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Integration of National Security Interests in Select Military Education Institutions' Curricula

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Index Terms:

curriculum, integration, military education institution, national security interests, Academy, themes

Abstract. Education uses the curriculum as a means to achieve its aims. National security interests influence military education institutions' curricula. This study contributes to filling the theoretical and practical knowledge gap on how the military education institutions integrate the national security interests in their curricula. It is an integrative literature review, where the literature is the data analyzed to generate a conceptual model that offers a new perspective on the topic. The data are mainly from Canada's Royal Military College at Ontario and at Saint-Jean, Japan's National Defense Academy, the Philippine Military Academy, and the Republic of Korea's Air Force Academy, Military Academy, and Naval Academy official websites. The literature cum data are public materials. Limited voluntary key informant surveys were conducted for additional data and to substantiate the findings. Researcher triangulation adds rigor. The data revealed qualitative themes related to curriculum content, teaching and learning approaches, faculty enabling, and the role of the technological environment in the integration. The themes support the thesis that the national security interests are integrated in the Future-ready academic and military curriculum content via Outcomes-based teaching-learning approaches of Resilient and enabled faculty members in Technology-driven learning ecosystems, Guided by ideals for the excellent education and training of the cadets who, upon graduation, are future-ready as junior officers of the country's Armed or Self-Defense Forces. The thesis is summarized as the "FORT-G Model of Integration" that can guide the MEI. Further studies are recommended for better understanding, applicability, and possible enhancement of the model.

Introduction

Study Background and Framework

The curriculum, in civilian as well as military education institutions, refers to the totality of the educational practices, content, and learning experiences provided by an educational institution to its students, or learners. It serves as a key tool in the transmission and development of knowledge, attitudes, skills, and values that empower persons to lead purposeful and meaningful lives, engage as active citizens, and positively contribute to their society and nation (Joint Chiefs of Staff-USAF, 2020; PMA, 2018 a & b). It is vital in the university-level education of military learners (JNDA, n.d.; RMCC-O, 2024).

Military cadets are the students in college-level military academies, also known as military education institutions (MEIs). MEIs have the dual, challenging nature of providing academic and military education and training to their cadets expected to be junior officers of the country's armed or self-defense forces (A/SDF). Said education and training are in the matrix of excellent academic, character, leadership, and physical education, training, and development required by the A/SDF of countries (Joint Chiefs of Staff-USAF, 2020; ROKAFA, n.d.), like Canada (RMCC-O, 2024), South Korea (ROKMA, n.d.), Japan (JNDA, n.d.), and the Philippines (PMA, 2018 a & b).

National security is now a comprehensive framework that includes traditional military-centric and non-traditional security (such as environmental) dimensions and threats (Government of Canada, 2004; JNSC, 2022; Marcos, 2023; Yoon, 2023). A

country's national security interests (NSIs) are the considerations outlined in the country's National Security Strategy or similar documents. The study of such documents signifies that the NSIs of various countries are essentially similar, but stated in different ways (Government of Canada, 2004; JNSC, 2022; Marcos, 2023; Yoon, 2023). The Philippines, for instance, has stated seven NSIs (national sovereignty and territorial integrity; political stability, peace, and public safety; economic strength and solidarity, national identity, harmony, and culture of excellence; ecological balance and climate change resilience; cyber, information, and cognitive security; and regional and international peace and stability), which are further specified into 15 National Security Agenda that includes defense and military security, energy security, and health and biosecurity (Marcos, 2023).

The integration theory in education refers to the interlinking of the educational curriculum components. The horizontal and vertical connectivity concepts, principles, and approaches (Button, 2021; Prideaux & Ash, 2016; Rodriguez-Martin et al., 2019) are part of the integration theory in education. An institution that consciously opts for an integrated curriculum "must decide which type of integration best fits its objectives" and "ensure that the learning context is itself integrated" (Prideaux & Ash, 2016). The MEIs educate and train their cadets to eventually be junior officers in the A/SDF that plays a critical role in the country's NSIs. Thus, integrating the NSIs in the MEI curriculum is invaluable.

There is a lack of studies directly exploring how MEIs incorporate national security considerations in their curriculum design and implementation. That points to the challenge of building a model, or framework, that can aptly reveal the dynamic relationship of the NSIs and the MEI curriculum. This study takes on that challenge, since such a model can be useful for MEIs, such as the Philippine Military Academy that currently offers the single program of Bachelor of Science in Management major in National Security Studies (BSMSS) to its cadets. This research, thus, adds to the existing knowledge on education, curriculum development, and NSIs, with a focus on the education of cadets at the undergraduate degree level in MEIs. It also adds to the groundwork for establishing a best practices model for the AFP military education and training units. This groundwork could play a pivotal role in ensuring the quality and relevance of military education programs in the country.

Research Questions

Specifically, the study answers the following questions:

1. What are the themes in the selected MEIs' integration of NSIs' in their curricula?
2. What model can be proposed to summarize the selected MEIs' integration of NSIs' in their curricula?

