



Analyzing the Influence of Instructional Leadership on Performance Outcomes Among Maritime Educators

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ABSTRACT

This study examined the demographic profile of maritime educators and the association of the instructional leadership styles of school heads and some educational outcomes such as institutional performance and recognition. This was due to the increasing need to develop leadership in maritime education, where academic standards must be aligned with industry-based competences. A descriptive-correlational technique was employed on a sample of 181 maritime educators from different institutions. The data showed that most responses were young and unmarried, many with advanced degrees and teaching at the college level. The group comprises teachers at various stages of their careers. Many of the responses were Officers-in-Charge of a Navigational Watch (OIC-NW) which highlighted how their nautical experience was proving a significant value in their training. The study also examined the relationship between institutional outcomes and instructional leadership practices. The specific recommendation of the leaders of educational institutions in teaching was demonstrated to contribute to the comprehension and achievement of the goals of the institution. And student engagement, assessment strategies and delivery of material seem to work collaboratively to generate a more pleasant and professional school atmosphere. Other important aspects of performance recognition were identified, such as assessment approaches and professional development beyond curriculum implementation. These variables together explain about 20.5% of the variance of performance recognition ($R^2 = 0.205$, $p < 0.001$), indicating a significant but not exhaustive influence.

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1. Introduction.

A major aspect in influencing educational results is successful instructional leadership, especially in areas like maritime education where the combination of theory and practical ability is to be achieved. In this environment, school heads are not just managers but are critical to the leadership of instructional reform, building the capacity of teachers and aligning pedagogical practices with industry standards. Leadership techniques

that involve setting clear academic directions, fostering collaboration among teachers and providing appropriate instructional support are essential in improving the quality of teaching and learning. In maritime education, where simulation-based learning and classroom learning must be closely integrated, the absence of good instructional leadership may lead to inconsistent teaching practices and lack of coherence in the development of competencies. The existing literature has shown over and over again that instructional leadership impacts teaching effectiveness and student outcomes. School administrators affect instructional practices, according to Boyce and Bowers (2018), not only through supervision but also through the development of collaborative school cultures that stimulate teacher participation. Similarly, Robinson et al. (2008) believe that instructional leadership is more strongly related to student achievement than other leadership types, particularly when leaders em-

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phasize curriculum coordination, goal setting, and teacher professional development. The results indicate that instructional leadership may support the development of instructional coherence and systematic school improvement. Most of this research, however, has been carried out in general education settings with little attention being paid to technical and competency-based fields such as maritime education. In maritime education the roles are much more important, because of the highly regulated nature of the profession. International rules such as Standards of Training, Certification and Watchkeeping (STCW) Convention that requires strict alignment of curriculum design, instructional delivery and competency-based assessment lead the institutions. The instructional leadership of school administrators is crucial for the success of maritime educators, many of whom have a strong nautical experience, and is not merely a matter of technical expertise. Estimo (2020) notes that even though maritime educators are highly committed to their profession, the quality of their teaching performance is largely dependent on the quality of institutional leadership. Simultaneously, maritime education is presented with challenges in the form of rapid technology development and greater reliance on simulation-based training and curricular changes that require responsive and well-coordinated leadership. Recent studies also show the importance of adaptive leaders in high-speed educational contexts. The findings of Hartanto et al. (2024) demonstrate that leadership responsiveness plays a key role in instructional effectiveness and institutional success. School administrators in maritime education must be able to adapt teaching methodologies while keeping academic and regulatory standards, where precision, safety and industry relevance are paramount. Failure to do this may lead to a gap between the through training achieved and what is required by the industry and this could impact on the professional practice preparedness of graduates. The importance of instructional leadership is recognized, but empirical research about the experience of these practices in maritime education, especially from the perspective of the educators, is limited. The vast majority of research conducted to date is in general educational settings. Little is known about instructional characteristics of teaching methods, student engagement, assessment procedures, curriculum implementation and teacher development in marine settings. The gap points to the need for more local research studies that reflect the realities of maritime training.

2. Research Questions.

1. What is the Demographic Profile of the respondents in terms of:

- 1.1. Age.
- 1.2. Civil Status.
- 1.3. Highest Educational Attainment.
- 1.4. Grade Level Handled.
- 1.5. Rank.

2. How do teacher-respondents perceive the level of instructional leadership practices of their school heads in the following areas:

- 2.1. Clear Goals.
- 2.2. Professional Culture.
- 2.3. Instructional Support.
- 2.4. Monitoring Practices.
- 2.5. Performance Recognition.

3. How do teacher-respondents perceive the influence of their school heads' instructional leadership practices on the following outcomes:

- 3.1. Teaching Strategies.
- 3.2. Learner Engagement.
- 3.3. Assessment Practices.
- 3.4. Curriculum Implementation.
- 3.5. Professional Growth and Development.

4. To what extent do clear goals, professional culture, instructional support, monitoring practices, and performance recognition influence the instructional leadership outcomes of school heads?

H1. Clear Goals positively and significantly influence the school heads instructional leadership outcomes.

H2. Professional Culture positively and significantly influence the schools' heads instructional leadership outcomes.

H3 Instructional Support positively and significantly influence the school heads instructional leadership outcomes.

