

Qualitative Document Analysis of Vocational School Based Learning in a Blue Curriculum Perspective

^{a, 1}Adinda Gita Rahmaliaputeri*, ^{b, 2}Isma Widiaty, ^{a, 3}Yulia Rahmawati

^aUniversitas Pendidikan Indonesia, Indonesia

^bCenter of Excellence Iptek Technical and Vocational Education and Training Research Center (PUI-TVET RC)

Email : ¹ adindagita@upi.edu*, ² isma@upi.edu, ³ yuliarahmawati@upi.edu

* Correspondence author

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ABSTRACT

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Connectedness man with sea as source Power ecosystem main has become focus main study in several year final. Although sea provide a number big service vital ecosystems, such as production oxygen, absorption carbon blue, and provides essential protein for man globally, however threat to sea the more increase. In facing the challenge this, concept Blue Curriculum or curriculum blue has appeared as global initiative for integrate education marine in education system. Integration between marine in Education has pushed globally via so called concept Blue Curriculum. Blue curriculum is draft new in development curriculum. Learning framework in study This goal - directed curriculum that contains about the necessary learning process done in activity learning by graduates education vocational. School vocational allegedly is strategic institution. For develop concept of Continuing Education Research purposes for develop framework vocational education learning in perspective blue curriculum. Analysis fills second document find that vocational education competencies with theme Think Critical, Hard Skills, Technology, Soft Skills and Market Orientation are available in second document literacy marine and can integrated to in Vocational Education. Finding This produce competencies aimed at making graduates education vocational own ability understand role sea, answered challenge sea with innovative ideas and participate to continuity through developed learning² in the blue curriculum.



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Introduction

Humans are connected tightly with sea (Fauville et al., 2018). The sea provides Lots Of service important ecosystem like production oxygen, absorption carbon blue, and also provides an

important source of protein that humans rely on globally (Barracosa et al., 2019). However, the sea moment This is at in threat consequence anthropogenic stress factors like overfishing, pollution sea and change climate (Fauville et al., 2019). Impact cumulative and synergistic from threat sea added with lack of understanding or awareness to sea, contributed to decline environment sea all over the world so hinder ability sea for provide service important ecosystem (Visbeck, 2018). Remember usefulness sea will well-being and life man all over the world, very important For increased awareness and understanding will protect, maintain and preserve it. One of method for do matter This is through Education.

Integration between marine in Education has pushed globally via is called concept Blue Curriculum (Ferreira et al., 2021) In notes practical, blue curriculum often also called part from Ocean literacy (Arwan, 2023). Ocean literacy is understanding about role important values sea, understand concept base maritime and facilitating creation a more Society literate marine (O'Brien et al., 2023). In the same report, literate people marine defined as someone who understands principles base marine, yes make informed and responsible decisions answer about oceans and sources power, as well can communicate about ocean with meaningful way. (Fauville et al., 2018). Ocean Literacy A tools, framework work, and wider again, pattern think ahead sea in all over aspect life on earth, as an approach for public in a way whole (Mckinley et al., 2023) with speed up action for protect, preserve and utilize sea in a way sustainable. (Worm et al., 2021).

Understanding blue curriculum that is developing concept from the Ocean Literacy model which focuses on knowledge become framework literacy marine and consider connection humans and the sea (Mckinley et al., 2023). However, research to importance protect, preserve and utilize sea with Good Not yet embedded in many countries, one of which is Indonesia. Study linkages between education and application ecosystem sea in Indonesia still A little found especially to students school intermediate vocational (Chang et al., 2023). in Ministry of Maritime Affairs and Fisheries RPJMN document 2020-2024 states that literacy maritime affairs in Indonesia is necessary improved (Arwan, 2023). This matter in line with the current UNESCO program This focuses on the problem environment sea and education For development sustainable with create 'blue curriculum ' with objective double that is teaching and learning more Lots about marine , contributed to the design together and delivery solution to problems and threats faced (Regional et al., nd) Development studies conducted state that problem main No developed curriculum based marine is lack of load or issue marine in curriculum school . The conception is that ocean literacy Still focused on related topics with science and geography (Fiandra et al., 2021)

vocational become A novelty for combine ocean literacy into the Vocational education with creating a ' blue curriculum ' focused on development learning (Regional et al.) so that open opportunity big For develop in Vocational Education. Development learning framework This is very important done as foundation beginning for develop learning blue curriculum in vocational education. In research This goal - directed curriculum that contains about the necessary learning process done in activity learning by graduates education vocational. School vocational allegedly is strategic institution for develop concept of continuing education (Empowerment, 2023). Fusion between Ocean Literacy into the blue curriculum will give benefit for communities and educators who have good information so that supports continuing education (Tsai et al., 2023) Research objectives for develop framework vocational education learning in perspective blue curriculum. Formulation problems in research This How need learning in vocational education in perspective blue curriculum?

