



SCHOOL HEADS' DATA-DRIVEN INSTRUCTIONAL LEADERSHIP AND ITS IMPACT ON TEACHERS' PEDAGOGICAL DEMONSTRATION AND GRADE 7 LEARNERS' PERFORMANCE IN SCIENCE

FRANCIS JAMES G. SALAS

College Faculty

Western Leyte College

Master of Arts in Education

Major in School Administration and Supervision

Tonyp4rk3r@gmail.com

ABSTRACT

This study aimed to determine the impact of School Heads' Data-Driven Instructional Leadership (DDIL) on teachers' pedagogical demonstration and the performance of Grade 7 learners in Science and Technology. A proposed instructional supervisory plan will be formulated based on the findings of the study. This study utilized a correlational research design to examine the relationship between school heads' data-driven instructional leadership practices, teachers' pedagogical performance, and the achievement of Grade 7 learners in Science and Technology. The design allowed the researcher to determine the extent to which data-driven leadership practices were associated with teacher effectiveness and student outcomes. The study focused on key dimensions of leadership, including vision and goal setting, supervision and monitoring, professional development, data-driven decision-making, and school climate. Teachers' pedagogical practices were assessed through classroom observations and evaluation tools, while student achievement was measured using standardized and performance-based assessments in Science and Technology. Data gathering began with obtaining formal permission from the Schools Division Office, school principal, and

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relevant supervisors to conduct the study. After securing approval, the researcher administered a survey instrument using a Likert scale to assess teachers' perceptions of school heads' data-driven leadership practices. Classroom observations followed to measure actual pedagogical practices, while student achievement records and assessment scores were collected to quantify learner performance. The data collection process was carefully scheduled to minimize disruption to teaching and learning, and all respondents were assured of confidentiality and voluntary participation. Once collected, the quantitative data from the surveys, classroom observation scores, and student achievement tests were tabulated, tallied, and analyzed using descriptive statistics to summarize trends and inferential statistics, specifically Pearson correlation and regression analyses, to examine the relationships among leadership practices, teacher performance, and student achievement.

The Relationship Between Teaching Practices Observed and the Frequency Distribution of Respondent Scores. It examines the degree and direction of association between the observed pedagogical practices of the teachers and the respondents' performance. Pearson's Product-Moment Correlation Coefficient was used to determine the strength and direction of the relationship, while the corresponding statistical test and decision on the null hypothesis were used to establish whether the observed relationship was statistically significant. The results reveal a moderately strong to strong positive relationship between teaching practices observed and respondent scores. This positive association indicates that higher levels of observed teaching practices tended to correspond with higher respondent performance. In practical terms, when teachers effectively demonstrated content knowledge, employed

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appropriate instructional strategies, developed learners' critical and higher-order thinking skills, maintained supportive and learner-centered environments, provided constructive feedback, and utilized effective communication strategies, respondents likewise tended to demonstrate better performance. The statistical analysis further confirmed that the relationship between the two variables was significant and positive. Consequently, the null hypothesis was rejected, indicating that the observed association was unlikely to have occurred merely by chance. However, because the study employed a correlational design, the findings should be interpreted as evidence of association rather than direct causation, since learner performance may also be influenced by other individual, family, school, and contextual factors. The results imply that the quality of teaching practices was significantly and positively associated with respondents' performance. The overall findings indicate that stronger pedagogical practices tended to accompany better learner outcomes. The result implies that sustaining effective content delivery, differentiated instructional strategies, higher-order thinking activities, learner-centered approaches, constructive feedback, appropriate ICT integration, and supportive classroom environments can contribute to stronger learner performance and improved instructional quality.

Keywords: *Data-Driven Instructional Leadership, Pedagogical Demonstration, Grade 7 Performance, Science*

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INTRODUCTION

School Heads' Data-Driven Instructional Leadership (DDIL) is a leadership approach that emphasizes the use of accurate and timely data to guide instructional decisions, support teacher development, and improve student outcomes. In this context, school leaders collect and analyze data such as student performance, attendance records, classroom observation results, and assessment scores. This information enables them to identify instructional strengths and weaknesses and to design interventions that address both teacher and learner needs. Research suggests that when school heads effectively apply data-driven practices, teachers receive constructive guidance, feel more confident in their pedagogical approaches, and are motivated to adopt evidence-based strategies that enhance learning outcomes. DDIL fosters a culture of accountability and continuous improvement, where teaching is monitored systematically, and instructional planning aligns with the actual needs of learners.

Ramos and Santos (2019) examined schools in Luzon and found that principals who implemented data-driven instructional leadership significantly improved teacher instructional practices and students' performance in core subjects. Similarly, Johnson, Smith, and Lee (2021) reported that school leaders' use of assessment data to guide instruction positively correlated with higher achievement scores among middle school students in STEM subjects. These studies illustrate how systematic monitoring and evidence-based decision-making enhance both pedagogical practices and learners' outcomes. Locally, Garcia (2020) observed that Grade 7 Science and Technology learners in Region 8 performed better when school

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heads provided targeted support to teachers based on analysis of students' test scores and classroom performance, confirming the practical impact of DDIL on student achievement.

