VMC ANALYTIKS

Vertical Articulation of Maritime Baccalaureate Degrees for Postgraduate Programs: Basis for an Innovative Education in Higher Education Institutions

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Abstract

This study explores the vertical articulation of maritime baccalaureate degrees into postgraduate maritime programs (PGMP), addressing critical gaps in academic coherence, sectoral relevance, and learner preparedness for shore-based careers. Anchored in the Philippine Qualifications Framework (PQF) Levels 6 and 7, the research proposes an innovative curriculum scheme encompassing four non-STCW-aligned baccalaureate tracks: Maritime Education (BSMarEd), Maritime Management (BSMarMan), Ship Management (BSShipMan), and Maritime Administration (BSMarAd). A mixed-method design was employed, combining quantitative analysis of course relevance across foundational, core, and specialized domains with thematic analysis of challenges encountered by postgraduate students lacking maritime undergraduate backgrounds. Data were collected from 60 PGMP students and graduates through purposive sampling. Findings revealed that current maritime undergraduate programs are insufficiently aligned with postgraduate expectations, resulting in conceptual gaps, terminological complexity, and limited sectoral integration. Key foundational courses – such as Maritime Law, Digital Innovation, and Safety Systems – were prioritized for curricular inclusion. Specialized courses were tailored to each track, reflecting pedagogical, managerial, and regulatory competencies. Thematic analysis identified six core challenges: interdisciplinary integration, conceptual complexity, time constraints, limited support systems, growth mindset development, and shared learner experiences. The study recommends policy reforms, faculty development, and multisectoral collaboration to institutionalize vertically articulated programs. By embedding academic progression and sectoral responsiveness, the proposed curriculum advances innovative education in maritime higher education institutions and strengthens the professional pipeline for shore-based maritime leadership.

Keywords: Vertical Articulation, Maritime Education, Philippine Qualifications Framework, Maritime Shore-Based Curriculum, Postgraduate Maritime Programs, Curriculum Innovation, Sectoral Integration

INTRODUCTION

Maritime transport remains the cornerstone of global trade, accounting for over 80% of world trade volume (UNCTAD, 2024). However, recent disruptions have extended shipping routes, strained supply chains, and elevated costs – posing serious implications for food security, energy distribution, and economic stability. These vulnerabilities underscore the need for resilient shore-based support systems and a reimagined educational framework that equips maritime professionals not only for shipboard operations but also for strategic, managerial, and policy-oriented roles ashore.

In the Philippines, maritime education is governed by Republic Act (RA) No. 8544, the "Philippine Merchant Marine Officers Act of 1998," (1998) which ensures compliance with shipboard operational competencies under the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW, 1978), as amended. Republic Act 10635 (2014) further designates the Maritime Industry Authority (MARINA) as the sole maritime administration responsible for STCW implementation. Under its Implementing Rules and Regulations (IRR), the Commission on Higher Education (CHED) supervises Maritime Education and Training Programs (METPs) in Maritime Higher Education Institutions (MHEIs). These programs are largely limited to two baccalaureate degrees – Bachelor of Science in Marine Transportation

(BSMT) and Bachelor of Science in Marine Engineering (BSMarE) – which focus on shipboard competencies and often neglect the broader managerial and educational dimensions of maritime shore-based operations.

This narrow academic trajectory has led to a disconnect between undergraduate preparation and the demands of postgraduate maritime education. Many Postgraduate Maritime Programs (PGMPs) are offered without requiring foundational maritime baccalaureate degrees, resulting in gaps in academic coherence and professional readiness. As Macalalad et al. (2016, as cited in Reteracion, 2025) emphasize, graduate schools should provide environments that intensify career paths through vertically aligned curricula. The absence of such articulation impedes professional development and limits the sector's capacity for innovation and leadership.

To address these challenges, this study aims to establish relevant foundational, core, and specialized courses for shore-based baccalaureate degrees that articulate into PGMPs. In doing this, the study shall determine the challenges faced by postgraduate students lacking maritime undergraduate backgrounds. Results shall become the basis to propose an alternative academic scheme for adoption by MHEIs, particularly State Universities and Colleges (SUCs) offering BSMT and BSMarE programs. This includes non-STCW maritime disciplines such as Maritime Education (BSMarEd), Ship Management (BSShipMan), Maritime Management (BSMarMan), and Maritime Administration (BSMarAd).

A vertical articulation model was exemplified by the Maritime Academy of Asia and the Pacific (MAAP) for Master of Science in Marine Transportation and Marine Engineering along with PGMPs offered in the country - Master in Shipping Management (MSM), Master in Maritime Education and Training (MMET), and Master in Maritime Administration (MMarAd) among others. These programs are designed to build on competencies acquired in undergraduate maritime degrees, integrating

strategic management, educational leadership, and policy analysis. The articulation framework ensures that graduates of BSMT and BSMarE can seamlessly transition into these postgraduate tracks, provided that foundational and specialized courses are embedded in their baccalaureate curricula.

By aligning undergraduate and postgraduate programs through evidence-based curriculum design and stakeholder input, this study contributes to the development of a more inclusive, responsive, and strategically oriented maritime education system in the Philippines — one that supports the Philippine Qualification Framework (PQF) and strengthens the pipeline for shore-based maritime leadership.

LITERATURES

Theoretical Foundations for Curriculum Innovation. This study is anchored in Constructivist Learning Theory (CLT) and Curriculum Alignment Theory (CAT), both of which provide a robust framework for designing vertically articulated maritime education programs.

CLT emphasizes that learners construct knowledge through experience and reflection, fostering environments that promote creativity, autonomy, and critical thinking (Yatim, 2009; as cited in Nurhuda et al., 2023). In maritime education, this theory supports the development of Instructional Materials (IMs) that address foundational gaps and encourage experiential learning – particularly vital for students transitioning from seafaring-focused baccalaureate degrees to postgraduate studies.

Lynch (2022) highlights the role of intervention classes in bridging competency gaps, a concept directly applicable to maritime programs where theoretical knowledge must align with practical application. CAT, introduced by Savard and Cotton (1982), stresses the congruence of curriculum, instruction, and assessment. Without a coherent baccalaureate foundation, postgraduate maritime programs risk misalignment, undermining both instructional delivery and evaluation.

Emerson (1981) advocates for articulation partnerships across educational levels, reinforcing the need for structured progression in occupational domains. These theories collectively inform the vertical articulation model proposed in this study.