Assumptions of the Study

This study recognizes that countries are diverse and this variation may be more pronounced regarding the countries' military education and NSIs. Nevertheless, there can be unity in diversity. One such unity is the set of practices by which MEIs link their curricula with their NSIs to help ensure that their graduates will be competent when they become A/SDF officers. That is, the study also assumes that the selected MEIs do consider and integrate their respective country's NSIs in their curricula. The study further posits, conceptually, that an in-depth review and analysis of the ways, techniques, or approaches by which the selected MEIs integrate their NSIs in their curricula will eventually show a model of themes of practices standard to the MEIs. Although the MEIs vary, the themes would link them together. Since the said themes of practices that would be emerged are common to them, one may then posit that those themes are the best or ideal practices that can serve as a guide for an MEI, such as the PMA. The study also holds that the practices and integration can be gleaned from an in-depth analysis of the sets of information primarily in the MEIs' official websites.

Methodology

Towards the desired model, the study qualitatively analyzed the officially published practices of select MEIs, namely, the Royal Military College of Canada at Ontario (RMCC-O), Royal Military College Saint-Jean in Quebec, Canada (RMCC-SJ), National Defense Academy of Japan (JNDA), Republic of Korea Air Force Academy (ROKAFA), Republic of Korea Military Academy (ROKMA), Republic of Korea Naval Academy (ROKNA), and Philippine Military Academy (PMA). The said MEIs offer one or more undergraduate degree programs to cadets; they have civilian and military faculty members. Further, they are MEIs where the PMA had sent cadets for their undergraduate programs.

The researchers faced restrictions on traveling to the covered MEIs and on communicating with them. The researchers, working within organizational and security protocols, cannot directly contact, via electronic and online modalities, the MEIs for the necessary data and validation of the findings. Thus, the study is essentially an initial integrative literature review, which is "a form of research that reviews, critiques, and synthesizes representative literature (that is the data) on a topic in

an integrated way such that new frameworks and perspectives on the topic are generated (Torraco, 2005, p. 356)". Torraco adds that readers of an integrative literature review "expect to see the knowledge from the literature synthesized into a model or conceptual framework that offers a new perspective on the topic (p. 358)".

For the integrative literature review proper, the researchers considered the information on each MEI's official website. The relevant information sets contained therein are official in nature. A few other official online documents or articles by the MEI, its authorities, members, or related government agencies were also considered. Additionally, the leadership, encompassing the President down to key faculty officials, including, for instance, the Director and selected senior members of the Academic Department, of only the JNDA were physically interviewed in groups as set by the JNDA itself. Select authorities and faculty members of PMA were also surveyed. Those surveyed have the appropriate roles, knowledge, experience, expertise, and judgments to provide the information needed for this study (Trochim, n.d.).

Limited samples are acceptable for qualitative studies as long as the sample size is justified to be sufficient for the purpose, together with other measures to ensure rigor (Trochim, n.d.). Trochim adds that for as long as the researchers are willing to trade-off generalizability over detailed or in-depth understanding and thoroughly described the research context and assumptions central to the research, and that "the person who wishes to "transfer" the results to a different context is then responsible for making the judgment of how sensible the transfer is". The researchers, therefore, quite extensively discuss the details of the model they derived and include Appendix A in this article to help any person decide whether they may or may not want to "transfer" the results to a different context.

Moreover, the researchers individually and as a group subjected to thematic analysis the relevant information sets gathered from the online sources and from the surveys with relevant personalities. They essentially followed the process described by Rasch (2020), which is fundamentally parallel with Torraco's (2005). Rasch recommends the use of MAXQDA. However, the researchers did not use the said tool. They themselves did the thematic analysis. The completed study was presented to the relevant PMA senior officers and in a research colloquium to the PMA's civilian and military faculty members for validation. Their recommendations were considered. The study was also presented in the Asian Conference on Education & International Development (ACEID) last 27 March 2026.

Results and Discussion

Results

The analyzed data pointed to qualitative themes related to curriculum content, teaching and learning approaches, faculty enabling, and the role of the technological environment in the integration of the NSIs in the MEIs' curricula. Tables 1 to 4 show those themes. Representative data and supplemental results that served as the basis of, and hence, support the themes presented in Tables 1 to 4 and the model are in Appendix A.

Integrating the NSIs in the Curriculum Content: Future-Ready Content. The MEIs directly and indirectly, linearly and spirally, and vertically and horizontally integrate the NSIs in the curriculum content, seeing to it that the content is "future-ready", or more specifically, designed at providing the cadets with content aligned with their expected roles when they become or choose to become junior officers of the country's A/SDF. Under this thematic category are three overarching themes, specified in Table 1 and detailed in Appendix A (Tables A.1 to A.4).