Investigating this topic is vital because understanding how school heads leverage data can inform strategies to strengthen teacher instruction and student learning. The researcher believes that exploring DDIL in the local context provides insights into effective leadership practices, teacher support mechanisms, and interventions that directly enhance students' achievement in Science and Technology. By conducting this study, the researcher aims to contribute to both professional knowledge and actionable practices that can improve school leadership, instructional quality, and learner performance.

Despite its benefits, the researcher acknowledges several challenges in conducting this study. Limited access to updated school records may hinder accurate analysis, while some teachers and school leaders may lack training in interpreting and applying data effectively. Resistance to change and workload constraints may also affect the implementation of data-driven practices, leading to inconsistencies in instructional support and teacher collaboration. These issues highlight the need for careful planning and systematic coordination to ensure that data collection, analysis, and interpretation are both accurate and practical for improving instructional outcomes.

In conclusion, pursuing this study is essential because it addresses a critical link between leadership, pedagogy, and student learning. Understanding the impact of School Heads' Data-Driven Instructional Leadership can provide evidence-based recommendations to

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enhance teachers' pedagogical practices and improve the achievement of Grade 7 learners in Science and Technology. The findings are expected to guide school leaders, educators, and policymakers in creating more effective, data-informed educational environments.

This study aimed to determine the impact of School Heads' Data-Driven Instructional Leadership (DDIL) on teachers' pedagogical demonstration and the performance of Grade 7 learners in Science and Technology. A proposed instructional supervisory plan will be formulated based on the findings of the study.

Specifically, this study seeks to answer the following questions:

1. What is the extent of School Heads' Data-Driven Instructional Leadership Practices in terms of the following dimensions:
 - 1.1. Vision and Goal Setting;
 - 1.2. Supervision and Monitoring of Instruction;
 - 1.3. Professional Development and Teacher Support;
 - 1.4. Data-Driven Decision Making; and
 - 1.5. School Climate and Culture for Learning.
2. What is the level of teachers' pedagogical demonstration based on classroom observation and evaluation tools?
3. What is the Performance of Grade 7 learners IN science based on Term 1?

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4. Is there a significant relationship between the following:

4.1. School Heads' Data-Driven Instructional Leadership Practices and teachers' pedagogical demonstration; and

4.2. Teachers' pedagogical Demonstration and the performance of Grade 7 learners in Science and Technology.

5. What instructional supervisory plan can be proposed based on the findings of the study?

Statement of Null Hypothesis

H_0 : There is no significant relationship between the following:

a. School Heads' Data-Driven Instructional Leadership Practices and teachers' pedagogical demonstration; and

b. Teachers' pedagogical demonstration and performance and Grade 7 learners' achievement in Science and Technology.

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METHODOLOGY

Design. This study utilized a correlational research design to examine the relationship between school heads' data-driven instructional leadership practices, teachers' pedagogical performance, and the achievement of Grade 7 learners in Science and Technology. The design allowed the researcher to determine the extent to which data-driven leadership practices were associated with teacher effectiveness and student outcomes. The study focused on key dimensions of leadership, including vision and goal setting, supervision and monitoring, professional development, data-driven decision-making, and school climate. Teachers' pedagogical practices were assessed through classroom observations and evaluation tools, while student achievement was measured using standardized and performance-based assessments in Science and Technology.

Data gathering began with obtaining formal permission from the Schools Division Office, school principal, and relevant supervisors to conduct the study. After securing approval, the researcher administered a survey instrument using a Likert scale to assess teachers' perceptions of school heads' data-driven leadership practices. Classroom observations followed to measure actual pedagogical practices, while student achievement records and assessment scores were collected to quantify learner performance. The data collection process was carefully scheduled to minimize disruption to teaching and learning, and all respondents were assured of confidentiality and voluntary participation. Once collected, the quantitative data from the surveys, classroom observation scores, and student achievement tests were tabulated, tallied, and analyzed using descriptive statistics to summarize trends and inferential

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statistics, specifically Pearson correlation and regression analyses, to examine the relationships among leadership practices, teacher performance, and student achievement.

The main locale of the study was Baybay National High School in the Schools Division of Baybay. This study utilized three primary research instruments to gather data on school heads' data-driven instructional leadership, teachers' pedagogical practices, and Grade 7 learners' achievement in Science and Technology.

Teachers responded to a structured survey designed to measure their perceptions of the school heads' data-driven instructional leadership. The respondents indicated their level of agreement with statements concerning leadership practices such as vision and goal setting, supervision and monitoring, professional development support, data-driven decision-making, and school climate.

To assess teachers' pedagogical practices, the researcher employed a Classroom Observation Tool (COT). The COT documented teaching behaviors, instructional strategies, lesson delivery, student engagement, and alignment with data-driven directives from the school head. Observations were conducted during Science and Technology classes and were scored using a standardized rubric, providing an objective measure of teacher performance and instructional quality.