Current Maritime Educational System (MES). The Philippine Qualifications Framework (PQF, n.d.) serves as the backbone of the national education system, promoting lifelong learning and competency-based progression. However, translating PQF descriptors into actionable curricula remains a challenge (World Bank, 2021). Stakeholders have noted difficulties in aligning vertical and horizontal career pathways, particularly in maritime disciplines.
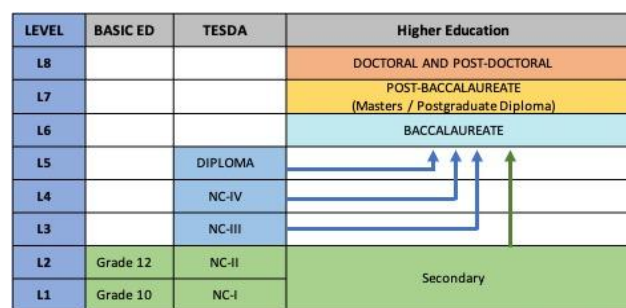

Figure 1
Philippine Qualifications Framework (PQF) Model

Figure 1 illustrates the PQF model, which defines qualification levels and competencies. The study's IM-based intervention aims to operationalize quality framework principles by piloting programs in State Universities and Colleges (SUCs), thereby addressing curricular gaps and enhancing student readiness for postgraduate maritime education.

Vertical Articulation: Bridging Undergraduate and Postgraduate Maritime Education. In the evolving landscape of maritime education, vertical articulation emerges as a strategic imperative rather than a mere curricular formality. It refers to the seamless progression of learning outcomes from baccalaureate degrees to post-baccalaureate programs, ensuring that each educational level builds meaningfully upon the last. Anchored in the PQF, particularly the transition from Level 6 to Level 7, this concept demands more than

technical competence – it calls for the cultivation of autonomy, interdisciplinary engagement, and research capability.

The literature underscores a critical tension: while regulatory frameworks such as the Joint CHED-MARINA Memorandum Circular (JCMMC) 01 series of 2023 mandate alignment, many BD programs remain structurally disconnected from postgraduate expectations. Learners often graduate with limited exposure to research, creative application, or professional independence – key hallmarks of Level 7 readiness. This gap is not just academic; it has sectoral consequences, as the maritime industry increasingly requires professionals who can work complex, globalized challenges with strategic insight.
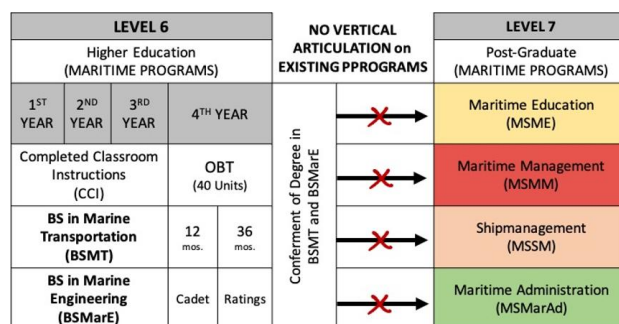
Figure 2
The Articulation of Education in the Maritime Programs.

Figure 2 illustrates this misalignment, revealing that current BD outputs fall short of fostering the depth and autonomy required for advanced study. To address this, institutions must embed capstone projects, research practicums, and interdisciplinary modules within undergraduate curricula. Faculty must be equipped to guide learners through inquiry-based learning and creative synthesis. Ultimately, vertical articulation must be operationalized not just in policy, but in pedagogy – ensuring that maritime education produces not only competent seafarers, but transformative sectoral leaders ashore.

Doctoral-Level Maritime Education: Challenges and Gaps. The literature on postgraduate studies reveals a persistent challenge in academic completion across accredited institutions. Table 1 shows that from AY 2020–

2025, 3,893 students enrolled in master's programs, yet only 322 graduated (Table 2), leaving 3,571 deferred. This annual average of 714 deferred students suggests systemic barriers in curricular design and learner support. Table 3 further disaggregates these figures by discipline, revealing that education and public administration programs account for the highest deferral rates, indicating potential misalignment between program expectations and learner preparedness.

Table 4 reflects the 2024 Academic Data, released on December 31, 2024, by the Office of Programs and Standards Development (OPSD, 2024) of CHED. At the doctoral level, Tables 4 and 5 reported 462 enrollees with only 43 completions and 415 deferrals – an average of 104 PGMP students annually reflected in Table 6 which highlights the most doctoral deferrals occur in education and maritime studies sectors where advanced qualifications are critical for leadership and managerial roles that are prerequisites for deanships and are integral to compliance metrics. Table 6 underscores the institutional implications that postgraduate degrees are only for higher accreditation purposes from CHED-recognized bodies, yet the low conferment rates threaten leadership pipelines and quality assurance benchmarks.

Table 1
Enrolled Data for Master's Degree

SCHOOL	PROGRAM	AY 2020-2021	AY 2021-2022	AY 2022-2023	AY 2023-2024	AY 2024-2025	TOTAL
A	1	75	66	48	52	67	308
	2	122	94	84	92	48	440
B	3	70	21	29	35	15	170
	4	105	110	112	120	73	520
	5	33	33	35	33	14	148
C	6	33	46	41	14	6	140
D	7	49	65	70	62	64	310
	8	37	58	68	51	41	255
E	9	20	13	17	14	12	76
	10	63	76	30	12	11	192
	11	103	104	54	38	18	317
F	12	0	0	102	127	154	383
	13	0	0	66	99	118	283
	14	0	0	0	17	13	30
	15	0	0	0	23	26	49
	16	0	2	7	5	3	17
G	17	0	0	0	0	0	0
	18	52	24	49	69	61	255
TOTAL		762	712	812	863	744	3,893

Table 2
Graduate Data for Master's Degree

SCHOOL	PROGRAM	AY 2020-2021	AY 2021-2022	AY 2022-2023	AY 2023-2024	AY 2024-2025	TOTAL
A	1	8	2	3	12	10	35
	2	15	14	10	1	5	45
B	3	0	5	0	1	4	10
	4	9	8	8	12	9	46
	5	2	2	6	2	4	16
C	6	1	0	5	14	6	26
D	7	1	0	0	0	4	5
	8	0	0	0	0	4	4
E	9	0	0	0	0	1	1
	10	5	3	4	9	2	23
	11	2	5	5	8	5	25
F	12	0	0	0	2	12	14
	13	0	0	0	0	2	2
	14	0	0	0	2	2	4
	15	0	0	0	0	1	1
	16	0	0	0	2	2	4
G	17	0	0	0	0	0	0
	18	11	0	17	20	13	61
TOTAL		54	39	58	85	86	322

Table 3
Deferred value for students with no Conferment of Master's Degree

DEFERRED STUDENTS (AY 2020-2025)		AVERAGE (AY 2020-2025)	
ENROLLED	3,893	ENROLLED	779
GRADUATE	322	GRADUATE	65
			714
DEFERRED	3,571	DEFERRED	annually in 5 academic years