3. Literature Review.

Instructional leadership is acknowledged as a key factor in enhancing educational outcomes, as school leaders impact the quality of teaching, the professional development of teachers, and the learning of students. This role is especially important in specialized areas such as maritime education, where teaching involves both theoretical knowledge and practical skills. In this context, school leaders are expected to be more than administrative workers and to be proactive about instructional improvement, teacher promotion and industry standards. The leadership in maritime education is closely associated with preparing students for real maritime jobs. School administrators are helping teachers, many of whom are current or former seafarers, to develop students' technical skills and professional values. However, research by Larsen et al. (2024) shows that while maritime programs do develop leadership competencies, graduates still emphasize the need for more practical and experiential learning opportunities. This means that teaching in the classroom is not sufficient and should be improved by linking it more closely to real practice. Estimo (2020) suggests that maritime instructors are usually dedicated and competent, but their effectiveness depends on the level of support they receive to keep up with current industry practices. This suggests the need for ongoing support by school leaders for instructional, especially in a field where industry standards and technologies are constantly changing. Sijabat et al. (2024) argue that maritime education should also develop soft skills, such as communication, leadership, and ethical decisions. These competencies are best developed through extended training experiences and require ongoing institutional leadership support. The field of

educational research has established a strong link between instructional leadership and improved school performance. Effective school leaders are focused on setting clear goals, improving instructional support and building a collaborative culture in the school as suggested by Leithwood et al. (2019). Robinson et al. (2008) state that instructional leadership has a greater impact on student achievement than other forms of leadership, especially when leaders are personally involved in curriculum and instructional practices. However, many of these studies are done in general education and less attention is paid to technical and vocational subjects including maritime education. In the Philippine context, the exercise of leadership is often constrained by practical considerations. Macapobre et al. (2024) point to problems such as the lack of resources and the lack of opportunities for professional development that influence the implementation of instructional leadership in educational institutions. These conditions point to the need for more adaptive and supportive leadership strategies that address the actual needs of teachers in the field. There is a well-established relationship between instructional leadership and teacher performance. School leaders who provide feedback, conduct professional development, and work directly with teachers often see improvements in teaching practice. Heaven & Bourne (2016) explain that the quality of instruction improves when leadership participates in professional development. Likewise, Rivera (2024) points out that support from leadership increases teacher motivation and fosters a positive learning environment, leading to better student outcomes. This relation is very important in maritime education where the instructors are required to upgrade their knowledge continuously to be consistent with the trend of the industry. At the same time, handling leadership challenges requires not only awareness but also specialized support systems. According to Macapobre et al. (2024), the effectiveness of leadership could be undermined by bureaucratic constraints and resource limitations. Leadership development programs that have been recommended are training, mentoring and coaching. Such initiatives enhance school leaders' instructional practices and offer better in-classroom support to teachers (Kilag & Sasan, 2023). Instructional leadership has evolved over time from traditional administrative tasks to more instructional and collaborative approaches. Brazer and Bauer (2013) describe models that combine leadership with problem-based learning, and Rigby (2013) describes various leadership styles, such as entrepreneurial and social justice-oriented. These perspectives represent a significant step forward towards more responsive, innovative and quality education-led leadership. New research stresses the significance of inclusion and data-driven decision making in leadership practices. Collaborative and relational leadership styles may enhance instructional effectiveness, according to Hallinger (2016). Data use has been identified as an increasingly important strategy for improving educational outcomes (Halverson et al., 2015; Hilliard & Jackson, 2011). Such developments suggest that effective instructional leadership today requires strong interpersonal skills as well as the ability to interpret and use data effectively.

4. Research Methodology.

4.1. Design.

The study utilized a descriptive-correlational design which aimed to determine the relationship between the instructional leadership practices of the school administrators and the perceived instructional improvements of the maritime educators in Cebu City. This design allowed the study to describe the profile of the respondents and their opinions on leadership practices. In addition, it sought to investigate the relationship between leadership practices and critical teaching areas such as teaching strategies, student engagement, assessment methods, curriculum execution and professional development. Multiple linear regression (MLR) was used to analyze data to determine the extent to which instructional leadership practices predict various aspects of instructional improvement. This approach made it possible to identify leadership practices that have a greater impact on the observed outcomes. The design was deemed appropriate as it focused on naturally occurring relationships based on the perceptions of respondents with any manipulation of variables. This is particularly beneficial in understanding the leadership experience in a real school setting especially in maritime education in Cebu City where academic instruction is closely related to training derived from the industry.

4.2. Data and Sample.

This study investigated the effect of instructional leadership practices of school leaders to the improvement of instructional quality of maritime teachers in Cebu City. Specifically, the study aimed to (1) describe the demographic profile of the teacher-respondents, (2) determine the perception of the teacher-respondents on leadership practices on clear goal setting, professional culture, instructional support, monitoring and performance recognition, and (3) determine the relationship of the leadership practices to instructional outcomes such as teaching strategies, learner engagement, assessment practices, curriculum implementation, and professional development. The study also measured the extent to which instructional leadership practices could predict instructional improvement. Data were gathered via an online survey distributed to maritime educators of two institutions providing programs of Marine Transportation and Marine Engineering in Cebu City. The participants were selected based on convenience sampling and were educators with at least one year of teaching experience. In total, 181 valid questionnaires were collected from January 2023 to January 2025.

4.3. Research Instrument.

A survey questionnaire, along with a consent form, served as the research instrument for the study. The consent form outlined the purpose of the study, indicated that participation was voluntary, and stressed ethical issues such as confidentiality and protection of participants' answers. The survey instrument was composed of three parts. The first part of the questionnaire asked for the demographic profiles of the respondents. These included age, marital status, the highest educational qualification, years of teaching experience, grade level

taught and teaching rank. The perception of the teachers regarding the instructional leadership practices of the school leaders was investigated in the second section with respect to clear objectives, professional culture, instructional support, monitoring methods and performance acknowledgment. Leadership practices frequency was assessed with a 5-point Likert scale from 1 (Never) to 5 (Always). The third section investigated the perceived impact of these leadership practices on instructional outcomes which included teaching strategies, learner engagement, assessment methods, curriculum implementation and professional development using a 5-point Likert scale. The instrument was validated by three experts in educational leadership and maritime education to determine the validity, relevance and clarity of the instrument. A pilot test was conducted to enhance the questionnaire and reliability analysis yielded a Cronbach's Alpha of 0.964, which indicates excellent internal consistency. All data were analyzed using SPSS version 27.