	Themes	Description of the Theme under Content
1.	Integrating the NSIs in the curriculum content at the institutional and program levels	The MEIs integrate the NSIs in the curriculum content at the institutional and program levels. Three sets of indicators are education and training mandate, program offerings, and guide ideals (including the program outcomes) that allow the enhancement of the curriculum content for future-ready graduates.
2.	Integrating the NSIs in the curriculum content at the course level	The courses of a degree program indirectly and directly integrate the NSIs in the course contents. Even courses which, by name, do not designate any connection to the expected role of the MEI graduate in the NSIs can do so.
3.	Disciplinarity in integrating the NSIs in the curriculum content	The MEIs also integrate the NSIs in multidisciplinary, interdisciplinary, or transdisciplinary ways, as guided by the universal concepts and principles of education and training, like target program and course outcomes or objectives.

Sources of Basis Data: JNDA, n.d.; Kowal, 2019; PMA, 2018 a & b; RMCC-O, 2024-2025; RMCC-SJ, 2023-2025; ROKAFA, n.d.; ROKMA, n.d.; ROKNA, n.d.; JNDA authorities interviewed; PMA authorities and faculty members surveyed.

Table No. 1. Integrating the NSIs in the Curriculum Content

Integrating the NSIs through Outcomes-Based Ways of Teaching and Learning. The MEIs directly and indirectly, linearly and spirally, and vertically and horizontally integrate the NSIs in the curriculum content that are delivered through various outcomes-based ways of teaching and learning. Their ways of teaching and learning are essentially directed towards the attainment of the national and specific A/SDF guidelines and expectations, or outcomes, expected of them. Under the outcomes-based ways of teaching and learning thematic category are themes, specified in Table 2 and detailed in Appendix A (Tables A.5 to A.10).

Theme	Description of the Theme under Ways of Teaching-Learning
1. Robust Military Program	It encompasses a comprehensive, integrated, and outcomes-based approach to education and training that prepares cadets for the challenges of military service.
2. Integrated Education	It prepares the cadets to effectively manage and coordinate the diverse capabilities of the different military branches of service in support of joint operations.
3. Experiential Learning and Practical Assessments	Practical training exercises, simulations, and field experiences allow cadets to apply theoretical knowledge in real-world scenarios. This hands-on, outcomes-based approach fosters critical thinking, teamwork, and adaptability.
4. Global Perspective	Exposure to diverse cultures, languages, and geopolitical issues enhances cadet's understanding of global military dynamics. This often includes study abroad programs or partnerships with international military institutions.
5. Leadership Development Program	A focus on cultivating strong leadership skills prepares cadets to lead in various environments. Programs often include mentorship opportunities, leadership labs, and challenge courses to build confidence and resilience.
6. Physical Fitness and Resilience	Physical fitness, mental toughness, and the importance of health are emphasized. Regular fitness training and wellness programs equip cadets to meet the demanding physical and psychological challenges of military service.
7. Multi-, Inter-, and Trans-disciplinary Ways of Teaching-Learning	Collaboration across disciplines, integrating insights from political science, technology, and international relations to develop well-rounded military leaders is encouraged. A healthy mix of discipline specific and combined and cohesive ways of teaching-learning approaches are utilized.

Sources of Basis Data: JNDA, n.d.; Kowal, 2019; PMA, 2018 a & b; RMCC-O, 2024-2025; RMCC-SJ, 2023-2025; ROKAFA, n.d.; ROKMA, n.d.; ROKNA, n.d.; JNDA authorities interviewed; PMA authorities and faculty members surveyed.

Table No. 2. Themes of Teaching and Learning Approaches of Integrating the NSIs in the Curriculum

Resilient and Enabled Faculty Members' Integration of the NSIs in the Curriculum. The MEIs directly and indirectly, linearly and spirally, and vertically and horizontally integrate the NSIs in the curriculum content mainly through various outcomes-based ways of teaching and learning by enabled, and consequently, resilient faculty members who adjust -and continually adjust- to the unique requirements of the MEI as both an education and military training institution. Under this thematic category are four themes, specified in Table 3 and detailed in Appendix A (Tables A.11 to A.14).

Theme	Description of the Theme under Faculty
1. Recruitment and selection of qualified faculty members and Sources of Faculty	Process of employing and fulfilling the faculty requirements for the Academic degree program. Qualifications consider participation in the attainment of target program and course outcomes or objectives.
2. Strategic alliances with industry organizations and other Defense Institutions and Faculty Exchange Programs	Mutually beneficial partnerships with other national and international defense institutions as well as with industry experts and organizations; collaboration with defense and security professionals; faculty exchange programs with other MEIs.
3. Specialized Programs and Courses for faculty and Professional Development	Institutional continuous education programs for faculty members. These include both short courses and higher degree program in security studies provided to the faculty of the MEI's; Participation in professional development activities outside the MEI's own development program.
4. Research engagement and collaboration	Research activities dedicated to defense and security studies, Research Centers, and other researches in relation to professional field.

Sources of Basis Data: JNDA, n.d.; PMA, 2018 a &b; RMCC-O, 2024-2025; RMCC-SJ, 2023-2025; ROKAFA, n.d.; ROKMA, n.d.; ROKNA, n.d.; JNDA authorities interviewed; PMA authorities and faculty members surveyed.