Table 4
Enrolled Data for Doctorate Degree

SCHOOL	PROGRAM	AY 2020-2021	AY 2021-2022	AY 2022-2023	AY 2023-2024	AY 2024-2025	TOTAL
A	1	152	106	96	74	21	449
B	2	2	1	2	5	3	13
TOTAL		154	107	98	79	24	462

Table 5
Graduate Data for Doctorate Degree

SCHOOL	PROGRAM	AY 2020-2021	AY 2021-2022	AY 2022-2023	AY 2023-2024	AY 2024-2025	TOTAL
A	1	1	8	5	9	20	43
B	2	0	0	0	0	0	0
TOTAL		1	8	5	9	20	43

Table 6 offers a diagnostic synthesis, attributing deferrals to overloaded curricula, insufficient research scaffolding, and weak vertical articulation from undergraduate programs. These findings call for strategic reforms – embedding capstone projects, enhancing academic advising, and recalibrating postgraduate pathways to ensure coherence and completion. Without such interventions, the promise of advanced scholarship remains structurally constrained.

Table 6
Deferred value for students with no Conferment of Doctorate Degree

DEFERRED STUDENTS (AY 2020-2023)		AVERAGE (AY 2020-2023)	
ENROLLED	438	ENROLLED	110
GRADUATE	23	GRADUATE	6
			104
DEFERRED	415	DEFERRED	annually in 4 academic years

Proposed Shore-based Career Path. The Proposed Shore-Based Career Paths presents a strategic reimagining of maritime education in the Philippines, shifting focus from traditional shipboard roles to dynamic, land-based opportunities. This transition responds to industry demands and educational gaps, particularly the shortage of qualified personnel for shore-based maritime operations. The document underscores the need for curriculum innovation aligned with shore-based maritime industry needs which collectively mandate the development of innovative and specialized academic tracks beyond the conventional BSMT and BSMarE programs.

At the heart of this proposal is the integration of technical maritime knowledge with business, administrative, and regulatory competencies – essential for managing port operations, training institutions, shipping firms, and government agencies. The literature emphasizes that the employability of graduate hinges on curricula that reflect technological integration, industry relevance, and pedagogical advancement. It also highlights the role of andragogy in shaping instructional methodologies for adult learners in maritime education.

The proposed academic trajectory is designed to diversify career options and elevate the professional stature of maritime graduates. It introduces four distinct baccalaureate programs each tailored to specific area needs:

1. **Maritime Education (MarEd).** Focused on academic and training institutions, MarEd prepares specialists in instructional delivery, curriculum development, and crew education. Roles include academic technicians, invigilators, and training guides at manning agencies. Graduates may pursue careers as National Academic Technical Evaluators, Environmental and Safety Officers, Maritime Operations Managers, and Project Managers.

2. **Maritime Management (MarMan).** This program equips students for logistics and supply chain roles, integrating business acumen with maritime operations. Career paths include Logistics Manager, Freight Forwarder, Port Manager, and Import/Export Specialist. It draws inspiration from global models such as the Loeb-Sullivan School of International Business & Logistics, emphasizing planned maintenance systems and chartering practices.

3. **Shipmanagement (ShipMan).** ShipMan focuses on technical oversight and analytics for shipping and manning agencies. Graduates are trained in vessel auditing, crew management, and compliance with International Maritime Organization (IMO) standards. Career options include Fleet Manager, Technical Manager, and Company Deputy Officer, with responsibilities spanning shipyard coordination and quality assurance.

4. **Maritime Administration (MarAd).** Designed for government service, MarAd prepares professionals for roles in certification, accreditation, and maritime surveillance. Graduates may serve in the Coast Guard, Maritime Police, or Transportation Office, contributing to safety, security, and regulatory enforcement. The program also supports Port State Control collaboration and international trade operations.

By articulating these programs, the literature provides a roadmap for Higher Education Institutions (HEIs) to adopt innovative curricula that respond to both local and global maritime challenges. The emphasis of CHED's PGMP ensures regulatory alignment and institutional legitimacy. Ultimately, this academic restructuring fosters a more resilient, versatile, and future-ready maritime workforce – one that can thrive beyond the confines of shipboard employment and contribute meaningfully to the broader shore-based operations and career opportunities.

Research Objectives. Building upon the breadth of literature reviewed and the comprehensive analysis undertaken on maritime education, this study seeks to address a critical gap in the academic preparation of professionals pursuing shore-based careers in the maritime sector.

Recognizing the evolving demands of the industry and the limitations of traditional shipboard-focused programs, the research aims to establish a robust academic framework that supports the development of specialized baccalaureate degrees. Specifically, the study pursues three interrelated objectives:

1. To identify the relevant courses to be adopted in the proposed shore-based baccalaureate programs across three curricular domains – Foundation, Core, and Specialization;

2. To categorize the challenges encountered by postgraduate maritime students who lack foundational undergraduate training in maritime disciplines, thereby illuminating barriers to academic progression and professional integration; and,

3. To develop a proposed academic curriculum as an alternative program scheme for innovative education, intended for adoption by Higher Education Institutions of the following baccalaureate programs: Maritime Education, Maritime Management, Shipmanagement, and Maritime Administration.

These objectives are anchored in the mandates of CHED-PGMP, which collectively advocate for curricular diversification, industry innovation, and the elevation of maritime education standards. Through this study, a strategic academic flight is envisioned – one that empowers Filipino maritime graduates to succeed in appropriately qualified shore-based roles and bolster maritime career ecosystem.

METHODOLOGY

Research Design. This study employed a mixed-method research design to address its three objectives with methodological precision. Quantitative data were used to elicit participant perceptions on relevant courses across Foundation, Core, and Specialization domains, directly addressing Objective 1. Meanwhile, qualitative data captured nuanced challenges faced by postgraduate maritime students

lacking undergraduate maritime backgrounds, fulfilling Objective 2. The integration of both methods ensures contextual depth and empirical rigor, making the design highly appropriate for the study's aims. Insights from these two objectives serve as the empirical foundation for crafting the proposed academic curricula under Objective 3, thereby advancing innovative, shore-based maritime education.

Population and Sampling. This study employed 60 respondents who are currently engaged in the forefront of maritime education and training sector. The limited number of participants was due to the niche and emerging nature of shore-based maritime education, which is characterized by few institutional offerings and a relatively small pool of enrolled students. Despite the modest sample size, the representation remains valid and meaningful, as the selected participants possess specialized backgrounds and direct experience relevant to the study's objectives. Their insights reflect the realities of postgraduate maritime education and its curricular gaps. To ensure relevance and depth, purposive sampling was applied – targeting individuals whose expertise and academic trajectories align with the proposed shore-based programs, thereby strengthening the study's analytical rigor.

