and 70% female teachers. There were 23% with a bachelor's degree holder, 74% with a master's degree, and 3% with a doctorate degree. The majority of them have been teaching for 11 to 20 years.

The initial phase of the instrument was the development of the items as indicators for performative teaching activities of the teachers based on theories and empirical observations of the researchers. The researchers were responsible for creating the items of PTI. These items were evaluated by subject matter experts (SMEs) for content validity. Table shown below are the 21 items of PTI as indicators of performative teaching.

Table 1. The 21-Item Performative Teaching Inventory for Teachers (PTI)

Item No.	Indicators
1	Lecture, perhaps occasionally soliciting brief student input or using the board or overhead projector to highlight a key term or present an outline.
2	Demonstrate a concept, using two-dimensional graphics such as drawings on the board, overhead projector, or computer.
3	Demonstrate a concept, using three-dimensional tools such as manipulative, models or other objects.
4	Lead students in recitation, drills or question-and-answer sessions.
5	Observe or monitor student-led whole class discussions or demonstrations.
6	Provide individual or small group tutoring as needed during individual seatwork or small group activities involving everyone in the class.
7	Provide remedial or enriching instruction to a pull-out group while the rest of the class works on assignments.,
8	Work on administrative tasks, such as recordkeeping, while students work on assignments.
9	Administer a test or a quiz.
10	Stimulate student discussions of approaches to solving problems or open-ended questions.
11	Demonstrate uses of technology in teaching.
12	Set up and monitor or supervise cooperative learning activities.
13	Implement "Think, pair, share" in my classroom to promote student learning to think about concepts or ideas, discuss it with a peer, and share with the classroom for further discussion.
14	Put students in groups to demonstrate how to solve problems, discuss answers to relevant questions, and how to apply information to situations with which they are familiar.
15	Show students how to study in multiple ways (e.g., flashcards, creating a concept index, use electronic media, etc.).
16	Prompts students to ask me questions about their reflective thoughts.
17	Create effective student discussion groups that have students of varying abilities.
18	Create effective student discussion groups that have students of the same abilities
19	Encourage students to "Think out loud" when answering questions in class to help them (and others) reflect on how they arrived at answers.
20	Ask questions of varying difficulty from simple factual recall to more analysis and synthesis.
21	Model contextual examples when discussing content material so that students know how to create their own examples.

The PTI items were declarative statements dealing with different classroom activities of the teachers for which the respondents could indicate their frequency of using performative task in teaching and learning process. Hence, a 5-point Likert scale was selected as the response format for the PTI. Response options ranged from *never* (0) to *more than 1 per period* (4). The scoring procedures were done by getting the average of the numerical response values of the items to obtain a score. Higher scores indicate higher frequency of utilization of performative teaching. Lower scores were intended to be indicative of lower frequency of utilization of performative teaching.

An exploratory factor analysis (EFA) was conducted using *SPSS Version 26* to determine the factor structure of the PTI. Principal Component Analysis (PCA) with Varimax rotation was used in order to combine highly correlated variables together.

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3.0 RESULTS AND DISCUSSION

The sample data obtained was subjected for sampling adequacy using Kaiser-Meyer-Olkin Measure of Sampling Adequacy test. The adequacy indicator of the sample KMO=0.868 which is greater than 0.70. This indicated that the sample data were enough for factor analysis through Principal Component Analysis of extracting factor loadings based on the eigenvalue greater than 1 (Alavi et al., 2020). Moreover, the control of sphericity Bartlett's Test of Sphericity, $\chi^2 = 1042.496$, $df = 210$, $p<.001$ proved that the principal component analysis has a sense. The factor analysis extracted 4 factors of performative teaching, as presented below.

Table 2. Distribution of Items of the Performative Teaching Inventory for Teachers (PTI) per Factor Extracted

Factor	Dimensions	Total Items	Item Number
1	Experiential and Assessment-Based Teaching Technique	12	9, 10, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21
2	Demonstration and Technology Enhanced Teaching Technique	4	1, 2, 3, 11
3	Oral Communication Critical Thinking Technique	3	4, 5, 6
4	Self-Directed Learning Technique	2	7, 8

The Performative Teaching Inventory for Teachers (PTI) organizes teaching methodologies into four distinct dimensions, each designed to address specific facets of effective teaching. The most comprehensive of these is the Experiential and Assessment-Based Teaching Technique, which is represented by twelve items (numbered 9, 10, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21). This dimension prioritizes interactive, hands-on learning experiences coupled with evaluative processes to reinforce instruction and facilitate the integration of knowledge.

The second factor is termed the Demonstration and Technology Enhanced Teaching Technique. It encompasses four items (1, 2, 3, 11) that incorporate demonstrative methods, bolstered by integrating technology, to enhance the educational process.

