Utilization of Weekly Lesson Plan Monitoring Tool for Enhancing Competencies of Science Teachers in Instructional Planning

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ABSTRACT

The Diploma Education (DepEd) teacher performance measures must meet specific critical objectives. DepEd Order 42 (2017), requires seven domains and thirty-seven strands for teachers' development. The criteria helps teachers learn. A teacher career's advancement depends on performance. The Philippine Professional Standards for Teachers (PPST) aims to deliver quality basic education. Teachers planning domain-performance indicators teaching abilities include structuring progressive learning to meet course goals. Some teachers avoid the professional way of developing lesson ideas. This causes a "bandwagon effect" of teachers ignoring lesson planning and assigning repetitive tasks. The study worked on an indicator-based lesson plan evaluation method for science teachers. A weekly lesson plan (LP) monitoring tool was scheduled (WLPMT). The WLPMT evaluated the learning plans. The study applied quantitative research techniques. Excel's statistical analysis tool analyzed the data. The researchers employed a contextualized developmental monitoring and assessment instrument for lesson plans, which included teacher lesson plan rate indicators. The goal of this study is to enhance science teachers instructional planning. The evaluated null hypothesis was not substantially different, the two-tailed t-test t value (0.67) was lower than the critical value (2.26) in the 1st (78.1, 9.30) and 2nd (81, 20.41) quarters. Their SD was higher than the 1st quarter, despite their higher mean score differential for the 2nd quarter. However, the results showed that the teacher's instructional planning skills were still improving. The computed t-test for the 1st (78.1, 9.30) and 3rd (89.5, 9.10) quarters show a significant mean difference because the t value (4.45) exceeds the critical value (2.26). In the third quarter, teachers utilized lesson planning indicators to improve instructional planning. In the fourth quarter (86.4, 12.22), mean scores exceeded baseline. The 4th quarter has a bigger standard deviation than the 1st quarter, yet the t test statistics exceeds the critical point, indicating a large mean score difference. The study concluded that teachers who produce quality instructional plans may benefit from lesson plan scores.

Keywords: lesson plan, weekly lesson plan monitoring tool, PPST, instructional planning, enhanced competencies

INTRODUCTION

Teachers must have access to pedagogical materials. These documents provide a framework for instruction (Njiku, 2016) and describe students' unique educational paths in a unified fashion. According to Heiskanen (2019), planning for a child's education and assistance should focus on that child as a person. A lesson plan is a teacher's road map for planning a child's education. Prior to adopting it in the classroom, teachers conduct this exercise to ensure that it meets the needs of their students (Raval, 2013). A lesson plan is useful in the classroom when it is executed and followed sequentially. For example, it is the driving force behind

both student success and instructor satisfaction (Nesari and Heidari, 2014). Therefore, the preparation mirrors the teacher's actual practices in the classroom. An analytical unit breaks down the lesson into smaller, more manageable chunks (Santagata et al., 2007). Santagata et al. (2007) note that a well-designed lesson plan includes all of the necessary components for effective teaching, including learning objectives, activities designed to foster student understanding, methods for keeping tabs on students' mental processes and gauging their progress, as well as curriculum and pedagogical considerations. Most educators consider these factors as they go about everyday class planning and delivery. As part of lesson planning, teachers make choices on how to best prepare lessons (Taylan, 2016).

Studies by (Aguirre and Zavala, 2013) introduced an innovative lesson analysis tool that focuses on culturally responsive mathematics teaching (CRMT) in response to a need for pedagogical tools. This tool help teachers develop essential pedagogical content knowledge and practices that meet the mathematical education needs of a growing culturally and linguistically diverse student population in the United States. This resource integrates mathematical reasoning, language, culture, and social justice. Mathematics educators were able to systematically evaluate their lessons on various levels (mathematical thinking, language, culture, and social justice) using the tool.