4.4. Data Analysis.

The data obtained from the survey were coded, cleaned and analyzed in SPSS Version 27. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to profile the respondents for the first research question. The variables were age, sex, marital status, highest educational qualification, years of teaching experience, grade level taught, teaching rank and participation in relevant training or seminars. The second research question pertained to the teachers' perceptions of their school leaders' instructional leadership practices and mean scores and standard deviations were calculated for this question. Topics included goal setting, professional development assistance, monitoring and evaluation, collaboration and delivery of instructional resources. These measures were used to measure the extent and consistency of the respondents' perceptions on a 5-point Likert scale. The third research question involved the effects of instructional leadership practices on instructional outcomes, and was analyzed through Multiple Linear Regression (MLR). The assessed outcomes included teaching strategies, student engagement, assessment methods, curriculum delivery and professional development. The assumptions of linearity, normality, multicollinearity and homoscedasticity were tested before the analysis to confirm the appropriateness of the model. The results were analyzed at a 0.05 level of significance to determine the strength, direction and significance of the relationships and the findings are presented in tables with narrative description for each research objective.

5. Findings and Discussion.

RQ1. 1. What is the Demographic Profile of the respondents in terms of:

1.1. Age.

Table 1 displays the age distribution of the maritime educators who participated in the study. The majority of respondents are in the 30-39 age group (30.9%), and the second majority are

Table 1: Age.

	Frequency	Percent	Valid Percent	Cumulative Percent
20-29	48	26.5	26.5	26.5
30-39	56	30.9	30.9	57.5
Valid 40-49	42	23.2	23.2	80.7
50 and above	35	19.3	19.3	100.0
Total	181	100.0	100.0	

Source: Authors.

Table 2: Civil Status.

	Frequency	Percent	Valid Percent	Cumulative Percent
Married	81	44.8	44.8	44.8
Valid Single	100	55.2	55.2	100.0
Total	181	100.0	100.0	

Source: Authors.

in the 20-29 age group (26.5%). The smallest group consists of educators aged 40-49, 23.2% and educators aged 50 and over, 19.3%. Overall, 57.5% of respondents are below 40 years of age, which supports the fact that the majority of respondents are in the early to mid-career stage. The profile suggests that respondents are likely to be young maritime educators, with many likely to be bringing new industry exposure and contemporary teaching approaches into their practice. The dominance of the 30-39 age group could also be indicative of a workforce that is still in the active stage of professional development and adapting to changes in instructional approaches. This is particularly relevant in the context of maritime education as it supports the integration of practical seafaring experience with the evolving teaching strategies needed to prepare students for the demands of the current industry.

1.2. Civil Status.

Table 2 presents the civil status of the maritime educators who participated in the study. Most of the respondents are single, with 100 individuals (55.2%), while 81 respondents (44.8%) are married. These two categories account for the entire sample, indicating that all participants identified as either single or married.

1.3. Highest Educational Attainment.

Table 3 presents the highest education level achieved by the maritime educators in the study. The largest group has a Doc-

Table 3: Highest Educational Achievement.

	Frequency	Percent	Valid Percent	Cumulative Percent
Bachelor's Degree	55	30.4	30.4	30.4
Valid Doctorate Degree	65	35.9	35.9	66.3
Master's Degree	61	33.7	33.7	100.0
Total	181	100.0	100.0	

Source: Authors.

Table 4: Grade Handled.

	Frequency	Percent	Valid Percent	Cumulative Percent
College	149	82.3	82.3	82.3
Valid Senior High	32	17.7	17.7	100.0
Total	181	100.0	100.0	

Source: Authors.

torate degree, with 65 respondents (35.9%) while the second largest group has a Master's degree with 33.7% (61 respondents). The sample consists of 30.4% (55 respondents) of Bachelor's degree holders. 66.3% of the total group has completed graduate-level education, suggesting a generally well-qualified group in terms of academic preparation. It suggests that the respondents are of high educational achievement that suggests that they are actively engaged in professional and academic developmental activities which is important in maritime education where both technical and pedagogical knowledge matters. A large proportion of graduate-level educators may also indicate a workforce more able to engage in curriculum enhancement, instructional decision-making and professional development activities.

1.4. Grade Level Handled.

Table 4 shows the distribution of respondents by the grade level they teach. Data indicated a heavy dominance in higher education with 149 respondents (82.3%) teaching in the college level and only 32 respondents (17.7%) teaching in senior high school. This suggests that the high level of education achievement presented in Table 3 is consistent with the fact that the majority of the participants are enrolled in maritime tertiary education. The presence of college-level instructors is attributed to the unique characteristics of maritime education, where the depth of theoretical knowledge and the practical hands-on skills are crucial in preparing students for maritime careers (Estimo, 2020). It is anticipated that these instructors will have a profound knowledge of complex subject matter, technological applications, and industry norms, allowing the use of sophisticated teaching methodologies and effective student guidance (Sijabat et al., 2024). Besides, the focus on higher education might influence the respondents' views on instructional leadership practices. Instructional leadership in higher education requires leaders to create a culture of academic rigor, promote professional development and encourage research-based teaching practices (Robinson et al., 2008). Thus, educators at the college level may highlight leadership behaviors that enhance implementation of the curriculum, promote instructional innovation, and support continuous professional development.