Table No. 3. How the MEIs Enable Their Faculty Members to Integrate the NSIs in the Curriculum

The Role of Technology in the Integration of the NSIs in the Curriculum. The MEIs directly and indirectly, linearly and spirally, and vertically and horizontally integrate the NSIs in the curriculum content through mainly various outcomes-

based ways of teaching and learning by enabled and, hence, resilient faculty members and as supported by the technological environment that is dynamic and updated. Under this thematic category are four themes, specified in Table 4. Those themes can be gleaned from the data in Tables A.1 to A.14.

Theme	Description of the Theme under Role of the Technological Environment
1. The Technological Environment Provides the Technological Infrastructure	The technological environment's role in providing the infrastructure that fundamentally transforms how cadets are educated and trained to prepare them for the challenges of modern warfare and leadership in a rapidly evolving global security landscape. These include integrated networks, learning management systems, virtual/augmented reality platforms, simulation systems, communication networks, artificial intelligence tools, and research facilities.
2. Technological Environment Aids in Curriculum and Programs	The technological environment's role in shaping and enhancing the MEIs' curriculum and programs. These include the components of the technological environment that support and improve instructional methods, training effectiveness, and overall learning outcomes for the cadets.
3. Technological Environment Facilitates Collaboration and Networking	The technological environment's role in fostering collaboration and networking among MEIs. This enables cadets, faculty members, and defense professionals to share knowledge, strategies, and innovations. It includes the MEIs' use of digital tools, secure communication platforms, and global networks to enhance cooperative learning and interoperability.

Sources of Basis Data: JNDA, n.d.; PMA, 2018 a & b; RMCC-O, 2024-2025; RMCC-SJ, 2023-2025; ROKAFA, n.d.; ROKMA, n.d.; ROKNA, n.d.; JNDA authorities interviewed; PMA authorities and faculty members surveyed.

Table No. 4. The Technological Environment's Roles in Integrating NSIs in the Curriculum

A Model of Integration of the NSIs in the MEI Curriculum. The preceding thematic findings can be organized in several ways. One organized view is a conceptual model of integrating the NSIs in the MEI curriculum. Such a model or framework captures a set of processes, procedures, systems, and other critical dimensions in integrating the NSIs into the MEI's curriculum. Figure No. 1 is the summary diagram of the "FORT-G Model of Integration" emerged from the themes on the MEIs' integration of the NSIs in the curriculum. The model's components are **F**uture-ready curriculum content (adapted to the dynamic NSIs, from the fundamental to the branch of service-specific concepts), **O**utcomes-based teaching and learning approaches, **R**esilient faculty (via development or enabling mechanisms), **T**echnology-driven learning ecosystem, and **G**uide Ideals (ideals that guide the education and training of the cadets and the integration of the NSIs for future-ready graduates).

The FORT-G Model is holistic since it is based on the whole-person philosophy, which is upheld by the MEIs covered. As shown in the model diagram, the MEIs aim to develop future-ready officers through a cohesive system. The model considers both indirect and direct, linear and spiral, and vertical and horizontal ways the NSIs can be integrated, or linked, with the MEI curriculum via pillars that also serve as gears that drive and run the integration. The gears are faculty members, curriculum content, teaching and learning approaches, and technological environment. The themes under each are as shown.

The model further signifies that the integration starts from the broad strategic fundamentals of National Security Policy, National Security Interests, National Security Strategy, and other similar guidelines to the branch of service-specific ones. That is, the broadest concepts are introduced at the first-year level. The most specific ones are emphasized during the last-year level, to fully equip the cadets for their next immediate roles, upon commission, as junior officers of the A/SDF. At the first-year level, for instance, not all courses are expected to introduce all the guidelines. Each of the first-year-level courses can introduce what is relevant to it, in line with the multidisciplinary concept of integration. That is without prejudice to the possibility of horizontal, interdisciplinary integration among the courses of the year level.

The spiral progression approach revisits and builds upon previous knowledge, skills, and attitudes in order to deepen, reinforce, and ensure the retention of learning and understanding, as well as enhance and develop more complex relevant knowledge, skills, and attitudes. The approach ensures that the cadets eventually have a holistic theoretical and practical, or operational-tactical, understanding of the NSIs. The spiral progression approach is also flexible enough to allow horizontal integration, where the integration is done among the courses in the same year level of the academic term.

The FORT-G Model diagram also shows that the integration of the NSIs in the MEI curriculum is within the matrix of, or is nested, in the linear curriculum and guide ideals. The guide ideals, that includes the MEI's vision, mission, goals, and objectives, are a set of principles or standards stated in various forms by an MEI. The broadest of these guide ideals are the universal educational concepts and principles, which are applicable to the MEIs due to their nature of being educational

institutions that offer undergraduate degree programs. These universal educational concepts and principles include their more specific translations (such as those on military program, leadership, and physical training) in the military context. These translations are necessary, again, due to the MEIs' nature of being also military institutions, mandated for an outcome: to graduate cadets who are to be junior leaders of the country's A/SDF.