Of the total participants, 51.1% were graduates of PGMP, while 48.9% were currently enrolled and earning units. All participants lack vertical articulation of their BDs to the PGMPs.

Research Instrument. The instrument employed in this study was a structured survey designed to capture both quantitative and qualitative data, aligning with the mixed-method approach of the research. Quantitatively, the instrument elicited participant responses regarding the relevance of courses across three curricular domains – Foundation, Core, and Specialization – addressing the first research objective. The relevant foundation courses identified as common across the existing maritime curricula offered by the 7 graduate schools were 16 courses. These were derived from the consolidated offerings within the PGMP, enabling statistical analysis of perceived

curricular alignment for proposed shore-based baccalaureate degrees. Table 7 below presents the Likert scale used in measuring the relevant courses.

Table 7
Scale Measure in Identifying Relevant Courses

Scale	Description	Interpretation
7.26 – 10.00	Highly Relevant	The course is very important to be adopted in the program.
5.01 – 7.25	Relevant	The course is important to be adopted in the program.
2.51 – 5.00	Slightly Relevant	The course is of little importance to be adopted in the program.
1.00 – 2.50	Not Relevant	The course is of no importance to be adopted in the program.

Qualitatively, the instrument included open-ended items that explored the challenges encountered by postgraduate maritime students who lacked foundational undergraduate training in maritime disciplines. This component addressed the second research objective by uncovering experiential insights and barriers to academic progression and professional integration.

To ensure content validity, the instrument underwent expert review by two specialists in curriculum development. Their evaluation focused on the instrument's relevance to vertical articulation and its alignment with the study's objectives. Recommended revisions were incorporated prior to deployment. The finalized instrument was disseminated via Google Forms, allowing participants from designated institutions to respond within a specified timeframe. This dual-format instrument provided a comprehensive data set, supporting both empirical analysis and thematic interpretation essential for curriculum development in maritime education.

Data Collection. The survey instrument was administered digitally via Google Forms to ensure accessibility and convenience for participants. This format allowed asynchronous responses, enhancing data quality and participation rates. Participants were contacted through their email addresses, with follow-up

communication used to clarify open-ended responses and resolve discrepancies.

Data Analysis. The study employed a dual-component data analysis aligned with its mixed-method design. Quantitative analysis of PGMP curricula from seven institutions utilized descriptive statistics – percentages, means, frequencies, and rankings – to assess course relevance across Foundation, Core, and Specialization domains. Concurrently, qualitative data from open-ended responses were examined using thematic analysis to identify recurring challenges among postgraduate students lacking maritime undergraduate backgrounds. As Ahmed et al. (2025) note, thematic analysis is a robust method for interpreting patterns of meaning within qualitative data. The integrated findings provide a substantive basis for curriculum development, informing vertically articulated shore-based programs in Maritime Education, Management, Shipmanagement, and Administration.

Ethical Considerations. The study upheld ethical standards by ensuring voluntary participation, preceded by a brief orientation and informed consent embedded within the survey instrument. Respondents were required to meet age and cognitive criteria for valid engagement. Confidentiality of participant identities and related documents was strictly maintained throughout the research process. Participants retained the right to withdraw at any stage without consequence. Proper attribution of referenced scholarly works was observed, reinforcing academic integrity and ethical compliance in reporting.

RESULTS

The relevant courses to be adopted in the proposed shore-based baccalaureate programs across three curricular domains – Foundation, Core, and Specialization. The foundational course rankings underscore the strategic prioritization of legal, technological, and managerial competencies vital for shore-based maritime education. "Comprehensive Maritime Law, Policy and Legislation" (90%) and "Maritime

Technology, Digital Innovation and Sustainability" (88.3%) emerged as top-ranked, reflecting the sector's evolving demands for legal literacy and adaptive innovation. Consistent with Mannherz et al. (2024), the emphasis on foundational competencies aligns with global trends in maritime curriculum reform. As stipulated, only courses with a 50% and above rating were retained for curricular integration, narrowing the selection to ten key subjects.

Table 8
Proposed Foundation Courses for proposed Shore-based Baccalaureate Programs.

PROPOSED FOUNDATION COURSES IN THE CURRICULUM INTERVENTION			
No.	Course Description	%	f	Rank
1	Comprehensive Maritime Law, Policy and Legislation	90.0	54	1
2	Maritime Technology, Digital Innovation and Sustainability	88.3	53	2
3	Application of Maritime Management	76.7	46	3
4	Philippine Maritime Education, Training and Certification	75.0	45	4
5	Fundamental of the Maritime Transport Industry	71.7	43	5
6	Health, Safety, Security, Environment and Energy	70.0	42	4
7	Philosophy of Maritime Studies and the Andragogical Learning	65.0	39	7
8	Contemporary Issues and Affairs in Maritime Industry	60.0	36	8
9	Overview of Operations Management in Maritime Business	58.3	35	9
10	Introduction to Quality Management System	50.0	30	10.5
11	Strategic Planning and Development	50.0	30	10.5
12	Global Leadership and Organizational Behavior	46.7	28	12.5
13	Introduction to Global Supply Chain Management	46.7	28	12.5
14	Anatomy of Maritime Economics and Business	43.3	26	14
15	Ethics and Corporate Social Responsibility	40.0	24	15
16	Common Approaches in Resource Management	28.3	17	16

This threshold ensures curricular relevance and stakeholder consensus. Notably, the inclusion of "Introduction to Quality Management System" over "Strategic Planning and Development" (both at 50%) reflects a strategic tilt toward operational excellence. The results affirm that foundational knowledge in law, safety, and digital systems forms the bedrock of vertical articulation, supporting PQF levels 6–7 and enabling seamless transition to postgraduate maritime programs. The findings reinforce the need for competency-based frameworks that bridge academic preparation

with industry expectations (Mannherz et al., 2024).

Table 9
Proposed Core and Specialized Courses for proposed BSMarEd.