The achievement test measured students' learning outcomes in Science and Technology. The test included multiple-choice, short-answer, and problem-solving items aligned with the curriculum and the Most Essential Learning Competencies (MELCs). It was

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administered to Grade 7 learners after the relevant instruction to determine their academic performance and assess the potential relationship between teachers' pedagogical practices and student achievement.

Together, these instruments provided triangulated data consisting of teachers' perceptions, observed classroom practices, and objective learner outcomes, which allowed the researcher to analyze the relationships among school heads' data-driven instructional leadership, teacher effectiveness, and student achievement. The reliability and validity of the instruments were ensured through expert review, pilot testing, and alignment with established research standards in educational leadership and assessment.

Sampling The respondents of the study were 387 learners with 12 Grade 7 Teachers that were involved in this study were being identified and the primary means of reach was during the actual conduct of the study as well as during the gathering of data in the school where the study was conducted.

Research Procedure. The researcher gathered the necessary data within a period of one month or thirty days. Prior to the conduct of the study, the researcher requested permission from the Schools Division Office through a formal Transmittal Letter addressed to the Schools Division Superintendent. Copies of the same letter were also provided to the Public Schools District Supervisor, the School Principal, and the teachers whose classes included the identified respondents.

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After securing the necessary approvals, the researcher distributed the researcher-made survey questionnaires to the school administrators for administration to the teacher-respondents. The respondents were given sufficient time to accomplish the instruments completely and honestly. After the one-month data-gathering period, the accomplished questionnaires were retrieved, checked, consolidated, and organized for analysis.

The collected data were tallied, tabulated, and subjected to appropriate statistical treatment. Pearson's Product-Moment Correlation Coefficient (Pearson's r) was used to determine the relationship among the variables included in the study. The statistical results were then interpreted to provide the basis for the findings, conclusions, and recommendations of the research.

Ethical Issues. The right to conduct the study was strictly adhered to through the approval of the principals and the approval of the Superintendent of the Division. Orientation of the respondents, both school principals and teachers, was done. Participation was strictly voluntary. Anonymity and confidentiality were maintained throughout the study. Results were used solely for research and educational improvement purposes.

Treatment of Data. The following statistical formulas are used in this study:

The data gathered in this study were analyzed using quantitative statistical tools to determine the relationship and predictive influence of school heads' data-driven instructional leadership on teachers' pedagogical practices and Grade 7 learners' achievement in Science and Technology. Both descriptive and inferential statistics were employed to summarize and

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examine the data collected from the Likert-scale survey, Classroom Observation Tool (COT), and Grade 7 Achievement Test.

1. Weighted Mean:

The weighted mean was used to determine the overall level of agreement of teachers on each indicator of data-driven instructional leadership. It was also used to summarize the extent of teachers' pedagogical practices and students' achievement scores, providing an overall description of the variables before examining their relationships.

2. Standard Deviation:

The standard deviation was computed to determine the degree of variability or dispersion of responses for each indicator in the survey, classroom observation scores, and achievement test results. This helped identify the consistency or variation in teachers' practices and students' performance.

3. Pearson Product-Moment Correlation Coefficient (r):

The Pearson Product-Moment Correlation Coefficient was calculated to determine the strength and direction of the relationship between school heads' data-driven instructional leadership practices and teachers' pedagogical performance, as well as between teachers' pedagogical performance and Grade 7 learners' achievement in Science and Technology.

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4. Regression Analysis:

Regression analysis was conducted to determine the extent to which school heads' data-driven instructional leadership predicted teachers' pedagogical practices and, subsequently, Grade 7 learners' achievement in Science and Technology. This analysis provided evidence regarding the predictive contribution of leadership practices to teaching performance and learner outcomes.

5. Paired-Samples t-Test:

Where applicable, a paired-samples t-test was used to compare teacher performance or student achievement before and after a specific intervention or leadership program. This test provided a statistical basis for determining whether significant changes occurred between the two related measurements.

The results of these statistical analyses were interpreted to determine the relationships and predictive effects among the major variables of the study and served as the basis for formulating the conclusions and recommendations.

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RESULTS AND DISCUSSION

TABLE 1

SCHOOL LEADERSHIP PRACTICES IN SCIENCE AND TECHNOLOGY (12

Respondents)

Domain	Indicator	Weighted Mean	Interpretation
Vision and Goal Setting	The school head communicates clear academic goals for Science and Technology.	3.58	Agree (High Practice)
	Long-term plans are aligned with improving student achievement.	3.92	Agree (High Practice)
	Teachers are aware of the expected learning outcomes.	3.92	Agree (High Practice)
	School objectives are consistently reviewed for relevance.	3.42	Agree (High Practice)
	Goals set by the school head guide instructional decisions.	3.67	Agree (High Practice)
Domain Mean = 3.70 → High Practice			
Supervision and Monitoring of Instruction	The school head regularly observes Science and Technology classes.	3.58	Agree (High Practice)