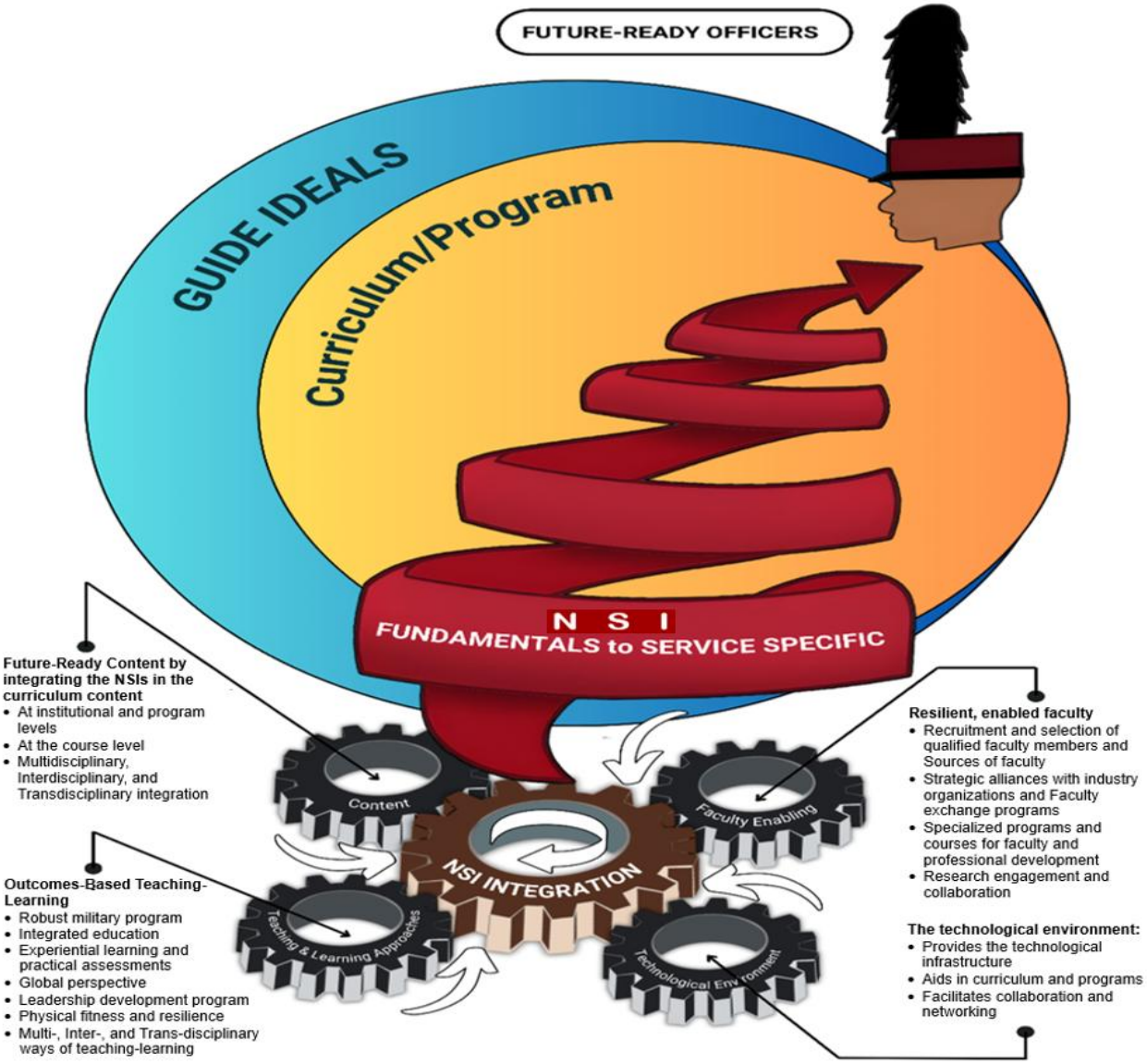

Figure No. 1. The FORT-G Model of Integration of the NSIs

As also shown in the model diagram, the degree program is also part of the matrix within which the NSIs are integrated. The bachelor's program is a linear curriculum. It is a traditional, ladder-type curriculum, where the cadets need to pass the year-level courses and then move on to the next higher year level. At the course level, the first unit topics are covered first and then the course proceeds to the next unit. This progression may or may not build on or revisit the previous topics, knowledge, skills, and attitudes, since the emphasis is on the moving forward of the learners. Because the program is a linear curriculum, the integration of the NSIs is also partly a vertical integration. Both the linear and spiral aspects of the curriculum are then also necessary for an MEI's sustainable implementation of the model.

The integration of the NSIs can be done at the institutional, program, and course levels, in recognition of the MEI's educational nature and mandate of providing both academic bachelor's degrees and military education and training. This nature thus necessitates that the integration shall consider the universal, as well as the more specific guide ideals, from the

universal education concepts and principles to the guide ideals adopted or adapted by the MEI. If necessary, the curriculum is enhanced as the MEI and the country are in a dynamic environment. That is one way by which the curriculum content is made future-ready.