PROPOSED CORE AND SPECIALIZED COURSES IN THE CURRICULUM INTERVENTION				
No.	Baccalaureate Course Description aligned to MASTER OF SCIENCE IN MARITIME EDUCATION (MSME)	%	Mean	Description	Rank
1	Curriculum Development and Design including its Tests and Measurement	14.10	7.75	Highly Relevant	1
2	Assessment & Accreditation of Maritime Programs based in the Convention	13.58	7.47	Highly Relevant	2
3	Dynamics and Methodology of Teaching, Instructional Planning and Approaches	12.34	6.78	Relevant	3
4	Administration and Supervision in MET	11.19	6.15	Relevant	4
5	Instructional Procedures, Evaluation, Assessment and Certification Issues	10.40	5.72	Relevant	5
6	Marine Environmental Protection and Issues	9.79	5.38	Relevant	6
7	Financial Management (School Finance in a Changing Society)	7.71	4.23	Slightly Relevant	7
8	Human Resource Management in Maritime Studies	7.64	4.20	Slightly Relevant	8
9	Organization, Monitoring and Supervision of Education	6.76	3.72	Slightly Relevant	9
10	Problems in the delivery and assessment of Maritime Program Instructions	6.49	3.57	Slightly Relevant	10
	TOTAL		5.15	Relevant	

Table 9 presents the proposed Core and Specialized Courses for proposed BSMarEd. The core and specialized course rankings for BSMarEd reveal a strong curricular alignment with PGMP competencies, particularly in instructional design and accreditation. "Curriculum Development and Design including its Test and Measurement" (14.10%, m=7.75) and "Assessment & Accreditation of Maritime Programs" (13.58%, m=7.47) were rated as highly relevant, affirming the sector's emphasis on pedagogical rigor and regulatory compliance. With a mean score of 5.15, the overall selection supports vertical articulation by embedding advanced instructional methodologies and quality assurance frameworks into the undergraduate maritime education track. Ranks 1 to 5 were classified as Specialized courses, whilst ranks 6 to 10 were designated as Core courses in the proposed Innovative Education.

The BSMarMan course rankings in Table 10 reflect a strong emphasis on legal, operational, and human resource competencies essential for maritime management. "Chartering and Maritime Contracts" (12.32%, m=6.77) and "Principles of Marine Human Resource Management" (11.75%, m=6.45) led the selection,

indicating the sector's prioritization of contractual literacy and workforce optimization.

Table 10
Proposed Core and Specialized Courses for proposed BSMarMan

PROPOSED CORE AND SPECIALIZED COURSES IN THE CURRICULUM INTERVENTION					
No.	Baccalaureate Course Description aligned to MASTER OF SCIENCE IN MARITIME MANAGEMENT (MSMM)	%	Mean	Description	Rank
1	Chartering and Marine Contracts	12.32	6.77	Relevant	1
2	Principles of Marine Human Resource Management	11.75	6.45	Relevant	2
3	Marine Insurance and Claims	11.41	6.26	Relevant	3
4	Global Logistics and Vessel Operations	11.35	6.23	Relevant	4
5	Maritime Admiralty and Transport Law	10.71	5.88	Relevant	5
6	Global and Intercultural Competence	10.65	5.85	Relevant	6
7	Port Management and Maritime Economics	9.14	5.02	Relevant	7
8	Ocean Sustainability, Governance and Management	8.47	4.65	Slightly Relevant	8
9	Ship Superintendence and Port State Control Practice	7.28	4.00	Slightly Relevant	9
10	Shipping Financial Management	6.92	3.80	Slightly Relevant	10
		TOTAL	5.50	Relevant	

With an overall mean of 5.50, the results affirm the relevance of these specialized and core courses in supporting vertical articulation, aligning managerial training with the strategic demands of shore-based maritime operations.

Table 11
Proposed Core and Specialized Courses for proposed BSShipMan.

PROPOSED CORE AND SPECIALIZED COURSES IN THE CURRICULUM INTERVENTION					
No.	Baccalaureate Course Description aligned to MASTER OF SCIENCE IN SHIP MANAGEMENT (MSSM)	%	Mean	Description	Rank
1.	Maritime Human Resource Management	12.53	6.88	Relevant	1
2.	Maritime Managerial Economics and Logistics	12.04	6.62	Relevant	2
3.	Management Information System	12.01	6.60	Relevant	3
4.	Port Operations and Shipyard Practices	11.10	6.10	Relevant	4
5.	Quality Assurance in Ship Management	10.41	5.72	Relevant	5
6.	Ship Operations, Chartering and Marine Insurance	10.04	5.52	Relevant	6
7.	Political Environment in Commercial Aspect of Shipping	8.90	4.83	Slightly Relevant	7.5
8.	Marine Ecology and Environmental Conservation	8.80	4.83	Slightly Relevant	7.5
9.	Ship Survey and Vetting Inspection	7.86	4.32	Slightly Relevant	9
10.	Shipping Financial and Accounting Management	6.31	3.47	Slightly Relevant	10
		TOTAL	5.50	Relevant	

The BSShipMan course rankings in Table 11 emphasize operational, managerial, and digital competencies vital for ship management careers. "Maritime Human Resource Management" (12.53%, m=6.88), "Maritime Managerial Economics and Logistics" (12.04%, m=6.62), and "Management Information System" (12.01%, m=6.60) led the selection, reflecting the sector's prioritization of workforce optimization

and data-driven decision-making. With an overall mean of 5.50, the results affirm the relevance of these specialized and core courses in supporting vertical articulation, aligning ship management education with the strategic demands of shore-based maritime operations.

Table 12
Proposed Core and Specialized Courses for proposed BSMarAd.

PROPOSED CORE AND SPECIALIZED COURSES IN THE CURRICULUM INTERVENTION					
No.	Baccalaureate Course Description aligned to MASTER OF SCIENCE IN MARITIME ADMINISTRATION (MSMarAd)	%	Mean	Description	Rank
1.	Accreditation and Monitoring of Maritime Education and Training	14.67	8.07	Highly Relevant	1
2.	Administration of the Flag State based on International Convention and Code	13.19	7.25	Relevant	2
3.	Cybersecurity and ICT in Maritime Administration	10.28	5.65	Relevant	3.5
4.	Port Operation, Management and Finance	10.28	5.65	Relevant	3.5
5.	Human Resource and Strategic Management	9.91	5.45	Relevant	5
6.	Domestic Management, Administration and Supervision	9.85	5.42	Relevant	6
7.	Ship Operations and Administration including Ship Survey and Vetting Inspection	9.49	5.22	Relevant	7
8.	Project and Risk Management in the Maritime Sector	9.09	5.00	Slightly Relevant	8
9.	Marine Eco-Tourism and Business Opportunities	7.24	3.98	Slightly Relevant	9
10.	Trends, Issues and Breakthrough in the Maritime Industry	6.00	3.30	Slightly Relevant	10
		TOTAL	5.49	Relevant	

The BSMarAd course rankings in Table 12 highlight the sector's strategic emphasis on regulatory oversight, digital governance, and institutional quality assurance. "Accreditation and Monitoring of Maritime Education and Training" (14.67%, m=8.07) and "Administration of the Flag State based on International Convention and Code" (13.19%, m=7.25) led the selection, affirming the program's alignment with international standards. With an overall mean of 5.49, the results support vertical articulation by embedding administrative, cybersecurity, and strategic management competencies essential for shore-based maritime leadership.