The third factor, Oral Communication Critical Thinking Technique, includes three items (4, 5, 6). This dimension is dedicated to nurturing students' oral communication skills coupled with the development of critical thinking abilities, hence preparing students to articulate their thoughts clearly and analyze information effectively. Concluding the factors is the Self-Directed Learning Technique, with two items (7, 8). This aspect of the inventory encourages teaching strategies that support student independence and promote a self-motivated approach to learning.

Table 2. Factor Loadings and Commonalities of the Performative Teaching Inventory for Teachers (PTI)

Item No.	Factor 1 Experiential and Assessment-Based Teaching Technique	Factor 2 Demonstration and Technology Enhanced Teaching Technique	Factor 3 Oral Communication Critical Thinking Technique	Factor 4 Self-directed Learning Technique	Communalities
9	.540				.501
10	.614				.501
12	.668				.484
13	.549				.499
14	.672				.562
15	.511				.510
16	.676				.554
17	.720				.654
18	.683				.610
19	.690				.565
20	.741				.629
21	.649				.604
1		.653			.608
2		.830			.813
3		.721			.688
11		.616			.682
4			.777		.715
5			.782		.721
6			.632		.629
7				.715	.638
8				.710	.599

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Factor 1 comprises twelve essential indicators that assess the extent of teachers' active involvement in fostering an interactive and dynamic learning environment. The main objective of these indicators is to promote critical thinking, enhance problem-solving abilities, and facilitate active engagement and collaboration among students. The assessment of the efficacy in implementing these strategies can be conducted by evaluating crucial aspects, including student involvement, collaborative competence, problem-solving abilities, and communication aptitude.

The dimension of performative teaching, identified as the Experiential and Assessment-Based Teaching Technique, draws its foundation from Kolb's Experiential Learning Theory (1981). This theory asserts that the acquisition of knowledge primarily occurs through the transformation of experience. The notion is put forth that novel experiences are essential catalysts in the cultivation of new ideas and knowledge. Within the context of this pedagogical framework, some argue the most effective way to achieve meaningful learning is by immersing students in experiences that not only prompt reflection but also enable the assimilation and application of newly acquired knowledge (Serdà & Alsina, 2018). This approach highlights the importance of experiential learning, emphasizing that a deeper understanding is achieved when students actively participate in learning processes that combine theoretical and practical elements.

The second factor, termed Demonstration and Technology Enhanced Teaching Technique, encapsulates a diverse array of instructional strategies that enrich the teaching process through dynamic delivery methods and integrating educational tools. This encompasses the traditional lecture approach, which is sometimes augmented by soliciting succinct contributions from students or by employing visual aids, such as blackboards or projectors. These aids emphasize essential terms or to present an organized framework of the lecture material. Further, this factor places a strong emphasis on interactive demonstrations that utilize two-dimensional visuals, including sketches on a blackboard or digital imagery displayed via projectors and computers, to make abstract concepts more accessible and comprehensible to students. Using visual aids is a strategic choice aimed at enhancing learners' understanding through vivid representation (Beltran et al., 2018).

The strategy extends to include three-dimensional tools, such as manipulatives, models, or other tangible resources, providing students with hands-on experiences. These concrete tools are effective in helping students understand intricate or abstract ideas, enriching the educational experience. The factor acknowledges the essential role that both depth in content and breadth in teaching methodologies play in addressing the varied learning styles and needs of students. This multifaceted approach underscores the value of adaptive teaching models that leverage both traditional and innovative (Kochetkov, 2022) educational aids to foster a more engaging and effective learning environment.

The third extracted factor from the performative teaching inventory is defined as the Oral Communication Critical Thinking Technique. This pedagogical approach emphasizes the development of students' critical thinking and oral communication skills through various interactive classroom activities. It incorporates exercises such as drills and question-and-answer sessions that stimulate analytical thought and articulate expression (Archer, 2020). Additionally, this technique involves the careful observation and facilitation of student-led discussions or demonstrations, which encourage active engagement and peer-to-peer learning. It provides for personalized attention through individual or small group tutoring, particularly during activities that require concentrated work or during collaborative group tasks. This technique ensures that every student in the class is actively involved and supported, fostering an environment where critical thinking is practiced not only in theory but also through practical, communicative interaction.

The fourth factor, identified as the Self-Directed Learning Technique, is a key component of performative teaching. It highlights the adeptness of teachers in delivering enriching instruction to select groups of students who may require focused attention outside the traditional classroom setting (often referred to as pull-out groups), while simultaneously ensuring that the rest of the class is effectively engaged in independent assignments. This technique also encompasses the teacher's proficiency in managing administrative responsibilities while students are independently working on their assignments. A critical element of this technique is the implementation of asynchronous class sessions. These sessions showcase the teacher's instructional acumen, particularly in crafting performance tasks that students can undertake at their own pace. These tasks are designed to encourage self-directed learning, allowing students to develop autonomy in their educational journey, while the teacher skillfully orchestrates the learning environment to accommodate diverse needs and learning styles.