The ways of teaching and learning link the faculty members, the curriculum content, and the technological environment. There are also various categories of teaching and learning approaches that the MEIs utilize in educating and training the cadets. There are the typical teacher-centered (like lecture) and learner-centered (like experiential) teaching and learning approaches. There are indirect and direct approaches to integration. There are ways of teaching and learning that transcend the boundaries of disciplines. All of these are linked to the target objectives, or outcomes.

Additionally, a crucial factor in successfully integrating the NSIs in the curriculum is the faculty. The study findings show that enabling the faculty includes those shown in the faculty enabling gear. The faculty members need to be aware that they should consciously interconnect the NSIs in the cadets' education and training. They should be aware that they do need to consciously interconnect the NSIs in the curriculum content, via the ways of teaching-learning that they use, as supported by the technological environment, and towards the attainment of the stated lesson, unit, or course outcomes, that are linked, via the institutional target outcomes (VMGO), to the kind of graduates the A/SDF and national government expect. Hence, the MEIs undertake endeavors to enable and ensure the resiliency of their faculty members, able adapt to the challenges of the MEI as an education and military training institution.

There are challenges in the integration of the NSIs in the MEI curriculum. For instance, inexperienced faculty members may need help on how to make indirect and direct conceptual links between the course's discipline-based lessons and the NSIs and their translations. There may also be resistance from the faculty members, particularly for courses or disciplines which, by name or natural content, do not indicate any connection to the NSIs and their translations. Intentional integration is the ideal, and in the case of the NSIs and the MEI curriculum, this may require military reasoning skills from the faculty members. Hence, resilient faculty development, that may include strategic experiential training for the faculty themselves, as indicated in the FORT-G model, is necessary.

A limitation of the model is on the measure of the integration. The references, like Button (2021), Prideaux and Ash (2016), and Rodriguez-Martin et al. (2019), do not indicate any objective measure in relation to the integration theory in education. They, for example, do not cite particular objective measures for the vertical and horizontal and the multi-, inter-, and trans-disciplinary integration approaches. Even so, there is the general standard that the integration is within the bounds of the guide ideals. Moreover, the guide ideals allow boundless creativity and innovation. Thus, the integration is also boundless in bounds. Thus, the MEI delivers its part in ensuring the well-being of the country and its people.

Discussion of the Findings

The findings indicate the linking of military education and training with the A/SDF of countries (Joint Chiefs of Staff-USAF, 2020; PMA, 2018 a & b; ROKAFA, n.d.) that also implies the connection to the NSIs. The MEIs' guide ideals indicate that the MEIs are guided by the universal concepts and principles of education, such as those discussed by Button (2021) and by the University of Buffalo (CATT-UB, 2023). Aside from military training, the core courses of the MEIs, by virtue of their being military and educational institutions, all include physical education and military/defense science or studies. The rest are what we call general studies or general education courses. Some MEIs include language, physical education, and military science courses as part of their general education courses.

All the courses contribute to the holistic development of the cadets so that they can eventually participate in safeguarding the country's national security. Thus, the MEI course contents are indirectly and directly and horizontally and vertically linked to the NSIs. For example, the ROKAFA states on its official website that "efforts are made to ensure that the life education program and content can be applied to the officer's life after commissioning". Thus, there are courses which, by name, do not designate any connection to the expected role of the MEI graduate in the NSIs. Such is the case, for example, for the Human Psychology, English language, Computer Science, and Natural Science (like Chemistry and Physics) core courses offered by the MEIs.

The course and lesson guide ideals are also anchored on the program guide ideals and, thus, are indirectly anchored on the institutional guide ideals. Further, by contributing to the whole-person development of the cadets, the courses also enable the cadets to perform, among others, the language, computer-related, and science-related tasks of the MEI graduates. Thus, the contents of the courses in MEIs are likewise linked with the country's NSIs.

The authorities of JNDA interviewed by the researchers support the integration of the NSIs even in the non-military, discipline-based courses. One interviewee stated, "We may incorporate the national security-related elements… in an indirect manner" by linking the program and lesson objectives to the program and institutional guide ideals. An interviewee

from the International Relations Department essentially specified that "we may not directly talk about the National Security Strategy (NSS) or National Security, but we do in other ways, connect the lessons to the NSS by emphasizing their ability to think, analyze, and adapt to situations critically". The interviewees from the JNDA's Military Training Department echoed this idea for their courses that do not explicitly state that they cover the national security and NSS.

In addition, the interviewees from the JNDA sciences and engineering department "...try to emphasize education based on experiments and enabling these students… to be able to handle things" and "...to develop the ability to think and use the skills needed including in situations in the field". During the interviews, the JNDA president and vice presidents also emphasized the focus on the graduates' ability to think critically, analyze, and adapt to situations in line with the graduates' expected roles in the Japan Self-Defense Forces.

Those survey responses indicate various ways of integration in the curriculum contents delivered by resilient and enabled faculty members who utilize appropriate ways of teaching-learning and technology, in line with the universal, national, institutional, program, and course objectives.