Challenges encountered by the participants during their postgraduate maritime studies with no foundational background from an undergraduate degree. Postgraduate students entering maritime programs without prior foundational training face distinct academic and cognitive hurdles. Thematic analysis revealed six core challenges that underscore the need for curricular responsiveness and pedagogical adaptation.

Interdisciplinary Integration in Maritime Studies. Participants with non-maritime backgrounds struggled to assimilate technical content, revealing a gap in interdisciplinary preparedness. One respondent noted, "Technical concepts or terms, research and analytical skills" were particularly difficult, while another shared, "I didn't face many challenges in technical subjects… but I did encounter difficulties in general subjects like statistics, research, psychology, and foreign language." This suggests that foundational gaps extend beyond maritime-specific knowledge, affecting broader academic competencies.

Complexity of Terminology and Concepts. The specialized language of maritime education posed significant barriers. As one participant expressed, "Understanding complex maritime concepts and terminology has been the main challenge without a foundational background." The cognitive load associated with unfamiliar jargon impeded conceptual clarity and practical application, especially in regulatory and technical modules.

Time Management and Study Commitment. Balancing academic demands with professional obligations emerged as a persistent challenge. "Be prepared to dedicate extra time and effort to your studies," advised one respondent, while another emphasized, "Time management with studying and teaching at the same time." These reflections highlight the need for flexible scheduling and learner-centered pacing in postgraduate curricula.

Support Systems. The absence of robust academic and institutional support was frequently cited. "Lack of resources (financial)," and "The availability of related and relevant literature and studies" were noted as constraints. Participants called for enhanced language instruction, tailored training, and inclusive curriculum design to accommodate diverse educational trajectories.

Embracing a Growth Mindset. Despite difficulties, many participants demonstrated resilience. "Embrace the challenge: View the lack of foundational background as an opportunity to learn and grow," one advised. This mindset fosters adaptive learning and underscores the importance of cultivating academic self-efficacy in postgraduate environments.

Shared Experience. A sense of solidarity among learners helped mitigates individual struggles. "This shared experience created a supportive community," one participant reflected, suggesting that peer networks play a vital role in fostering collaboration and emotional support.

Proposed academic curriculum as Alternative Program Scheme for an Innovative Education in Higher Education Institutions. Presented below are the proposed baccalaureate programs in BSMarEd (Table 13), BSMarMan (Table 14), BSShipMan (Table 15), and BSMarAd (Table 16). These are all vertically articulated with the PGMP. The tables were designed to ensure the appropriate placement of courses in each semester, accommodating other curriculum components such as institutional, general education, electives, mandatory, scholarly works and immersion studies.

Table 13
Proposed Baccalaureate Program for BSMarEd under the Alternative Program Scheme for Innovative Education

BACHELOR OF SCIENCE IN MARITIME EDUCATION (BSMarEd)									
1st YEAR (1ST SEMESTER)					1st YEAR (2nd SEMESTER)				
Code	Description	Unit	Pre-req	Co-req	Code	Description	Unit	Pre-req	Co-req
FMar 100	Health, Safety, Security, Environment and Energy	3	---	---	FMar 101	Philosophy of Maritime Studies and the Andragogical Learning	3	---	---
BACHELOR OF SCIENCE IN MARITIME EDUCATION (BSMarEd)									
2nd YEAR (1ST SEMESTER)					2nd YEAR (2nd SEMESTER)				
Code	Description	Unit	Pre-req	Co-req	Code	Description	Unit	Pre-req	Co-req
FMar 102	Maritime Technology, Digital Innovation and Sustainability	3	ICT	---	FMar 103	Philippine Maritime Education, Training and Certification	3	---	---
---	---	---	---	---	FMar 106	Application of Maritime Management	3	LAT	---
---	---	---	---	---	CME 100	Marine Environmental Protection and Issues	3	EPP	---
BACHELOR OF SCIENCE IN MARITIME EDUCATION (BSMarEd)									
3rd YEAR (1ST SEMESTER)					3rd YEAR (2nd SEMESTER)				
Code	Description	Unit	Pre-req	Co-req	Code	Description	Unit	Pre-req	Co-req
FMar 107	Overview of Operations Management in Maritime Business	3	---	---	FMar 109	Introduction on Quality Management System	3	FMar 104	---
FMar 108	Comprehensive Maritime Law, Policy and Legislation	3	FML	---	CME 102	Organization and Supervision of Maritime Educational Institutions	3	---	---
CME 101	Human Resource Management in Maritime Studies	3	FMar 106	---	CME 103	Problems in the delivery and assessment of Maritime Program Instructions	3	---	---
CME 104	Financial Management (School Finance in a Changing Society)	3	---	---	SME 100	Curriculum Development and Design including its Tests and Measurement	3	---	---
FMar 104	Contemporary Issues and Affairs in Maritime Industry	3	---	---	SME 101	Assessment & Accreditation of Maritime Programs based on the International Convention	3	FMar 108	---
FMar 105	Fundamentals of the Maritime Transport Industry	3	---	---	---	---	---	---	---

BACHELOR OF SCIENCE IN MARITIME EDUCATION (BSMarEd)									
4th YEAR (1st SEMESTER)					4th YEAR (2nd SEMESTER)				
Code	Description	Unit	Pre-req	Co-req	Code	Description	Unit	Pre-req	Co-req
SME 102	Dynamics and Methodology of Teaching, Instructional Planning and Approaches	3	---	---	IS 1	On-site Immersion (324 hours)	9	---	---
SME 103	Administration and Supervision in MET	3	CME 102 & CME 103	---	IS 2	Capstone Project and Scholarly Portfolio	3	---	IS1
SME 104	Instructional Procedures, Evaluation, Assessment and Certification Issues	3	---	---		*Nothing Follows*	---	---	----

Table 14

Proposed Baccalaureate Program for BSMarMan under the Alternative Program Scheme for Innovative Education

BACHELOR OF SCIENCE IN MARITIME MANAGEMENT (BSMarMan)									
1st YEAR (1st SEMESTER)					1st YEAR (2nd SEMESTER)				
Code	Description	Unit	Pre-req	Co-req	Code	Description	Unit	Pre-req	Co-req
FMar 100	Health, Safety, Security, Environment and Energy	3	---	---	FMar 101	Philosophy of Maritime Studies and its Andragogical Learning	3	---	---

BACHELOR OF SCIENCE IN MARITIME MANAGEMENT (BSMarMan)									
2nd YEAR (1st SEMESTER)					2nd YEAR (2nd SEMESTER)				
Code	Description	Unit	Pre-req	Co-req	Code	Description	Unit	Pre-req	Co-req
FMar 102	Maritime Technology, Digital Innovation and Sustainability	3	ICT	---	FMar 103	Philippine Maritime Education, Training and Certification	3	---	---
---	---	---	----	---	FMar 106	Application of Maritime Management	3	LAT	---
---	---	---	----	---	CMM 100	Ocean Sustainability, Governance and Management	3	EPP	---