These four factors explained around 60.80% of the total variance of the teacher's frequency of using performative teaching styles, which implies already a good measure. It can be noted further that each indicator of these factors showed a strong to very strong correlations of measuring the same construct as factor loadings were .511 to .830. This implies that these loadings were fair to excellent (Peterson, 2000). From the values of the common communality, each indicator ascertained that the majority of them have a value higher than 0.50 which represents a satisfactory quality of the measurements of the extracted factors.

Table 3. Reliability Coefficients of the Performative Teaching Inventory for Teachers (PTI) per Dimensions

Dimensions	Cronbach's Alpha
Experiential and Assessment-Based Teaching Technique	.911
Demonstration and Technology Enhanced Teaching Technique	.816
Oral Communication Critical Thinking Technique	.765
Self-directed Learning Technique	.742

The reliability coefficients obtained for the Performative Teaching Inventory for Teachers (PTI) serve as evidence of the internal consistency within each identified dimension of teaching techniques. The dimension labeled as Experiential and Assessment-Based Teaching Technique exhibits exceptionally high internal consistency, indicating that the items within this category are highly interrelated and consistently measure the same underlying construct.

In the dimension of Demonstration and Technology Enhanced Teaching Technique, the reliability coefficients reveal a good level of internal consistency. This suggests that the items within this group reliably assess a cohesive set of teaching strategies that incorporate demonstrations and technology.

For the dimensions of Oral Communication Critical Thinking Technique and Self-Directed Learning Technique, the reliability coefficients are indicative of acceptable internal consistency. Although these coefficients are lower than those of the first two dimensions, they still reflect a satisfactory degree of inter-item correlation, confirming that the items within each of these dimensions are suitably aligned and measure their respective constructs effectively. In summary, across all dimensions, the reliability coefficients underscore the robustness of the PTI in evaluating distinct yet interrelated facets of performative teaching strategies, with varying degrees of consistency reflective of their individual constructs.

Table 4. Intercorrelation Coefficients of the Performative Teaching Inventory for Teachers (PTI) Dimensions

Dimensions	1	2	3
1. Experiential and Assessment-Based Teaching Technique			
2. Demonstration and Technology Enhanced Teaching Technique	.598**		
3. Oral Communication Critical Thinking Technique	.549**	.532**	
4. Self-directed Learning Technique	.473**	.366**	.328**

** Correlation is significant at the 0.01 level

The factors delineated within the Performative Teaching Inventory for Teachers (PTI) are substantiated by the values derived from the calculated intercorrelation coefficients amongst these factors. These statistical intercorrelations indicate that the factors, which serve as indicators of performative teaching strategies are interconnected. While the statistical significance of these correlations confirms their interrelated nature, the moderate magnitude of these coefficients suggests each factor represents a distinct aspect of performative teaching.

It is noteworthy that the observed correlation coefficients are positive. This implies a tendency for teachers to employ various performative teaching strategies with a relatively consistent frequency across the different dimensions identified in the PTI. Such a trend reflects an integrated approach within the teaching process, wherein educators are likely to incorporate a blend of the identified strategies rather than relying on a single method. This integrated approach aligns with the multifaceted demands of contemporary education, requiring teachers to possess adeptness across various domains of performative teaching for effective engagement and education of their students.

4.0   CONCLUSION
The efficacy of teaching pedagogy and methodology is critical in achieving the transmission of educational goals to learners. Empirical literature and various studies have substantiated the effectiveness of performative teaching as a pedagogical approach. The research results indicate that the Performative Teaching Inventory for Teachers (PTI) serves as a legitimate tool for gauging the frequency with which teachers employ performative teaching strategies. The PTI has established a robust four-factor dimensional structure, demonstrating factor loadings that range from fair to excellent and exhibiting internal consistency levels from acceptable to very high. Despite these promising results, there remains a need for additional research. Future studies should aim to further examine the reliability and validity of the PTI and its individual subscales across broader and more varied teacher populations. Such research is essential to ascertain the generalizability of the current findings and to ensure that the PTI can be effectively applied in diverse educational contexts.

5.0 RECOMMENDATIONS
Based on the findings and conclusion of this study, the following were recommended:

1. Future researchers may use this instrument as assessment tool on measuring teachers' performative teaching strategies utilization.
2. The instrument needs to be validated in a longitudinal study to verify its subscales and dimensions in a large population.
3. A confirmatory factor analysis (CFA) may be conducted to verify the proposed structure of the factors extracted in PTI.

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