1.5. Rank.

Table 5 shows the distribution of the respondents according to their professional rank. The data show that the representation of officers in the operational level is good, especially in the navigational domain. Of the respondents, 131 or

Table 5: Rank.

	Frequency	Percent	Valid Percent	Cumulative Percent
CAPTAIN	16	8.8	8.8	8.8
CHIEF ENGINEER	8	4.4	4.4	13.3
Valid CHIEF MATE	13	7.2	7.2	20.4
OIC-EW	13	7.2	7.2	27.6
OIC-NW	131	72.4	72.4	100.0
Total	181	100.0	100.0	

Source: Authors.

72.4% are Officers-in-Charge of a Navigational Watch (OIC-NW). Next are the Captains with 8.8% (16 respondents), followed by Chief Mates (7.2%), Officers-in-Charge of an Engineering Watch (OIC-EW) at 7.2% (13 respondents), and Chief Engineers at 4.4% (8 respondents). The high share of deck officers in the operational level means that the sample consists mainly of maritime professionals who are currently employed or have recently left practical seafaring jobs. These results are consistent with Estimo's (2020) study which found that maritime teachers often use their current industry experience in their classes, providing practical, real-world training to students. Officers at the operational level are more familiar with the daily operations of ships, which may affect their thinking about teaching methods, keeping students interested, and the most important aspects for their professional development (Sijabat et al., 2024,000). There are not many senior officers in the group, such as Captains, Chief Mates and Chief Engineers. This shows that the main findings are from people at the operational level of knowledge, even though managerial views have been presented. This is important because operational officers often have first-hand knowledge of the skills needed for good maritime training and can offer useful advice on how to carry out the curriculum, plan hands-on activities for learning, and help with teaching leadership (Larsen et al., 2024). Further, Boyce and Bowers (2018) find that teachers with new experience in the field may respond differently to instructional leadership practices than those in senior management roles, placing more value on mentorship, practical teaching assistance, and collaborative learning environments.

RQ2. How do teacher-respondents perceive the level of instructional leadership practices of their school heads in the following areas:

Based on the results presented in Table 6, teacher-respondents consistently rated all five dimensions of instructional leadership practices as "High," with an overall mean of 4.0869. This suggests that school heads are generally perceived as effectively executing their instructional leadership responsibilities, particularly in the areas of setting clear goals, fostering a professional culture, providing instructional support, implementing monitoring practices, and recognizing teacher performance. The standard deviation values, ranging from 0.38507 to 0.44628, indicate relatively low variability in responses, reflecting a strong

Table 6: Perceived Level of Instructional Leadership Practices of School Heads as Reported by Maritime Educators.

	Mean	Std. Deviation	Interpretation
Clear Goals	4.0387	.44628	High
Professional Culture	4.1006	.38507	High
Instructional Support	4.0829	.43254	High
Monitoring Practices	4.1017	.41184	High
Performance Recognition	4.1105	.43224	High
Total Average	4.08688	0.421594	High

Legend: 1.00-1.80 Very Low, 1.81-2.60 Low, 2.61-3.40 Moderate, 3.41-4.20 High, 4.21-5.00 Very High

Source: Authors.

consensus among teachers regarding the consistency and effectiveness of their school heads’ leadership behaviors. These findings are consistent with established literature on instructional leadership. Hallinger and Murphy (1985) highlighted that the effectiveness of instructional leadership is enhanced when school leaders clearly define the school’s mission, manage instructional programs, and cultivate a positive learning climate. Blasé and Blasé (2000) similarly emphasized that teachers respond favorably to principals who encourage professional dialogue, support reflective teaching practices, and acknowledge teacher accomplishments aligning with the high ratings observed for instructional support and performance recognition. Furthermore, Sebastian and Allensworth (2012) noted that instructional leadership is most impactful when it actively promotes teacher development, fosters collaboration, and continuously improves instructional quality, which resonates with the high perceptions of professional culture and monitoring practices reported by the respondents.

RQ3. How do teacher-respondents perceive the influence of their school heads’ instructional leadership practices on the following outcomes:

Table 7: Perceived Influence of School Heads’ Instructional Leadership Practices on Key Instructional Outcomes as Reported by Maritime Educators.

	Mean	Std. Deviation	Interpretation
Teaching strategies	4.1492	.39393	High
Learner engagement	4.0497	.41788	High
Assessment practices	4.0497	.41788	High
Curriculum implementation	4.0552	.42744	High
Professional growth and development	4.1072	.42401	High
Total Average	4.0822	0.41622	High

Legend: 1.00-1.80 Very Low, 1.81-2.60 Low, 2.61-3.40 Moderate, 3.41-4.20 High, 4.21-5.00 Very High

Source: Authors.

The teacher respondents generally believe that the instructional leadership practices of their school heads have a strong and positive influence on all the outcomes assessed in the classroom as indicated in Table 7 with a mean score of 4.0822. Of all the specific areas, the mean score for Teaching strategies was the highest with 4.1492, which means that school leaders are very good at encouraging the use of good teaching methods. This finding indicates that instructional leadership on the improvement of teaching strategies directly impacts both teacher performance and students’ learning (Leithwood et al., 2017). The

Table 8: Model Summary of the Influence of Instructional Leadership Practices on School Heads? Instructional Leadership Outcomes.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.419 ^a	.176	.152	.41090	.176	7.465	5	175	.000

a. Predictors: (Constant), Overall Mean Professional Growth & Development, Overall Mean Curriculum Implementation, Overall Mean Assessment Practices, Overall Mean Learner Engagement, Overall Mean Teaching Strategies.