BACHELOR OF SCIENCE IN MARITIME MANAGEMENT (BSMarMan)									
3rd YEAR (1st SEMESTER)					3rd YEAR (2nd SEMESTER)				
Code	Description	Unit	Pre-req	Co-req	Code	Description	Unit	Pre-req	Co-req
FMar 107	Overview of Operations Management in Maritime Business	3	---	---	FMar 109	Introduction on Quality Management System	3	FMar 108	---
FMar 108	Comprehensive Maritime Law, Policy and Legislation	3	FML	---	CMM 103	Ship Superintendence and Port State Control Practice	3	FMar 108	---
CMM 101	Global and Intercultural Competence	3	---	---	CMM 104	Shipping Financial Management	3	---	---
CMM 102	Port Management and Maritime Economics	3	---	---	SMM 100	Marine Insurance and Claims	3	---	---
FMar 104	Contemporary Issues and Affairs in Maritime Industry	3	---	---	SMM 101	Principles of Maritime Human Resource Management	3	FMar 106	---
FMar 105	Fundamentals of the Maritime Transport Industry	3	---	---	---	---	----	----	---

BACHELOR OF SCIENCE IN MARITIME MANAGEMENT (BSMarMan)									
4th YEAR (1st SEMESTER)					4th YEAR (2nd SEMESTER)				
Code	Description	Unit	Pre-req	Co-req	Code	Description	Unit	Pre-req	Co-req
SMM 102	Chartering and Marine Contracts	3	---	---	IS 1	On-site Immersion (324 hours)	9	---	---
SMM 103	Global Logistics and Vessel Operations	3	CMM 101	---	IS 2	Capstone Project and Scholarly Portfolio	3	---	IS1
SMM 104	Maritime Admiralty and Transport Law	3	FMar108 & SMM 100	---	---	*Nothing Follows*	---	---	----

Table 15

Proposed Baccalaureate Program for BSShipMan under the Alternative Program Scheme for Innovative Education

BACHELOR OF SCIENCE IN SHIP MANAGEMENT (BSShipMan)									
1st YEAR (1st SEMESTER)					1st YEAR (2nd SEMESTER)				
Code	Description	Unit	Pre-req	Co-req	Code	Description	Unit	Pre-req	Co-req
FMar 100	Health, Safety, Security, Environment and Energy	3	---	---	FMar 101	Philosophy of Maritime Studies and its Andragogical Learning	3	---	---

BACHELOR OF SCIENCE IN SHIP MANAGEMENT (BSShipMan)									
2nd YEAR (1st SEMESTER)					2nd YEAR (2nd SEMESTER)				
Code	Description	Unit	Pre-req	Co-req	Code	Description	Unit	Pre-req	Co-req
FMar 102	Maritime Technology, Digital Innovation and Sustainability	3	ICT	---	FMar 103	Philippine Maritime Education, Training and Certification	3	---	---
---	---	---	----	---	FMar 106	Application of Maritime Management	3	LAT	---
---	---	---	----	---	CSM 100	Ocean Ecology and Environmental Preservation	3	EPP	---

BACHELOR OF SCIENCE IN SHIP MANAGEMENT (BSShipMan)									
3rd YEAR (1st SEMESTER)					3rd YEAR (2nd SEMESTER)				
Code	Description	Unit	Pre-req	Co-req	Code	Description	Unit	Pre-req	Co-req
FMar 107	Overview of Operations Management in Maritime Business	3	---	---	FMar 109	Introduction on Quality Management System	3	FMar 108	---
FMar 108	Comprehensive Maritime Law, Policy and Legislation	3	FML	---	CSM 103	Ship Survey and Vetting Inspection	3	---	---
CSM 101	Ship Operations, Chartering and Marine Insurance	3	---	---	CSM 104	Shipping Financial and Accounting Management	3	---	---
CSM 102	Political Environment in Commercial Aspect of Shipping	3	---	---	SSM 100	Principles of Maritime Human Resource Management	3	FMar 108	---
FMar 104	Contemporary Issues and Affairs in Maritime Industry	3	---	---	SSM 101	Management Information System	3	---	---
FMar 105	Fundamentals of the Maritime Transport Industry	3	---	---	---	---	---	---	---

BACHELOR OF SCIENCE IN SHIP MANAGEMENT (BSShipMan)									
4th YEAR (1st SEMESTER)					4th YEAR (2nd SEMESTER)				
Code	Description	Unit	Pre-req	Co-req	Code	Description	Unit	Pre-req	Co-req
SSM 102	Maritime Managerial Economics and Logistics	3	FMar 102	---	IS 1	On-site Immersion (324 hours)	9	---	---
SSM 103	Port Operations and Shipyard Practices	3	CSM 101	---	IS 2	Capstone Project and Scholarly Portfolio	3	---	IS1
SSM 104	Quality Assurance in Ship Management	3	CSM 103 & SSM 101	---		*Nothing Follows*	---	---	----

Table 16

Proposed Baccalaureate Program for BSMarAd under the Alternative Program Scheme for Innovative Education

BACHELOR OF SCIENCE IN MARITIME ADMINISTRATION (BSMarAd)									
1st YEAR (1st SEMESTER)					1st YEAR (2nd SEMESTER)				
Code	Description	Unit	Pre-req	Co-req	Code	Description	Unit	Pre-req	Co-req
FMar 100	Health, Safety, Security, Environment and Energy	3	---	---	FMar 101	Philosophy of Maritime Studies and its Andragogical Learning	3	---	---

BACHELOR OF SCIENCE IN MARITIME ADMINISTRATION (BSMarAd)									
2nd YEAR (1st SEMESTER)					2nd YEAR (2nd SEMESTER)				
Code	Description	Unit	Pre-req	Co-req	Code	Description	Unit	Pre-req	Co-req
FMar 102	Maritime Technology, Digital Innovation and Sustainability	3	ICT	---	FMar 103	Philippine Maritime Education, Training and Certification	3	---	---
---	---	---	----	---	FMar 106	Application of Maritime Management	3	LAT	---
---	---	---	----	---	CMA 100	Marine Eco-Tourism and Business Opportunities	3	EPP	---