To gather systematic quantitative data about classroom functioning beyond the obvious; primarily through attitude surveys, Ferrell (1992) from the University of Texas Medical Branch created a Lesson Plan Evaluation Form (LPEF). The author proposed that program decision-makers could use the LPEF to gather information not available through typical evaluation procedures and to document data more comprehensively than through attitude evaluations. Reports also indicated that the tool was unable to determine the program's proper execution.

Jacobs et al. (2008) created and tested the Science Lesson Plan Analysis Instrument (SLPAI) in another research study. As a quantitative evaluation tool for teachers' multi-day lesson plans, it greatly helps in determining the efficacy of professional development programs. It is also used to confirm the program's success and track the teachers' progress over time.

In addition, pre-service teachers' capacity to create effective lessons based on the 5E learning cycle was the focus of a study by Goldston et al. (2010), which aimed to detail the methods used and the analysis of a corresponding instrument. The authors created and verified the 12-item 5E inquiry lesson plan (ILP) rubric, where each item is worth 0–4 points.

In this regard, lesson plan analysis tools of Ndihokubwayo, K., et. al (2020) exist in different research studies, but their appropriateness for assessing competency-based learning differs in every department or institution. Therefore, a new analysis method appropriate for evaluating a daily lesson plan practice like that utilized in Rwanda or other nations practicing the competence-based curriculum needs to be created. This led to the creation of lesson plan monitoring tool. The tool was contextualized on the needs of Rwandan teachers in East Africa. The goal was to develop a dependable and authentic tool that will assist in comprehending the lessons learned in classrooms.

DepEd has issued standards, and these serve as performance indicators that support teachers' attainment of the prescribed set of key result areas. Based on DepEd Order 42 (2017), the Philippine Professional Standards for Teachers (PPST), there are seven domains and thirty-seven strands that teachers need to enhance in their teaching practices. These are the set standards that will lead and guide the teachers to perform as proficient and highly proficient teachers. The set standards that capture their performance will also lead them to pursue career development. The PPST's primary goal is to realize the system's major final output, which is to provide basic quality education as stated in D.O. 42 (2017).

Curriculum planning is one of the PPST's domains. In this domain, the set performance indicators require

the teachers to effectively plan the instructional tasks for their learners. The ability to plan appropriately and develop learning opportunities in their teaching-learning process that facilitate the achievement of the set lesson objectives is an essential teaching skill. Regrettably, some teachers rely on pre-made lesson plans, and some succumb to the temptation of downloading these tools from unscrupulous websites at their own expense. This creates a "bandwagon effect" among teachers to neglect their duty in lesson planning and rely on easy-to-do tasks that promote mediocrity, Contreras, S.J. (2023).

Hence, the researchers proposed a tool with indicators intended to monitor and evaluate the lesson plans (LP) of the teachers in science. The said tool will be used to check the LP's on a weekly basis. The set indicators in the tool will be used as a reference for evaluation of the components of teachers' lesson plans.

The purpose of a lesson plan monitoring tool is to assess and evaluate the effectiveness of lesson plans in achieving educational goals, Ndihokubwayo, K., et.al (2022). Teachers use this to track and evaluate the implementation of a lesson plan in a classroom or other educational setting. It can help with ongoing professional development by providing teachers with insights into the success of their class plans and outlining areas for improvement.

The researchers crafted the suggested intervention. It is a monitoring and evaluation tool for lesson plans with indicators that will be used as references in rating the lesson plan's components. Teachers can upload their lesson plans to a shared repository using the weekly lesson plan monitoring tool. The implementation will take advantage of a shared drive. Additionally, there are evaluation criteria based on academic standards, curriculum goals, and effective teaching techniques. The evaluators will compute the gathered data from weekly lesson plan monitoring tool during the LP rating process. An assessment rubric also lists the various components of a lesson plan for evaluation. Administrators or instructional coaches can use this rubric to provide consistent and helpful feedback.