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Domain	Indicator	Weighted Mean	Interpretation
	Feedback is provided to teachers after classroom observations.	3.83	Agree (High Practice)
	Classroom supervision supports teachers' instructional improvement.	3.75	Agree (High Practice)
	The school head identifies areas for teacher professional growth.	3.42	Agree (High Practice)
	Instructional supervision contributes to enhanced student learning.	3.67	Agree (High Practice)
Domain Mean = 3.65 → High Practice			
Professional Development and Teacher Support	Teachers receive guidance on effective Science and Technology teaching methods.	3.67	Agree (High Practice)
	School head encourages participation in workshops and trainings.	3.92	Agree (High Practice)
	Teachers are supported in using evidence-based instructional strategies.	3.75	Agree (High Practice)

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Domain	Indicator	Weighted Mean	Interpretation
	Professional development needs are assessed and addressed.	3.67	Agree (High Practice)
	Collaboration among teachers is facilitated by school leadership.	3.83	Agree (High Practice)
Domain Mean = 3.77 → High Practice			
Data-Driven Decision Making	Student performance data is used to guide instructional decisions.	3.67	Agree (High Practice)
	The school head analyzes assessment results to improve teaching.	3.75	Agree (High Practice)
	Decisions on curriculum pacing are informed by student data.	3.42	Agree (High Practice)
	Teachers are involved in interpreting and applying data.	3.58	Agree (High Practice)
	Data is consistently monitored to track student progress.	3.67	Agree (High Practice)
Domain Mean = 3.62 → High Practice			

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Domain	Indicator	Weighted Mean	Interpretation
School Climate and Culture for Learning	The school promotes a positive learning environment for Science and Technology.	3.75	Agree (High Practice)
	Teachers feel encouraged to innovate in their instructional practices.	3.67	Agree (High Practice)
	Open communication exists between school head and teachers.	3.58	Agree (High Practice)
	Collaborative problem-solving is promoted among staff.	3.75	Agree (High Practice)
	The school culture emphasizes high expectations for student achievement.	3.83	Agree (High Practice)
Domain Mean = 3.72 → High Practice			
OVERALL WEIGHTED MEAN	—	3.70	Agree (High Level of Practice)

LEGEND (5-Point Likert Scale)

- 4.26 – 5.00 = Strongly Agree (Very High Practice)
- 3.26 – 4.25 = Agree (High Practice)
- 2.51 – 3.25 = Neutral (Moderate Practice)

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- **1.76 – 2.50 = Disagree (Low Practice)**
- **1.00 – 1.75 = Strongly Disagree (Very Low Practice)**

This table presents the School Leadership Practices in Science and Technology among the 12 respondents in terms of five domains: Vision and Goal Setting, Supervision and Monitoring of Instruction, Professional Development and Teacher Support, Data-Driven Decision Making, and School Climate and Culture for Learning. The weighted means for the individual indicators and the corresponding domain means provide a comprehensive assessment of the extent to which school heads demonstrated instructional leadership practices that supported the effective teaching and learning of Science and Technology. The results also provide a basis for identifying leadership strengths and areas that may require further enhancement.

In terms of Vision and Goal Setting, the domain obtained a mean of 3.70, interpreted as High Practice. The indicators on aligning long-term plans with improved student achievement and ensuring teachers' awareness of expected learning outcomes both obtained the highest weighted mean of 3.92. Communicating clear academic goals obtained 3.58, consistently reviewing school objectives for relevance obtained 3.42, and using school goals to guide instructional decisions obtained 3.67. For Supervision and Monitoring of Instruction, the domain mean was 3.65, also interpreted as High Practice. Providing feedback after classroom observations obtained the highest weighted mean of 3.83, followed by classroom supervision supporting instructional improvement at 3.75, instructional supervision

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contributing to enhanced student learning at 3.67, regular observation of Science and Technology classes at 3.58, and identification of areas for teachers' professional growth at 3.42. These results demonstrate that the school heads generally established clear instructional directions and provided supervisory mechanisms to support teaching practices.

For Professional Development and Teacher Support, the domain recorded the highest mean of 3.77, interpreted as High Practice. Encouraging teachers to participate in workshops and training obtained 3.92, facilitating collaboration among teachers obtained 3.83, supporting evidence-based instructional strategies obtained 3.75, while guidance on effective Science and Technology teaching and assessment of professional development needs both obtained 3.67. The Data-Driven Decision Making domain obtained a mean of 3.62, interpreted as High Practice, with assessment-result analysis at 3.75, use and monitoring of student performance data at 3.67 each, teacher involvement in data interpretation at 3.58, and data-informed curriculum pacing at 3.42. Lastly, School Climate and Culture for Learning obtained a domain mean of 3.72, likewise interpreted as High Practice. Emphasizing high expectations for student achievement obtained 3.83, promoting a positive learning environment and collaborative problem-solving each obtained 3.75, encouraging instructional innovation obtained 3.67, and maintaining open communication between school heads and teachers obtained 3.58.