Source: Authors.

Table 9: ANOVA Results for the Effect of Instructional Leadership Practices on School Heads? Instructional Leadership Outcomes .

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.302	5	1.260	7.465	.000 ^b
	Residual	29.547	175	.169		
	Total	35.849	180			

a. Dependent Variable: Overall Mean Clear Goals

b. Predictors: (Constant), Overall Mean Professional Growth & Development, Overall Mean Curriculum Implementation, Overall Mean Assessment Practices, Overall Mean Learner Engagement, Overall Mean Teaching Strategies

Source: Authors.

mean score for professional growth and development was also high at 4.1072, showing that teachers feel their school leaders are actively supporting continued professional learning. This is in line with Cuduz (2023) who states that leaders who focus on professional development build a supportive environment that results in happier teachers which, in turn, enhances student achievement. The implementation of the curriculum also scored high (4.0552), indicating the significance of school leaders ensuring that the curriculum is taught well and meets educational standards. Huguet (2017) supports this as he says “school leaders who are engaged in the management of the curriculum can significantly improve the quality of teaching and the overall performance of the school”. The average value of learner engagement and assessment practices was 4.0497 which showed that teachers considered school heads as very important in creating interesting learning environments and using good evaluation methods. These findings are in line with those of Zhang et al. (2021), who stated that principals who prioritize student-centered instruction and data-driven assessments improve student engagement and the quality of instruction. There was a lot of agreement among the respondents as indicated by the low standard deviations (ranging from 0.39393 to 0.42744). This indicates that most people agree that instructional leadership has a positive effect.

RQ4: To what extent do clear goals, professional culture, instructional support, monitoring practices, and performance recognition influence the instructional leadership outcomes of school heads?

H1. Clear Goals positively and significantly influence the school heads instructional leadership outcomes.

Table 10: Regression Coefficients of Instructional Leadership Practices Predicting School Heads’ Clear Goals.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	1.287	.466		2.761	.006		
Overall Mean Teaching Strategies	.242	.090	.213	2.674	.008	.740	1.351
Overall Mean Learner Engagement	.135	.082	.127	1.645	.102	.787	1.270
Overall Mean Assessment Practices	.136	.078	.127	1.736	.084	.879	1.138
Overall Mean Curriculum Implementation	.044	.079	.042	.553	.581	.829	1.207
Overall Mean Professional Growth & Development	.114	.079	.108	1.438	.152	.829	1.206

a. Dependent Variable: Overall Mean Clear Goals

Source: Authors.

Table 11: Collinearity Diagnostics for Predictors of School Heads’ Clear Goals.

Model Dimension	Eigenvalue	Condition Index	Variance Proportions					Overall Mean Professional Growth & Development
			(Constant)	Overall Mean Teaching Strategies	Overall Mean Learner Engagement	Overall Mean Assessment Practices	Overall Mean Curriculum Implementation	
1	5.967	1.000	.00	.00	.00	.00	.00	.00
2	.009	25.452	.00	.02	.11	.00	.55	.26
3	.008	26.836	.00	.03	.08	.00	.04	.07
4	.007	29.614	.00	.03	.56	.00	.05	.58
5	.005	33.290	.00	.85	.21	.00	.28	.00
6	.004	40.872	1.00	.07	.04	.13	.08	.09

a. Dependent Variable: Overall Mean Clear Goals

Source: Authors.

The results in Tables 8 to 11 show that instructional leadership practices have a significant effect on the school heads’ goal clarity. The R² of 0.176 implies that instructional leadership practices account for about 17.6% of the variance in goal clarity. This is consistent with prior studies highlighting the crucial role of leadership practices in developing organizational focus and alignment of goals in schools. For example, Hallinger and Heck (1996) found a positive relationship between instructional leadership and school effectiveness, especially when leaders model teaching strategies and supervise instructional practices. Leithwood et al. (2004) similarly find that leaders who become directly involved in instructional processes lead to clearer and more consistent educational goals. The results of the ANOVA show that leadership practices are important overall in predicting clear goals (F(5,175) = 7.465, p < 0.001), indicating that instructional leadership is multi-faceted and teaching strategies, assessment, and curriculum implementation are all working together to influence outcomes. This is consistent with the findings of Supovitz et al. (2000) who found that a mix of leadership characteristics rather than a single practice is frequently a driver of school performance improvement and goal clarity. Examining the individual predictors (Table 10), instructional tactics were shown to be the strongest predictor, strongly predicting goal clarity ($\beta = 0.213$, p = 0.008). This is consistent with recent research that have indicated the importance of instructional leadership in aligning school activities with organisational goals (Robinson et al., 2008). In their meta-analysis, Robinson et al (2008) claim that the direct involvement of leaders in teaching and learning processes positively contributes to staff comprehension of school goals, which

Table 12: Model Summary of the Influence of Professional Culture on School Heads’ Instructional Leadership Outcomes.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.482 ^a	.233	.211	.34210	.233	10.611	5	175	.000

a. Predictors: (Constant), Overall Mean Professional Growth & Development, Overall Mean Curriculum Implementation, Overall Mean Assessment Practices, Overall Mean Learner Engagement, Overall Mean Teaching Strategies

Source: Authors.

Table 13: ANOVA Results for the Influence of Professional Culture on School Heads’ Instructional Leadership Outcomes.