WLPMT makes sure that evaluators give teachers pertinent feedback on their lesson plans in a timely manner. It encourages educators to reflect on criticism and revise their lesson plans during the conference. The researchers carefully examined the aggregated data from the review process to identify trends, patterns, and areas where the institution can improve. This analysis has the potential to improve general teaching and learning strategies, as well as professional development programs. We can use the gathered information to identify teacher assistance needs and professional development requirements. Examples of this include lesson planning improvement workshops, training sessions, and mentoring programs. Frequent monitoring systems ensure regular review and assessment of lesson plans. Every week, this was done. The science department head produced a summary every three months. Teachers, evaluators, and administrators may communicate and work together more easily. Frequent meetings, online forums, or the sharing of best practices to foster a welcoming and cooperative learning atmosphere was also utilized.

Specifically, the aim of this study was to ascertain the effectiveness of the designed M&E tool for LP in enhancing teachers' competencies in lesson planning.

Study Questions

This research sought to answer the following questions:

(a) What is the teachers' mean score in lesson planning using the monitoring and evaluation tool in the first quarter?

(b) Is there a significant difference between the mean scores of the first quarter and the subsequent quarters?

(c) Is there significant difference in the use of M&E tool for LP in science teacher's competencies in

science instructional planning?

METHODOLOGY

This study employed a longitudinal quantitative research design. This is the structure of this study, which focuses on gathering and interpreting numerical data every quarter to answer research questions or test hypotheses (Bloomfield & Fisher, 2019). It entails the systematic application of statistical approaches to collect and analyze quantitative data. Research questions, or hypotheses, were tested using numerical data. Factors were measured objectively. The researchers frequently operationalize these variables, which might be categorical (like gender) or continuous (like age, income), using specialized measures or scales. Ten science teachers (10) participated in the study to ensure the generalizability of the findings. This includes one (1) head teacher, three (3) science master teachers, and seven (7) regular science teachers. Below is the conceptual framework of WLPMT.

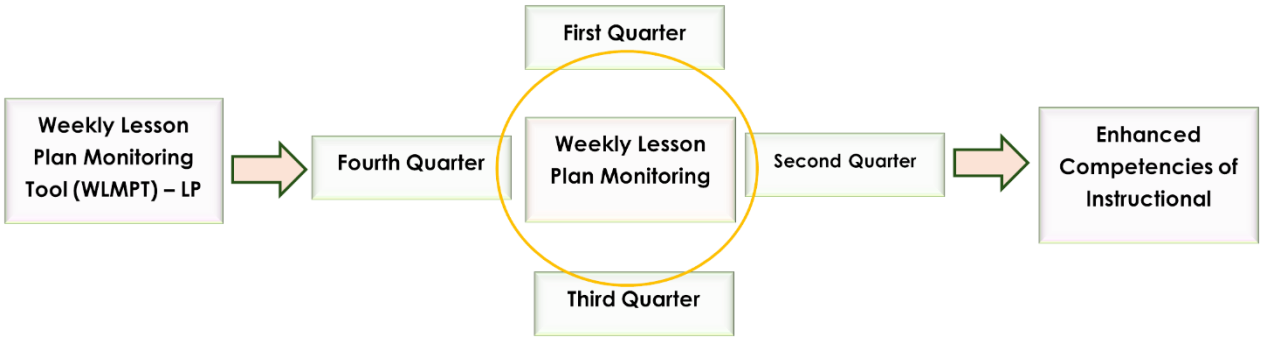

Figure 1. WLPMT Conceptual Framework

The researchers used a validated researcher-made weekly lesson plan monitoring tool at Antonio A. Maceda Integrated School, Philippines, as shown in the figure above. This tool has lesson plan indicators that will gauge science teachers lesson planning skills. LP Indicators were used as references by teachers in their instructional planning. The orientation of these was conducted by the researchers. The lesson plan indicators are stated below:

1. The objectives are SMART (specific, measurable, attainable, relevant, and time-bound). The behavioral objectives and conditions are clearly stated.
2. The behavioral objectives comprise the cognitive, affective, and psychomotor domains or the (KUD) know, understand, and do components.
3. The listed instructional materials, visual aids, and references are appropriate for the planned assessment, engagement, and enrichment activities.
4. The introductory part comprising motivation, presentation, and/or inquiry statements is set as a springboard towards the development of the various teaching episodes.
5. Instruction and procedure are clear and sequenced logically (inductive/deductive) which keeps the pupils on tasks geared towards performing and obtaining the targeted objectives.
6. The pupils' activities generate quality learning opportunities that are set for mastery and enrichment of skills/concepts.
7. The concept/generalization is processed underscoring the different levels of Bloom's cognitive skills where key point/s of the lesson is/are clearly articulated.
8. The assessments are evident in the lesson before, during, and after within the teaching and learning process.
9. The lesson plan is presentable and conformed to the standard parts.
10. The lesson is updated and aligned with the current curriculum.

In each lesson plan indicator, science teachers were given ratings based on their lesson planning style. On the rating scale, scores are presented with descriptions. Nine to ten signifies very highly evident; seven to eight (7-8) indicates highly evident; five to six (5-6) implies evident; three-four (3-4) score signifies slightly evident; and one to two (1-2) means needs improvement. This was then interpreted further through the overall score per indicator. The verbal interpretations are as follows: outstanding (94–100), very good (87-93), good (80–86), fair (75-79), and needs improvement (74 below). The science department head teacher gathered these scores weekly. WLPMT was utilized for monitoring and evaluation, the results of which were used in technical assistance provision. Quarterly ratings of the evaluated lesson plans were also generated, and mean scores were calculated. M&E activities were conducted weekly from the 1st quarter to the 4th quarter. The mean scores in the first quarter served as the baseline data. Therefore, the mean scores from the 2nd, 3rd, and 4th quarters were utilized for a comparative analysis with the baseline data. To ascertain the significant difference between the two sets of mean scores, a paired t-test approach using two-tailed parameters is used. It is two-tailed because the researchers are not sure if the teachers' scores in the checked LP increased or decreased. The study determined the third question based on the consistent increase in mean scores in the two sets (1st and 2nd; 1st and 3rd; 1st and 4th) and the t-test results compared to the critical value. A statistical analysis tool using Excel was also employed to analyze the collected data. Enhanced competencies in instructional planning were the expected outcome among teachers, where teachers were performing their tasks based on the set standards and indicators and optimal outputs.

RESULT AND DISCUSSION

Total Scores of the Indicators in the Lesson Plan	n	Mean	SD	t-value	Two-tailed (df-9, a=0.05	
					Critical value	P-value
1st Quarter Scores (baseline)	10	78.1	9.30	0.67	2.26	0.00
2nd Quarter Scores	10	81	20.41			

Table 1. Scores of the Indicators in the Lesson Plan (1st and 2nd Quarter Scores)

According to the presented table below comparing the mean scores of the 1st Quarter and 2nd Quarter, the mean score of the 2nd Quarter is greater than the mean score of the 1st Quarter, which serves as the baseline data; however, the standard deviation of the 2nd Quarter is significantly higher than the 1st Quarter. Using the t-test (two-tailed) in determining the significant difference between the two means, the t-test computed is lower than the t-critical value, which yields accepting the null hypothesis that there is no significant difference between the two-given means. This is because the SD of the 2nd quarter is higher than that of the 1st quarter, despite their differences in means scores that favored the 2nd quarter. This implies that the teachers' instructional planning skills are not yet improving but appear to be progressing. This result is congruent to the study of Sitali, A. (2022) about the monitoring of lesson planning by school administrators in government secondary schools of Mansa district, Luapula province, Zambia in Africa. The result was unsatisfying.