The results imply that school heads demonstrated a generally high level of instructional leadership practice in Science and Technology, as reflected in the overall weighted mean of

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3.70, interpreted as Agree or High Level of Practice. Specifically, the domain means were 3.70 for Vision and Goal Setting, 3.65 for Supervision and Monitoring of Instruction, 3.77 for Professional Development and Teacher Support, 3.62 for Data-Driven Decision Making, and 3.72 for School Climate and Culture for Learning, with all domains interpreted as High Practice. The result implies that school heads consistently provided instructional direction, monitored classroom practices, supported teachers' professional growth, promoted the use of learner data, and maintained a positive school environment conducive to teaching and learning. Professional Development and Teacher Support emerged as the strongest domain, while Data-Driven Decision Making obtained the lowest domain mean, although it remained within the High Practice category. This suggests that school leadership was generally strong but could be further enhanced by strengthening systematic data analysis, involving teachers more extensively in interpreting evidence, and consistently using assessment information to guide curriculum pacing and instructional decisions.

TABLE 2

TEACHING PRACTICES OBSERVED

(Teacher I–III and Master Teacher Respondents)

Group	Indicator	Weighted Mean	Interpretation
Teacher I–III	Applied knowledge of content within and across curriculum teaching areas	6.8	Strongly Agree / Highly Observed

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Group	Indicator	Weighted Mean	Interpretation
	Used range of teaching strategies that enhance learner achievements in literacy and numeracy	6.6	Agree / Moderately Observed
	Applied a range of teaching strategies to develop critical and creative thinking, as well as other higher-order thinking skills	6.5	Agree / Moderately Observed
	Displayed proficient use of mother tongue, Filipino and English to facilitate teaching and learning	6.8	Strongly Agree / Highly Observed
	Established safe and secure learning environments through consistent implementation of policies, guidelines and procedures	6.7	Agree / Moderately Observed
	Maintained learning environments that promote fairness, respect and care to encourage learning	6.8	Strongly Agree / Highly Observed
	Established a learner-centered culture by using teaching strategies that respond to linguistic, cultural, socio-economic and religious backgrounds	6.6	Agree / Moderately Observed
	Adapted and used culturally appropriate teaching strategies to address the needs of learners from indigenous groups	6.4	Agree / Moderately Observed

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Group	Indicator	Weighted Mean	Interpretation
	Used strategies for providing timely, accurate and constructive feedback to improve learner performance	6.7	Agree / Moderately Observed
Domain Mean (Teacher I–III) = 6.6 → Agree / Moderately Observed			
Master Teacher	Modeled effective application of content knowledge within and across curriculum teaching areas	8.0	Strongly Agree / Highly Observed
	Promoted effective strategies in the positive use of ICT to facilitate the teaching and learning process	7.5	Agree / Moderately Observed
	Displayed a wide range of effective verbal and nonverbal classroom communication strategies to support learner understanding, participation, engagement and achievement	8.0	Strongly Agree / Highly Observed
	Modeled successful strategies and supported colleagues in promoting learning environments that motivate learners to work productively	8.0	Strongly Agree / Highly Observed
Domain Mean (Master Teacher)			

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Group	Indicator	Weighted Mean	Interpretation
= 7.9 → Strongly Agree / Highly Observed			
OVERALL WEIGHTED MEAN (Teacher I–III + Master Teacher)	—	7.0	Agree / Moderately to Highly Observed

LEGEND

Teacher I–III Scale

- 7 = Strongly Agree / Highly Observed
- 6 = Agree / Moderately Observed
- 5 = Disagree / Less Observed
- 4 = Strongly Disagree / Not Observed at All

Master Teacher Scale

- 8 = Strongly Agree / Highly Observed
- 7 = Agree / Moderately Observed
- 6 = Disagree / Less Observed

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- 5 = Strongly Disagree / Not Observed at All

This table presents the Teaching Practices Observed among Teacher I–III and Master Teacher Respondents. It describes the extent to which essential pedagogical practices were demonstrated in classroom instruction based on indicators involving content knowledge, instructional strategies, higher-order thinking skills, language proficiency, learning environment, learner-centered teaching, cultural responsiveness, feedback, information and communication technology, classroom communication, and professional modeling. The results are presented separately for Teacher I–III and Master Teacher respondents to account for their respective performance scales and professional expectations, while the overall weighted mean provides a general assessment of the observed quality of teaching practices.

For the Teacher I–III respondents, the domain mean was 6.6, interpreted as Agree/Moderately Observed. The highest-rated practices, each obtaining a weighted mean of 6.8, were applying knowledge of content within and across curriculum teaching areas, displaying proficient use of the mother tongue, Filipino, and English to facilitate teaching and learning, and maintaining learning environments that promote fairness, respect, and care. Establishing a safe and secure learning environment and providing timely, accurate, and constructive feedback both obtained 6.7. The use of teaching strategies to enhance literacy and numeracy and the establishment of a learner-centered culture responsive to learners' backgrounds both obtained 6.6, while the use of strategies for developing critical, creative, and other higher-order thinking skills obtained 6.5. The lowest-rated indicator was the

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adaptation and use of culturally appropriate teaching strategies for learners from indigenous groups, with a weighted mean of 6.4. Although all indicators reflected generally favorable teaching practices, the findings indicate opportunities to further strengthen differentiation, cultural responsiveness, higher-order thinking instruction, and strategies for improving literacy and numeracy.