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	6.209	5	1.242	10.611	.000 ^b
Residual	20.481	175	.117		
Total	26.690	180			

a. Dependent Variable: Overall Mean Professional Culture

b. Predictors: (Constant), Overall Mean Professional Growth & Development, Overall Mean Curriculum Implementation, Overall Mean Assessment Practices, Overall Mean Learner Engagement, Overall Mean Teaching Strategies

Source: Authors.

is in agreement with the current study outcomes. Other predictors (learner engagement, assessment practices, curriculum implementation, and professional growth and development) were not statistically significant in and of themselves; however, their moderate contributions suggest that these dimensions may be working indirectly or synergistically with teaching strategies. This finding is in line with Ng and Chan (2012) who also found that instructional leadership practices are likely to interact such that some dimensions facilitate other dimensions in achieving comprehensive school outcomes. The collinearity diagnostics (Table 11) show that there is no significant multicollinearity between predictors, which confirms the reliability of these results. This methodological rigor supports the claim that teaching strategies are at the core of defining goals, while other practices are critical but secondary support. In practice, the findings suggest that school leaders should focus on improving and demonstrating teaching strategies through professional development in curriculum implementation, assessment literacy and the promotion of learner engagement. In addition to providing clarity regarding the school’s goals, this approach also reflects global examples of effective instructional leadership that have been identified in local and international studies (Hallinger, 2011; Leithwood et al., 2020).

H2. Professional Culture positively and significantly influence the schools’ heads instructional leadership outcomes.

The data in Tables 12-15 indicate that instructional leadership practices have a significant effect on school leadership. The model summary (Table 12) shows moderate correlation (R = 0.482) and R² is 0.233. This means that teaching strategies, student engagement, assessment practices, curriculum implementation and professional growth and development together account for about 23.3% of the variation in professional culture. This corresponds with recent studies that show that the

Table 14: Regression Coefficients for the Influence of Teaching and Learning Practices on Professional Culture of School Heads.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
	(Constant)	1.349	.388				3.477
Overall Mean Teaching Strategies	.059	.075	.061	.789	.431	.740	1.351
Overall Mean Learner Engagement	.197	.068	.215	2.878	.004	.787	1.270
Overall Mean Assessment Practices	.184	.065	.200	2.825	.005	.879	1.138
Overall Mean Curriculum Implementation	.151	.066	.167	2.300	.023	.829	1.207
Overall Mean Professional Growth & Development	.083	.066	.091	1.257	.211	.829	1.206

a. Dependent Variable: Overall Mean Professional Culture

Source: Authors.

Table 15: Collinearity Diagnostics for Predictors of School Heads' Professional Culture.

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions					
				(Constant)	Overall Mean Teaching Strategies	Overall Mean Learner Engagement	Overall Mean Assessment Practices	Overall Mean Curriculum Implementation	Overall Mean Professional Growth & Development
1		5.967	1.000	.00	.00	.00	.00	.00	.00
2		.009	25.452	.00	.02	.11	.00	.55	.26
3		.008	26.836	.00	.03	.08	.86	.04	.07
4		.007	29.614	.00	.03	.56	.00	.05	.58
5		.005	33.290	.00	.85	.21	.00	.28	.00
6		.004	40.872	1.00	.07	.04	.13	.08	.09

a. Dependent Variable: Overall Mean Professional Culture

Source: Authors.

professional culture in schools is shaped not only by official rules but also by what school administrators do, lead and act (Schein, 2010; Hallinger, 2011). Table 13 ANOVA results The model is statistically significant ($F(5,175) = 10.611, p < 0.001$). This means that the combined effects of instructional leadership practices are a good predictor of the professional culture of school leaders. This is consistent with findings by Leithwood et al. (2020) that collaborative practices, staff engagement and systematic ways of teaching create an atmosphere conducive to professional norms, values and shared responsibilities. The regression coefficients (Table 14) indicate that the following variables are good predictors of professional culture: learner engagement ($\beta = 0.215, p = 0.004$), assessment practices ($\beta = 0.200, p = 0.005$) and curriculum implementation ($\beta = 0.167, p = 0.023$). The results show that professional culture is enhanced when school leaders involve teachers and students in learning activities, use effective assessment methods and ensure strict adherence to the planned curriculum aligned with educational objectives. This finding supports the claims of Supovitz et al. (2000) and Robinson et al. (2008) that good professional norms in schools require leadership styles that directly impact teaching and learning. Teaching strategies ($\beta = 0.061, p = 0.431$) and professional growth and development ($\beta = 0.091, p = 0.211$) were insignificant when tested separately which is interesting. This means that these aspects matter, but they have a less direct or directly supportive effect on professional culture. They do things like student engagement, assessment, curriculum design. Recent research suggests that professional culture

Table 16: Model Summary of Predictors for School Heads' Professional Culture.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.480 ^a	.230	.208	.38485	.230	10.475	5	175	.000

a. Predictors: (Constant), Overall Mean Professional Growth & Development, Overall Mean Curriculum Implementation, Overall Mean Assessment Practices, Overall Mean Learner Engagement, Overall Mean Teaching Strategies

Source: Authors.

Table 17: ANOVA Results for Predictors of School Heads' Instructional Support.

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	7.757	5	1.551	10.475	.000 ^b
Residual	25.919	175	.148		
Total	33.677	180			

a. Dependent Variable: Overall Mean Instructional Support

b. Predictors: (Constant), Overall Mean Professional Growth & Development, Overall Mean Curriculum Implementation, Overall Mean Assessment Practices, Overall Mean Learner Engagement, Overall Mean Teaching Strategies

Source: Authors.

is influenced by the mix of different types of leadership rather than one type (Ng & Chan, 2012; Hallinger & Heck, 1996). The collinearity diagnostics (Table 15) indicate multicollinearity is not a problem (VIFs range from 1.138 to 1.351), and the regression estimates can be trusted. This makes people more confident that the relationships found are real, and that the important predictors really do affect professional culture, and not just show shared differences.