The long-time PMA authorities and faculty members consulted seconded the concepts. The then Commandant of Cadets of the PMA, for example, supports the concept of consciously integrating the NSIs to the curriculum. The Commandant further specified that courses need to realize that their education and training, including those on the NSIs, should focus on the tactical and operational levels since the roles of the PMA's fresh graduates are at those levels. How the country's strategic NSIs are operationalized in the field should be the top priority. He added that a danger if the courses' contents are focused at the strategic level of the NSIs is that the graduates may not be equipped with the necessary tactical and operational knowledge, attitudes, values, and competencies to deal with actual situations in the field.

Additionally, a faculty member stated:

> "Courses/programs in Engineering, Information Technology, and Mathematics should not be deemed unrelated to NSIs. There are a lot of security threats involving technology and science, such as the use and/or manufacture of weaponized drones, spy satellites, and both hardware and software used for espionage purposes. These programs… from the Socio-Humanistic and the Techno-Sciences are neither less important than the other - they complement each other in immersing the cadets in security matters.".

A PMA faculty member contributed the following thoughts:

> "…with regard to some programs such as Management where the approach is more entrepreneurial/corporate, my opinion is that they could be better directly integrated into focusing in the country's NSIs if they would integrate management concepts such as organizational management, personnel development, economic impacts, logistical management, and similar areas linked in issues that would consider controversies involving both State and non-State organizations practiced in both symmetrical and asymmetrical warfare. For example, it would be the manufacture and/or procurement of weaponry and machinery used in the defense of the State, personnel and organizational management of enemy organizations, and management of data and information, among others. How management is being delivered in other universities should not be the same as how it is being delivered in military institutions.".

Additionally, a language course PMA faculty member stated that they "include write-ups and/or articles as part of analysis, assessment, and evaluation of national security that is incorporated in class activities, final output, and/or examinations". The researchers surmise that this is also the case for ROKAFA's "Air Military English" and ROKMA's "Military English" courses. RMCC-O has a similar trend of thought regarding the linking with the NSIs. RMCC-O also states on its website that its Language Centre courses are "military curriculum-based". Further, "Organizational Behaviour and Leadership incorporates Defence Policy in the course material (Kowal, 2019)". The RMCC-O website also indicates that "practical applications to military problems of the engineering courses" are included under the Department of Engineering.

Moreover, cybersecurity is one consideration under the technological environment. ROKMA, for instance, uses a thorough approach that stresses cybersecurity and innovative educational strategies. That includes a comprehensive strategy that guarantees the cadets an in-depth understanding of defense technology while honing their practical skills through applications in real-world scenarios, improving their abilities to protect national interests (Sukjoon, 2023). The RMCC-O, on its website, further states that:

> "While the genesis of the Cyber Programme was in the technical aspects of electrical and computer engineering, it is now expanding to many social sciences and humanities areas. Various courses in other programs include discussing and studying Cyber security-related topics."

Additionally, participating in cadet exchange programs are another set of endeavors. By participating in such programs with organizations, like the United States Air Force Academy, the ROKAFA, for example, actively supports international

collaboration. Among its multiple purposes is exposing students to several viewpoints on technology and national security (Bowden, 2021).

Those pieces of information emphasize the "breaking of boundaries between subjects (Rodriguez-Martin et al., 2019)", for example, by faculty members working together to ensure that the NSIs are incorporated in the courses, in one way or another. That is a continuum of the multidisciplinary, interdisciplinary, and transdisciplinary approaches. The multidisciplinary approach is the discipline or field-of-study-specific integration of the NSIs in the curriculum from the perspectives of the different disciplines simultaneously but not in an integrated manner. For example, the behaviors of terrorists can be discussed during week 5 of the term from the perspectives of the different courses (like psychology, philosophy, economics, and military leadership courses) of the cadets. It can also be that during a forum day for the second-year cadets, faculty members from the disciplines or courses of management, physics, military leadership, and computer science are asked to present their discipline's perspective on the topic at hand. "Multidisciplinarity" is important for specialized knowledge and competencies, such as those unique to the Marine Corps component of the A/SDF. Multidisciplinarity can also cover non-specialized knowledge and competencies, such as the NSIs being also covered by the psychology course.

However, the integration does not end there. The interdisciplinary approach, whereby two or more disciplines are involved simultaneously in the curriculum content at hand as a form of horizontal integration in education, is also utilized by the resilient faculty members in their ways of teaching the content with the appropriate use of technology. The interdisciplinary integration of the NSIs refers to incorporating the NSIs in the curriculum content from the perspectives of at least two different disciplines simultaneously in a combined and cohesive manner. For example, the Army, Navy, and Air Force fourth-year cadets are gathered together for their perspectives on how the leadership theory applies to a branch of service and the branch-specific roles in the NSIs.

In the transdisciplinary approach, two or more disciplines and real-world practice (like the industry arena) are simultaneously involved in the curriculum content. This is the horizontal plus real-world-practice incorporation of the curriculum content. The transdisciplinary integration of the NSIs refers to incorporating the NSIs in the curriculum from the perspectives of at least two different disciplines and real-world practice (like the industry arena) simultaneously in a combined and cohesive manner. For example, industry or government leaders discuss the topic aside from the interdisciplinary approach. That partly explains the MEIs' involvement with other MEIs and other organizations. That partly explains the exchange programs and experiential learning in the respective branches of service of the cadets. Overall, the integration may be done at the curriculum content (concepts, theories, insights), materials (technological), and methods, activities, and assessments (teaching-learning approaches) utilized by enabled and resilient faculty members.