The table below shows that there is a significant difference between the mean scores of the 1st and 3rd quarters. The standard deviations almost all fall within the same range. The computed t-test of the two data indicates a significant difference between the given means because it is significantly greater than the critical value. This implies that the teachers' instructional planning skills are improving in the third quarter, and they are apparently adopting the standards in the lesson planning indicators. The outcome aligns with the research conducted by Ndihokubwayo, K., et.al (2022) on the Lesson Plan Analysis Protocol (LPAP). An invaluable instrument for academics and educational evaluators. Similar to WLPMT, LPAP has been determined to be a legitimate and dependable instrument that educational assessors can utilize to enhance

efficient instruction across all educational levels.

Total Scores of the Indicators in the Lesson Plan	n	Mean	SD	t	Two-tailed (df-9, a=0.05)	
					Critical value	P-value
1st Quarter Scores (baseline)	10	78.1	9.30	4.45	2.26	0.00
3rd Quarter Scores	10	89.5	9.10			

Table 2. Scores of the Indicators in the Lesson Plan (1st and 3rd Quarter Scores)

The table below shows that the mean scores for the 4th quarter are greater than the given baseline data. The standard deviation of the 4th quarter is quite higher than the 1st quarter, but the computed t-test statistic is greater than the critical value, implying that there is a significant difference between the two mean scores. This suggests that science teachers are adopting the indicators in the lesson plan monitoring tool. The lesson plan scores appear to be effective references and bases in terms of feedback and coaching for teachers to improve their instructional planning competencies. The result matches the study of Ndihokubwayo, K., et.al (2022) about Lesson plan analysis protocol (LPAP): A useful tool for researchers and educational evaluators. Similar to WLPMT, LPAP has been found to be an accurate and reliable instrument that educational examiners may use to improve effective instruction across all levels of education.

Total Scores of the Indicators in the Lesson Plan	n	Mean	SD	t	Two-tailed (df-9, a=0.05)	
					Critical value	P-value
1st Quarter Scores (baseline)	10	78.1	9.30	2.55	2.26	0.00
4th Quarter Scores	10	86.4	12.22			

Table 3. Scores of the Indicators in the Lesson Plan (1st and 4th Quarter Scores)

CONCLUSION AND RECOMMENDATIONS

The objective of this research was to determine the applicability of the developed monitoring and evaluation tool for lesson planning in improving instructors' abilities in creating lesson plans. The average score of the teachers in the first quarter is 78.1, in the second quarter is 81, in the third quarter is 89.5, and in the fourth quarter is 86.4. The statistical analysis of the data reveals a substantial disparity between the mean scores of the first and third quarters, as well as the first and fourth quarters. This conclusion is supported by the t-value, which exceeds the critical value. Regarding the first and second quarters, the calculated t-test is smaller than the t-critical value, leading to the acceptance of the null assumption that there is little variation between the means of the two quarters. The reason for this is due to the standard deviation of the second quarter is greater than that of the first quarter, even though their mean scores, which were in favor of the second quarter, differed. This suggests that the teachers' ability to design instruction is not yet showing signs of improvement, but it seems to be advancing. The comparison of the means between the first and fourth quarters suggests that the Monitoring and Evaluation (M&E) tool for Lesson preparing (LP) has improved the science teachers' skills in preparing science instruction.

Based on the study, the researchers suggest using the tool to school leaders in education for reviewing lesson plans and improving teaching skills, specifically in the area of curriculum preparation. This intervention aims to address the issue of substandard teaching practice by targeting teachers' neglect in improving their functional competencies for successful teaching and learning. It is advisable to conduct the study again with other researchers who are passionate about research to confirm the validity of the findings. Revise and improve the indicators to investigate their efficacy in meeting the developmental requirements of

teachers in planning instruction. The tool must also go through a periodic process of examination to assess its efficiency. Additional validation of the instrument may also be performed. The study's conclusions can serve as a benchmark for other departments.

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