H3. Instructional Support positively and significantly influence the school heads instructional leadership outcomes.

The results presented in Tables 16-19, when considered collectively, indicate that instructional leadership practices have a large positive effect on the instructional support provided by school heads, in support of the hypothesized H3. The model summary (Table 16) indicates a correlation of $R = 0.480$ and R^2 is 0.230. This means that 23% of variance in instructional support can be explained by teaching strategies, student engage-

Table 18: Coefficients of Predictors on School Heads' Instructional Support.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
	(Constant)	.997	.436				2.284
Overall Mean Teaching Strategies	.144	.085	.131	1.701	.091	.740	1.351
Overall Mean Learner Engagement	.033	.077	.032	.432	.666	.787	1.270
Overall Mean Assessment Practices	.177	.073	.171	2.420	.017	.879	1.138
Overall Mean Curriculum Implementation	.190	.074	.188	2.578	.011	.829	1.207
Overall Mean Professional Growth & Development	.210	.074	.206	2.832	.005	.829	1.206

a. Dependent Variable: Overall Mean Instructional Support

Source: Authors.

Table 19: Collinearity Diagnostics for Predictors of Instructional Support.

Model Dimension	Eigenvalue	Condition Index	Variance Proportions					Overall Mean Curriculum Implementation	Overall Mean Professional Growth & Development
			(Constant)	Overall Mean Teaching Strategies	Overall Mean Learner Engagement	Overall Mean Assessment Practices	Overall Mean Curriculum Implementation		
1	5.967	1.000	.00	.00	.00	.00	.00	.00	
2	.009	25.452	.00	.02	.11	.00	.55	.26	
3	.008	26.836	.00	.03	.08	.86	.04	.07	
4	.007	29.614	.00	.03	.56	.00	.05	.58	
5	.005	33.290	.00	.85	.21	.00	.28	.00	
6	.004	40.872	1.00	.07	.04	.13	.08	.09	

a. Dependent Variable: Overall Mean Instructional Support

Source: Authors.

ment, assessment practices, curriculum implementation, and professional growth and development. This finding aligns with previous studies which identified direct engagement of school leaders in the teaching process as a significant aspect in supporting teachers and enhancing the quality of teaching and learning (Hallinger & Heck, 1996; Robinson et al., 2008). The ANOVA results (Table 17) show that the regression model is significant overall ($F(5, 175) = 10.475, p < 0.001$) in illustrating that collaborative instructional leadership practices predict instructional support. This points to instructional leadership being multi-dimensional, with each dimension contributing to a context where teachers have access to the support, feedback, and resources necessary to improve their practice (Leithwood et al., 2004; Supovitz et al., 2000). When considered separately, professional growth and development ($\beta = 0.206, p = 0.005$), curriculum implementation ($\beta = 0.188, p = 0.011$), and assessment practices ($\beta^2 = 0.171, p = 0.017$) are all statistically significant (Table 18). This suggests that school leaders who prioritize professional development, ensure that the curriculum is well taught, and develop rigorous assessment systems are more likely to provide meaningful instructional support. The results are similar to the findings of Ng and Chan (2012). They said leadership styles that include teacher development and systematic lesson oversight improve instructional support and make it more consistent. As can be seen, teaching strategies ($\beta = 0.131, p = 0.091$) and learner engagement ($\beta = 0.032, p = 0.666$) were not statistically significant individually. This means their impact on instructional support may be indirect or mediated by other things such as professional development program or adherence to the curriculum. This is consistent with Robinson et al. (2008) who said that while direct classroom engagement is important, its impact on instructional support often works in concert with broader leadership practices to produce big effects. Collinearity diagnostics (Table 19) show that multicollinearity is not a problem (VIFs range from 1.138 to 1.351), which further increases the reliability of the regression estimates. This supports the positive effects that have been seen on instructional support from professional development, implementing the curriculum, and using different evaluation methods. These findings imply that school leaders need to strengthen the instructional support by emphasizing on organized professional development, closely tracking the implementation of the curriculum and following good assessment practices. Within the framework of transformational leadership (Bass & Riggio,

Table 20: Model Summary of Monitoring Practices as a Predictor of Instructional Leadership Outcomes.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.422 ^a	.178	.155	.37857	.178	7.605	5	175	.000

a. Predictors: (Constant), Overall Mean Professional Growth & Development, Overall Mean Curriculum Implementation, Overall Mean Assessment Practices, Overall Mean Learner Engagement, Overall Mean Teaching Strategies

Source: Authors.

Table 21: ANOVA Results for the Influence of Monitoring Practices on Instructional Leadership Outcomes.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.449	5	1.090	7.605	.000 ^b
	Residual	25.080	175	.143		
	Total	30.530	180			

a. Dependent Variable: Overall Mean Monitoring Practices

b. Predictors: (Constant), Overall Mean Professional Growth & Development, Overall Mean Curriculum Implementation, Overall Mean Assessment Practices, Overall Mean Learner Engagement, Overall Mean Teaching Strategies

Source: Authors.

2006), these leadership strategies are used to equip and guide teachers and to develop a school culture in which great teaching is expected and supported.

H4. Monitoring Practices positively and significantly influence the school heads instructional leadership outcomes.