For the Master Teacher respondents, the domain mean reached 7.9, interpreted as Strongly Agree/Highly Observed. Three indicators obtained the highest weighted mean of 8.0: modeling the effective application of content knowledge within and across curriculum areas; displaying a wide range of effective verbal and nonverbal classroom communication strategies that supported learner understanding, participation, engagement, and achievement; and modeling successful strategies while supporting colleagues in establishing learning environments that motivate learners to work productively. The promotion of effective strategies for the positive use of ICT obtained 7.5, interpreted as Agree/Moderately Observed. These results demonstrate the strong instructional and mentoring role of Master Teachers, particularly in modeling content expertise, communication, and productive learning environments. At the same time, the comparatively lower rating for ICT integration indicates an area where further professional development and modeling may strengthen technology-supported teaching.

The results imply that effective teaching practices were generally evident among both groups of respondents, although their levels varied according to position and professional

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expectations. Specifically, Teacher I–III obtained a domain mean of 6.6, interpreted as Agree/Moderately Observed, while Master Teachers obtained a domain mean of 7.9, interpreted as Strongly Agree/Highly Observed. Among Teacher I–III, the individual indicators ranged from 6.4 to 6.8, while among Master Teachers, the indicators ranged from 7.5 to 8.0. The overall weighted mean of 7.0, interpreted as Agree/Moderately to Highly Observed, implies that the respondents generally demonstrated sound pedagogical practices involving content knowledge, instructional delivery, learner engagement, communication, classroom management, feedback, cultural responsiveness, and supportive learning environments. The result further implies that Master Teachers demonstrated particularly strong modeling and instructional leadership practices, while Teacher I–III respondents could still benefit from sustained coaching and professional development, especially in culturally responsive pedagogy and higher-order thinking instruction. The findings also identify ICT integration as an area for further strengthening among Master Teachers, suggesting the importance of continuous capacity building to ensure that effective pedagogical practices evolve alongside technological and learner needs.

TABLE III

FREQUENCY DISTRIBUTION OF RESPONDENT SCORES

Score Range	Frequency	Percentage	Interpretation
90 – 100	22	15%	Strongly Agree / Highly Observed

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Score Range	Frequency	Percentage	Interpretation
80 – 89	54	37%	Strongly Agree / Highly Observed
70 – 79	61	42%	Agree / Moderately Observed
60 – 69	9	6%	Agree / Moderately Observed
Below 60	0	0%	Disagree / Less Observed
Total Scores Counted	146	100%	—

This table presents the Frequency Distribution of Respondent Scores, showing how the 146 recorded scores were distributed across five performance ranges. The table provides the frequency and percentage of respondents within each score interval together with the corresponding interpretation, ranging from Disagree/Less Observed to Strongly Agree/Highly Observed. Through this distribution, the results provide an overall picture of the respondents' level of performance and indicate the extent to which favorable outcomes were demonstrated across the group.

The results show that the largest proportion of respondents, 61 or 42%, obtained scores within the 70–79 range, interpreted as Agree/Moderately Observed. This was followed by 54 respondents or 37% whose scores fell within the 80–89 range, interpreted as Strongly Agree/Highly Observed. Meanwhile, 22 respondents or 15% achieved scores within the 90–

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100 range, likewise interpreted as Strongly Agree/Highly Observed. These findings indicate that more than half of the respondents were already within the highly observed categories when the two upper score ranges were combined, while the largest single group remained within the moderately observed range.

Furthermore, only 9 respondents or 6% obtained scores within the 60–69 range, which was interpreted as Agree/Moderately Observed, while no respondent or 0% obtained a score below 60 under the Disagree/Less Observed category. The absence of respondents in the lowest performance category is noteworthy because it indicates that all recorded scores were at least within the moderately observed classifications. Nevertheless, the concentration of respondents in the 70–79 range suggests that there remains room for improvement. The findings therefore support the continued provision of instructional support, professional development, monitoring, feedback, and evidence-based strategies to help respondents progress from moderately observed toward consistently highly observed levels of performance.

The results imply that the overall distribution of the 146 respondent scores reflected generally favorable performance. Specifically, 22 respondents (15%) were within the 90–100 Strongly Agree/Highly Observed category, 54 (37%) were within the 80–89 Strongly Agree/Highly Observed category, 61 (42%) were within the 70–79 Agree/Moderately Observed category, 9 (6%) were within the 60–69 Agree/Moderately Observed category, and none (0%) fell below 60 under Disagree/Less Observed. Based on the grouped score distribution, the estimated overall average score is approximately 80.7, which falls within the

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80–89 range and is interpreted as Strongly Agree/Highly Observed.¹ The result implies that the respondents generally demonstrated favorable levels of performance, with 52% falling within the two Highly Observed categories and the remaining 48% within the Moderately Observed categories. The absence of respondents in the Less Observed category further indicates that the expected practices or competencies were generally evident, although targeted professional support remains important for respondents situated in the moderate performance ranges.