The various approaches allow for a holistic understanding of complex security challenges. Foremost, national security is not solely a military issue; it encompasses other facets, such as environmental situations, economic stability, political integrity, and social cohesion (Marcos, 2023). Through the various approaches, that includes experiential learning, cadets learn to analyze security situations from multiple perspectives, enabling them to identify underlying issues and assess the interconnectivity among various factors that impact national security. Those approaches enhance the cadets' critical thinking and problem-solving skills. They learn to question assumptions, evaluate evidence, and consider alternative viewpoints -indispensable skills in military leadership and strategy formulation, necessary for them to navigate the intricate challenges they will face as future leaders in the A/SDF. The findings are supported by other pieces of literature in other countries, such as in Portugal (Teixeira et al.,2024) and Vietnam (Nguyen et al., 2023). Nguyen et al. (2023) indicate that Vietnam's Center for National Defense and Security Education prioritizes experiential teaching to cultivate students' technical proficiency and patriotic resolve, directly supporting national defense mandates.

Those are also corroborated in the RMCC-SJ, for instance, when it highlighted in its 2020-2025 Strategic Plan that one of its strengths is "fosters the development of multidisciplinary programs that are not currently offered at RMCC-O, which will provide the Canadian Armed Forces with useful competencies to meet the emerging and future operational needs outlined in the Defence Policy" (RMCC-SJ, 2023). Those emerging and future operational needs include the technological environment, that encompasses cybersecurity, one of the considerations in the MEIs covered, as indicated in the Appendix.

The findings also signify and support that, even within advanced technological environments, the integration of moral values, practical leadership experience, and continuous mentorship are core to the MEI programs, ensuring that graduates are prepared for the complexities of military leadership roles. An in-depth review of the NSI documents of Canada (Government of Canada, 2004), Japan (JNSC, 2022), the Philippines (Marcos, 2023), and South Korea (Yoon, 2023) also essentially support -and require- the research findings. The themes indicate, therefore, that the MEIs approach education and training with a multi-faceted, progressive, experiential, and outcomes-based framework aimed at producing well-rounded, ethical, and competent military leaders.

One then infers from the data detailed in the Appendix and summarized in the preceding Tables 1 to 4 and FORT-G model that the MEIs are unified by integrating the NSIs in their respective curricula, which are enhanced as necessary in the face of the dynamic environment and other challenges. Indeed, courses exist within larger contexts, like the actual work environments, that influence their design and facilitation (CATT-UB, 2023). The integration that best fits the institution's objectives is part of an institution's conscious decision (Prideaux & Ash, 2016). The findings indicate various integration ways, such as horizontal and vertical integration (Button, 2021; Prideaux & Ash, 2016; Rodriguez-Martin et al., 2019) in the integration continuum.

Conclusion and Recommendations

The data revealed qualitative themes on the integration of the NSIs in the MEI curriculum. The themes are those related to curriculum content, teaching and learning approaches, faculty, and the technological environment that play vital and interlinked roles in the conscious integration of the NSIs. The NSIs are directly and indirectly, linearly and spirally, and vertically and horizontally integrated in the **F**uture-ready academic and military curriculum content provided to the cadets by the MEIs via **R**esilient and enabled faculty members who utilize **O**utcomes-based teaching-learning approaches in **T**echnology-driven learning ecosystems, **G**uided by the ideals for the education and training of the cadets who, upon graduation, are future-ready to be junior officers of the country's A/SDF. This thesis is summarized as the "FORT-G Model of Integration" that can guide the MEI. The various ways of integrating the NSIs in the curricula of the MEIs is but one facet that unites them, even if they are each unique in their own contexts.

Even as the study provides an in-depth and unique perspective on the topic, the transferability (or generalizability) of the findings is limited due to the study's integrative literature review nature. Thus, the proposed model, in particular, need further verification. This can be done via quantitative studies for generalizability and further qualitative studies for a more thorough understanding and possible enhancement.

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Competing Interests Statement

The authors are themselves members of the PMA faculty. However, they judiciously followed the required endeavors, particularly those cited under the methodology section and as indicated by the Appendix, for research rigor.

Data Availability Statement

Most of the data used in the study were from the MEI websites and other relevant online publications. The relevant data that support the findings are placed as this articles' Appendix A.

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Appendices

Appendix A. Data for the Themes on Integration of NSIs in the Curricula of MEIs

In this Appendix are 14 tables containing data and supplemental results that served as the basis of, and hence, support the themes presented in Tables 1 to 4 and the model. Except as otherwise indicated, the information sets in those 14 tables are from the respective MEI's official website, accessed in 2024. Appendix A is attached in the IRMR official website. Contact the authors if the Appendix is not accessible and you wish to access them.