According to the findings presented in Tables 20-23, school heads' supervision of teachers is significantly affected by instructional leadership practices. Table 20 shows a moderate correlation ($R = 0.422$) and an R^2 of 0.178. This indicates that 17.8% of the variability in monitoring practices can be accounted for by the effects of teaching strategies, learner engagement, assessment practices, curriculum implementation, and professional growth and development. This supports the view that instructional leadership is an important factor in the development of systematic monitoring practices that are needed to sustain school accountability and improve the quality of teaching (Hallinger & Heck, 1996; Robinson et al., 2008). The ANOVA (Table 21) indicates that the model is statistically significant ($F(5,175) = 7.605, p < 0.001$). Put simply, the overall leadership behaviors can be used to reliably predict the extent and quality of monitoring. This finding is consistent with Leith-

Table 22: Regression Coefficients for the Influence of Instructional Practices on Monitoring Practices of School Heads.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.614	.429		3.760	.000	
	Overall Mean Teaching Strat	.052	.083	.050	.623	.534	.740
	Overall Mean Learner E	-.179	.076	-.182	2.360	.019	.787
	Overall Mean Assessment P	.147	.072	.149	2.034	.043	.879
	Overall Mean Curriculum E	.215	.073	.223	2.966	.003	.829
	Overall Mean PGD	.018	.073	.018	.243	.808	.829

a. Dependent Variable: Overall Mean Monitoring Practices

Source: Authors.

Table 23: Collinearity Diagnostics for the Regression Model Predicting Monitoring Practices of School Heads.

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions					
				(Constant)	Overall Mean Teaching Strategies	Overall Mean Learner Engagement	Overall Mean Assessment Practices	Overall Mean Curriculum Implementation	Overall Mean Professional Growth & Development
1		5.967	1.000	.00	.00	.00	.00	.00	.00
2		.009	25.452	.00	.02	.11	.00	.55	.26
3		.008	26.836	.00	.03	.08	.86	.04	.07
4		.007	29.614	.00	.03	.56	.00	.05	.58
5		.005	33.290	.00	.85	.21	.00	.28	.00
6		.004	40.872	1.00	.07	.04	.13	.08	.09

a. Dependent Variable: Overall Mean Monitoring Practices

Source: Authors.

wood et al. (2004) who stated that leaders who are involved in oversight and evaluation create an environment in which improvements in teaching are always being monitored and assisted by others. When we looked at each individual predictor, we found that curriculum implementation ($\beta = 0.223$, $p = 0.003$), learner engagement ($r^2 = 0.182$, $p = 0.019$), and assessment practices ($\beta = 0.149$, $p = 0.043$) were all strong indicators of monitoring practices (Table 22). These findings indicate that school leaders who make sure that the curriculum is delivered effectively, involve students and have robust assessment systems are more effective in monitoring the quality of teaching. These findings are consistent with other research indicating that monitoring is most effective when it is integrated into the core teaching activities rather than being an additional task for administrators (Ng & Chan, 2012; Supovitz et al., 2000). On the other hand professional growth and development ($\beta = 0.018$, $p = 0.808$) and teaching strategies ($r^2 = 0.050$, $p = 0.534$) were not found to be significant individual predictors. This might suggest that these aspects of leadership are important but don't directly affect the way monitoring is carried out. They help to make sure the curriculum, assessments and engagement practices are enacted. Robinson et al. (2008) also note that many aspects of leadership are mutually reinforcing, and that some actions may indirectly improve the results of monitoring. The collinearity diagnostics (Table 23) indicate that multicollinearity is not a problem (VIFs ranging from 1.138 to 1.351), which shows that the regression estimates are accurate. This means that the implementation of the curriculum, the engagement of students and the use of good assessment methods are the main elements for effective monitoring in school leadership. In real life, these results mean that school leaders can improve the way they monitor by focusing on the parts of the teaching process that have a direct impact on learning and teaching. By focusing on curriculum adherence, involving students in relevant activities, and performing periodic assessments (Bass & Riggio, 2006; Hallinger, 2011), leaders can ensure continuous assessment of the quality of instruction and its alignment with school goals.

Conclusions.

This study helps us to better understand the types of individuals who serve as maritime educators and their perceptions of how their schools' instructional leaders do their work. Most

respondents were early-mid career professionals. Most were single, under 40, and well educated, with two-thirds or more having graduate degrees. The people who fit this description are energetic, highly educated and hard-driving at work. They are able to balance contemporary teaching methods with actual maritime experience. The fact that our teachers are a mixture of total beginners and veterans suggests that the maritime learning environment benefits from a combination of fresh ideas and practical experience. The respondents were mostly college level instructors and occupied operational ranks most notably Officer-in-Charge of a Navigational Watch (OIC-NW). This illustrates a direct link between practical experience at sea and the ability to teach. The operational basis appears to influence teachers' perceptions of the performance of leaders, particularly with respect to the delivery of instruction and professional development programs. The findings suggest that the leadership of school heads in instruction is viewed as good in all respects. This includes goal setting, creating a professional culture, supporting teachers, tracking and celebrating success. Teaching strategies turned out to be the best predictor of clear goals. This shows the importance of instructional guidance for school goals alignment. Also, the implementation of the curriculum, assessment methods and student participation were very helpful in creating a professional culture. This indicates the significance of students' active participation in the processes of teaching and learning to create collaborative and effective school settings. Student participation and teaching strategies had less impact than other leadership practices on instructional support and performance recognition, but they influenced other leadership practices indirectly. Performance recognition was enhanced by improving assessment practices, professional growth and curriculum implementation. This shows that recognition is strongly related to concrete learning results and possibilities for teachers' professional growth. All these results indicate that good instructional leadership in maritime education involves many things. School leaders involved in instructional strategies, promoting professional development, and advocating for rigorous curriculum implementation are more effective at setting clear goals, creating a professional culture, and improving teachers' performance and recognition. This research shows the importance of leadership in linking operational expertise with educational excellence. It emphasizes the importance of strategic, supportive and collaborative leadership to maintain maritime education at a high level in the 21st century.

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