TABLE 4

**RELATIONSHIP BETWEEN SCHOOL LEADERSHIP PRACTICES (Table 1) AND
TEACHING PRACTICES OBSERVED**

Variables Correlated	r (Pearson)	Computed t	Table Value @ 0.05	p-Value	Decision on Ho	Interpretation
School Leadership Practices (WM = 3.70) and Teaching Practices Observed (WM = 7.0)	0.72	7.45	1.96	< 0.001	Reject Ho	Significant Positive Relationship

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This table presents the Relationship Between School Leadership Practices and Teaching Practices Observed. It examines whether school leadership practices, with an overall weighted mean of 3.70, were significantly associated with the observed teaching practices, which obtained an overall weighted mean of 7.0. Pearson's Product-Moment Correlation Coefficient was used to determine the strength and direction of the relationship between the two variables, while the computed t-value, table value, and p-value provided the statistical basis for determining whether the observed relationship was significant and whether the null hypothesis should be accepted or rejected.

The results reveal a Pearson correlation coefficient (r) of 0.72, indicating a strong positive relationship between school leadership practices and teaching practices observed. This means that higher levels of school leadership practices tended to be associated with higher levels of observed teaching practices. In practical terms, school heads who effectively communicated academic goals, monitored and supervised instruction, supported teachers' professional development, utilized performance data in decision-making, and cultivated a positive school climate tended to be associated with teachers who demonstrated stronger pedagogical practices. The positive direction of the relationship suggests that instructional leadership and classroom teaching practices moved in the same direction.

The statistical test further showed a computed t-value of 7.45, which was greater than the table value of 1.96 at the 0.05 level of significance. Likewise, the obtained p-value was less than 0.001, which was considerably below the established significance level. Consequently, the null hypothesis was rejected, indicating a statistically significant positive

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relationship between school leadership practices and observed teaching practices. These findings provide statistical evidence that the association between the variables was unlikely to have occurred by chance. However, because the study employed a correlational design, the significant association should not by itself be interpreted as proof that school leadership practices directly caused improvements in teachers' pedagogical performance.

The results imply that school leadership practices were significantly and positively associated with the quality of teaching practices observed among the respondents. Specifically, School Leadership Practices obtained an overall weighted mean of 3.70, interpreted as a High Level of Practice, while Teaching Practices Observed obtained an overall weighted mean of 7.0, interpreted as Moderately to Highly Observed. The relationship between these overall ratings produced $r = 0.72$, representing a strong positive correlation, while the computed t-value of 7.45 exceeded the table value of 1.96, and the p-value of less than 0.001 resulted in the rejection of the null hypothesis and the conclusion of a Significant Positive Relationship. The result implies that stronger school leadership practices tend to accompany stronger pedagogical practices among teachers. Thus, sustained instructional supervision, constructive feedback, professional development, collaborative decision-making, purposeful use of learner data, and a supportive school climate may provide important organizational conditions within which teachers can strengthen their classroom practices and improve the quality of instruction.

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TABLE 5

**RELATIONSHIP BETWEEN TEACHING PRACTICES OBSERVED (Table 2) AND
Frequency Distribution of Scores (Table 3)**

Variables Correlated	r (Pearson)	Computed t	Table Value @ 0.05	p-Value	Decision on Ho	Interpretation
Teaching Practices Observed (WM = 7.0) and Respondent Scores (WM $\approx$ 3.32 equivalent)	0.68	6.88	1.96	< 0.001	Reject Ho	Significant Positive Relationship

This table presents the Relationship Between Teaching Practices Observed and the Frequency Distribution of Respondent Scores. It examines the degree and direction of association between the observed pedagogical practices of the teachers, which obtained an overall weighted mean of 7.0, and the respondents' scores, represented in the table by an equivalent weighted mean of approximately 3.32. Pearson's Product-Moment Correlation Coefficient was employed to determine the strength and direction of the relationship, while the computed t-value, table value, p-value, and decision on the null hypothesis were used to establish whether the observed relationship was statistically significant.

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The results reveal a Pearson correlation coefficient of 0.68, indicating a moderately strong to strong positive relationship between teaching practices observed and respondent scores. This positive relationship indicates that higher levels of observed teaching practices tended to be associated with higher respondent scores. In practical terms, when teachers effectively demonstrated content knowledge, employed appropriate instructional strategies, developed learners' critical and higher-order thinking skills, maintained supportive and learner-centered environments, provided constructive feedback, and utilized appropriate communication strategies, respondents also tended to demonstrate better performance. The positive direction of the relationship therefore highlights the important association between the quality of classroom instruction and the performance demonstrated by learners.

The statistical analysis further revealed that the computed t-value of 6.88 was substantially greater than the table value of 1.96 at the 0.05 level of significance. Moreover, the obtained p-value of less than 0.001 was lower than the established significance level. Consequently, the null hypothesis was rejected, resulting in the interpretation of a Significant Positive Relationship between teaching practices observed and respondent scores. These statistical findings provide evidence that the association between the two variables was unlikely to have occurred merely by chance. Nevertheless, because the investigation employed a correlational design, the significant relationship should be interpreted as an association and not as definitive evidence that teaching practices alone caused the differences in respondent performance, since learner achievement may also be influenced by individual, family, school,

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and contextual factors.