BACHELOR OF SCIENCE IN MARITIME ADMINISTRATION (BSMarAd)									
3rd YEAR (1st SEMESTER)					3rd YEAR (2nd SEMESTER)				
Code	Description	Unit	Pre-req	Co-req	Code	Description	Unit	Pre-req	Co-req
FMar 107	Overview of Operations Management in Maritime Business	3	---	---	FMar 109	Introduction on Quality Management System	3	FMar 108	---
FMar 108	Comprehensive Maritime Law, Policy and Legislation	3	FML	---	CMA 103	Domestic Management, Administration and Supervision	3	FMar 108	---
CMA 101	Ship Operations and Administration including Ship Survey and Vetting Inspection	3	---	---	CMA 104	Maritime Safety and Human Elements	3	FMar 100	---
CMA 102	Project and Risk Management in the Maritime Sector	3	---	---	SMA 100	Port Operation, Management and Finance	3	---	---
FMar 104	Contemporary Issues and Affairs in Maritime Industry	3	---	---	SMA 101	Human Resource and Strategic Management	3	FMar 106	---
FMar 105	Fundamentals of the Maritime Transport Industry	3	---	---	---	---	----	----	---

BACHELOR OF SCIENCE IN MARITIME ADMINISTRATION (BSMarAd)									
4th YEAR (1st SEMESTER)					4th YEAR (2nd SEMESTER)				
Code	Description	Unit	Pre-req	Co-req	Code	Description	Unit	Pre-req	Co-req
SMA 102	Cybersecurity and ICT in Maritime Administration	3	FMar 102	---	IS 1	On-site Immersion (324 hours)	9	---	---
SMA 103	Accreditation and Monitoring of Maritime Education and Training	3	CMA 104	---	IS 2	Capstone Project and Scholarly Portfolio	3	---	IS1
SMA 104	Administration of the Flag State based on International Convention and Code	3	CMA 103	---	---	*Nothing Follows*	---	----	----

Note: ICT – Software Applications and Network Systems; LAT – Leadership and Teamwork; EPP – Environmental Performance and Protection; FML – Fundamentals of Maritime Law

DISCUSSION

The findings of this study affirm the strategic relevance of vertically articulating maritime baccalaureate degrees with postgraduate programs, particularly in the context of shore-based maritime education. This articulation is anchored in the Philippine Qualifications Framework (PQF) levels 6 and 7, ensuring curricular coherence and progressive competency development (Wang & Wang, 2019). The proposed curriculum intervention – structured across foundational, core, and specialized domains – demonstrates a deliberate alignment with industry demands and academic rigor.

The prioritization of foundational courses such as "Comprehensive Maritime Law, Policy and Legislation" and "Maritime Technology, Digital Innovation and Sustainability" reflects the sector's evolving emphasis on legal literacy and technological adaptability. These findings resonate with Mannherz et al. (2024), who underscore the global shift toward competency-based maritime education. The inclusion of courses rated above 50% ensures stakeholder consensus and curricular relevance.

Specialized courses across the four proposed baccalaureate tracks (BSMarEd, BSMarMan, BSShipMan, BSMarAd) were ranked based on their alignment with postgraduate competencies. For instance, "Curriculum Development and Design" in BSMarEd and "Chartering and Marine Contracts" in BSMarMan emerged as highly relevant, indicating the sector's prioritization of pedagogical design and contractual expertise. Similarly, BSShipMan emphasized managerial and digital competencies, while BSMarAd highlighted regulatory oversight and institutional quality assurance – affirming the need for differentiated yet integrated curricular pathways (Saisai, 2021; Chiong, 2023).

The raw narratives further illuminate the lived experiences of postgraduate students, particularly those without maritime undergraduate backgrounds. Challenges such as interdisciplinary integration and conceptual complexity were recurrent. One participant remarked, "Understanding complex maritime concepts and terminology has been the main challenge without a foundational background," underscoring the demands of transitioning into specialized maritime education.

Time management and study commitment were also salient, especially among working professionals. "Be prepared to dedicate extra time and effort to your studies," advised one respondent, highlighting the need for flexible learning modalities and institutional support. The absence of robust support systems – ranging from financial resources to academic guidance – was frequently cited, reinforcing the

imperative for inclusive and responsive educational environments.

Despite these challenges, many participants demonstrated resilience and a growth mindset. "View the lack of foundational background as an opportunity to learn and grow," one shared, reflecting the transformative potential of vertically articulated programs. The emergence of shared experiences and peer solidarity further suggests that community-building mechanisms can enhance academic persistence and emotional well-being.

In sum, the proposed curriculum offers a holistic framework for innovative education in higher education institutions. By embedding foundational competencies, sectoral relevance, and learner-centered design, it supports both academic progression and professional readiness. As Nance and Brown (2022) and Veitch and Alsos (2022) argue, such integrative models are essential for dynamic safety performance and strategic maritime leadership in shore-based contexts.

Recommendations. In light of the study's findings on the vertical articulation of maritime baccalaureate degrees with postgraduate programs, several strategic recommendations are proposed to enhance curricular coherence, institutional responsiveness, and learner outcomes in maritime higher education.

First, the Commission on Higher Education (CHED) is encouraged to formulate a policy framework that incentivizes State Universities and Colleges (SUCs) and autonomous institutions – particularly those designated as Centers of Excellence (COEs) – to adopt vertically articulated shore-based maritime curricula. This framework should delineate minimum standards, accreditation benchmarks, and programmatic guidelines for non-STCW-aligned courses, ensuring alignment with Philippine Qualifications Framework (PQF) levels 6 and 7 and fostering uniformity across Maritime Higher Education Institutions (MHEIs).

Second, multisectoral collaboration is essential. Government agencies, shipping firms,

port authorities, and academic institutions should actively support structured On-site Immersion and internship programs embedded within the curriculum. These experiential components not only bridge theory and practice but also enhance graduate employability and sectoral integration.

Third, SUCs with existing shipboard programs must facilitate seamless academic progression toward shore-based baccalaureate degrees. This transition from shipboard should incorporate integrated interdisciplinary modules that accommodate learners from diverse maritime and non-maritime backgrounds, thereby promoting inclusive and innovative education.

Fourth, faculty development must be prioritized. Qualified educators should be equipped with contemporary andragogical strategies and sectoral expertise to address the nuanced challenges faced by postgraduate learners. Mentorship, resource access, and differentiated instruction are critical to fostering a supportive academic environment.

Fifth, curriculum developers are encouraged to design alternative pathways for students constrained by onboard training requirements. These pathways should enable timely graduation and open career opportunities in maritime administration, logistics, education, and allied sectors.

Finally, future research should undertake longitudinal evaluations of the proposed shore-based programs, assessing their long-term impact on graduate competencies, employment outcomes, and industry satisfaction. Expansion into emerging fields – such as maritime services, transportation education, and nautical governance – should be explored to address gaps beyond the scope of STCW 1978 and relevant Republic Acts including the RA 12021 - Magna Carta for Seafarers (2024).

These recommendations collectively support a transformative agenda for maritime education, grounded in vertical articulation, sectoral relevance, and learner-centered innovation.

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