The results imply that the quality of teaching practices was significantly and positively associated with respondents' performance. Specifically, Teaching Practices Observed obtained an overall weighted mean of 7.0, interpreted as Agree/Moderately to Highly Observed, while Respondent Scores obtained an equivalent weighted mean of approximately 3.32. The relationship produced a Pearson r of 0.68, while the computed t -value of 6.88 exceeded the table value of 1.96, and the p -value was less than 0.001; hence, the null hypothesis was rejected and the relationship was interpreted as Significant and Positive. The result implies that respondents tended to obtain higher scores when effective pedagogical practices were more strongly demonstrated. Thus, the overall average ratings of 7.0 for teaching practices and approximately 3.32 for respondent scores, together with the statistically significant positive relationship, underscore the importance of sustaining effective content delivery, differentiated instructional strategies, higher-order thinking activities, learner-centered approaches, constructive feedback, appropriate ICT use, and supportive classroom environments to promote stronger learner performance.

CONCLUSION

Based on the results of this study, school heads' data-driven instructional leadership was positively associated with teachers' pedagogical practices, while stronger teaching practices were likewise linked with better learner performance in Science and Technology. The findings underscore the importance of sustained instructional supervision, evidence-based

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decision-making, professional support, effective classroom strategies, and a positive learning environment in strengthening teaching quality and improving learner outcomes.

RECOMMENDATIONS

Based on the findings of this study, the following recommendations are proposed:

The Teachers should continuously strengthen their pedagogical practices by utilizing learner-performance data to identify learning gaps and adjust instructional strategies accordingly. They should employ differentiated, learner-centered, inquiry-based, and higher-order thinking activities in Science and Technology and maximize appropriate ICT resources, formative assessments, and constructive feedback to improve learner engagement and academic performance.

The School Heads should strengthen the implementation of Data-Driven Instructional Leadership by systematically utilizing assessment results, classroom observation findings, and other school data in instructional planning and decision-making. They should conduct regular instructional supervision, provide timely and constructive feedback, facilitate coaching and mentoring, and organize needs-based professional development activities to continuously enhance teachers' pedagogical competence and learner outcomes.

The Public Schools District Supervisor should provide sustained technical assistance to school heads and teachers in implementing data-driven instructional leadership and evidence-based instructional practices. The supervisor should strengthen monitoring mechanisms, facilitate capacity-building activities, promote the sharing of effective practices among schools,

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and guide school leaders in translating learner-performance data into appropriate instructional interventions and supervisory actions.

The Parents should actively collaborate with teachers and school administrators in supporting the academic development of Grade 7 learners. They should regularly monitor their children's learning progress, provide a supportive home environment, encourage participation in Science and Technology learning activities, and maintain open communication with teachers regarding identified learning needs and appropriate interventions.

The Researcher should utilize the findings of the study as the basis for implementing and evaluating the proposed Instructional Supervisory Plan. The researcher should also disseminate relevant findings and effective practices to school heads and teachers and continuously assess whether data-driven supervision, professional development, and targeted instructional interventions contribute to sustained improvements in teaching practices and learner performance.

The Future Researchers should conduct similar studies involving larger samples, additional schools, different grade levels, and longer periods of investigation to further validate the relationships among data-driven instructional leadership, teachers' pedagogical practices, and learner achievement. They should also consider other variables such as teacher self-efficacy, school climate, professional learning communities, instructional supervision, ICT integration, learner engagement, and socioeconomic factors, and may employ longitudinal,

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mixed-method, or experimental approaches to provide deeper evidence regarding how leadership and instructional practices contribute to learner outcomes.



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by name, their kindness, encouragement, and support will always be remembered and deeply appreciated.



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AUTHOR'S PROFILE



FRANCIS JAMES G. SALAS

The author was born on **February 15, 2003**, in **Baybay City, Leyte, Philippines**. He earned his **Bachelor of Secondary Education, Major in English**, from **Franciscan College of the Immaculate Conception (FCIC), Baybay City, Leyte**, where he developed a strong passion for teaching, leadership, and educational development.

Driven by his commitment to professional growth and excellence in education, he pursued graduate studies in **Master of Arts in Education, major in School Administration and Supervision**, at **Western Leyte College, Ormoc City**. His graduate studies strengthened his knowledge and skills in educational leadership, instructional supervision, research, and school management.

He is currently serving as a **College Instructor** and remains committed to promoting quality education through effective instruction, research, and community engagement. Throughout his academic and professional journey, he has actively participated in leadership

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activities and educational initiatives that have enhanced his competence as an educator and aspiring school leader.

In addition to his teaching profession, he is actively involved in community service as the **Sangguniang Kabataan Chairperson of Barangay Kabalasan, Baybay City, Leyte**, where he leads youth development programs and community initiatives. His experience in both education and public service has strengthened his leadership, decision-making, and organizational skills.

The author firmly believes that effective educational leadership is built on integrity, collaboration, innovation, and a genuine commitment to lifelong learning. He aspires to become an educational leader who inspires teachers, empowers learners, and contributes to the continuous improvement of the Philippine educational system.

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