Method

Study This use method qualitative that is analysis document for study How thinking critical with supported by two documents. This method is used by analyzing documents, starting from identifying similarities, important differences, and strategies presented in descriptive form (Delawala et al., 2023). Analysis document done with use program documents " A New Blue Curriculum: A toolkit for policy makers " and " Ocean Literacy: The Essential Principles and Fundamental Concepts of Ocean Sciences for Learners of All Ages " .

a. "A New Blue Curriculum: A toolkit for policy makers"

In 2015, IOC-UNESCO adopted Ocean Literacy concept and start endeavor increase global range of movement the commitment to ' Ocean Literacy All of which were launched at the Conference The first UN Maritime Affairs marking commencement series activity promote Ocean Literacy around the world. In 2017, the UN General Assembly declared Decade Knowledge UN Oceans for Sustainable Development (2021-2030). The IOC-UNESCO ' Blue Curriculum ' toolkit for maker policy is results collaborative between IOC-UNESCO, AXA aims for achieve the targets proposed by the vision strategic 'Ocean Literacy in the Decade: A Framework for Action that formulates Education policy and improve Ocean Literacy in formal education. This toolkit aims For support supports the UN's Education for Sustainable Development 2030, providing orientation to make policy, developer curriculum and Education authorities about enter Ocean Literacy to in framework curriculum and guidelines. (Regional et al.,)

b. Ocean Literacy: The Essential Principles and Fundamental Concepts of Ocean Sciences for Learners of All Ages

This guide containing principles and concepts basis developed through a consensus building process produce agreement between scientist, educator and maker policy about sea For meet and exceed standard science generation next For progress coherent learning about sea start from earliest level school intermediate First until college high which was published in 2005 later through development results discussion published version more carry on May 2021 via engaging online workshops about 100 experts and leaders thinking . This guide as source Power For influence learning and teaching about sea throughout school, center science, garden and space purposeful learning for help learning students and stakeholders interest become more literate marine. (Principles & Concepts)

Two guides document chosen via the official website of the Education program. Document “ A New Blue Curriculum: A toolkit for policy makers ” (Regional et al.) obtained from organization International The United Nations Educational, Scientific and Cultural Organization which operates in the field of education and science knowledge and culture published in 2022 by the United National Educational Organization Knowledge document second namely " Ocean Literacy: The Essential Principles and Fundamental Concepts of Ocean Sciences for Learners of All Ages " was obtained from document Intergovernmental Oceanographic Commission who joined in the National Marine Educators Association and published in 2005 (Principles & Concepts)

Study developed through coding with approach analysis thematic. Approach analysis thematic is one of form study qualitative be marked with topic or summary domain or code content that captures frequency of ideas, concepts and meanings expressed by participants often in a deeper sense wide level surface (explicit) (Research Note: Thematic Analysis in Qualitative Research, 2022) . In picture 1 stages analysis thematic started from type specified research, then descriptive coding is carried out fill text like keywords or code. After code set, easy for identify and compare text that discusses the same thing. the code possible researcher for sort information with easy and analyze data for disclose similarities, differences and relationships between segment text with appropriate code. After code set, easy for identify and compare text that discusses the same thing. Then found underlying theme study (White et al., 2013).

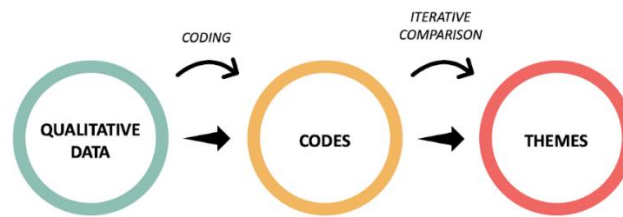


Fig 1: Stages analysis thematic

This use approach to analysis document with category deductive, involving use categories that have been identified previous and code that has been determined for identify dimensions skills included in text (Mazzi et al., 2023). Theme, code and description shown in Table 1. Researcher ensure understanding together and consistently about tool analysis content, independently reviewed document, review document for find track specific program for develop Skills think critically. With combine analysis thematic and content that is finish inspection document and then reading comprehensive all over document (Lane, 2023). This matter involves highlighting representative sentences description code and notes sentence directly in each document.

Researchers discuss various strategies for measure to what extent each theme, code and description code entered in document. (Morgan, 2022) Stages First look for document as source main study. Election document based four Flick factor (2018), namely authenticity, credibility, representativeness and meaning (Wang et al., 2023). Search document conducted on the global professional network website for get information related development, content and implementation of the Blue Curriculum program. Documents uploaded on the UNESCO website " A new blue curriculum " extraction process document taking place between August 2023 to November 2023 and beyond.

Stage second carry out the coding process. How to code done researcher for reveal meaning that is not expected from the data. Coding process produce reflecting themes pattern meaning together (Braun et al 2019 001). Coding deductive chosen to use the codes that have been determined with label parts relevant text for identify similarities, differences and patterns. Stages This carried out by two readers so as not to nature subjective. Reader First read and analyze For now contents, trends, similarities and differences of the extracted programs (Delawala et al., 2023) code that has been determined Then applied to the data matrix by the reader first. Coding then verified by the reader other, difference discussed and reached a consensus achieved.

Stage third done analysis document. Stage fourth that is data verification and analysis (Delawala et al., 2023) Coding process guided by vocational education competencies obtained from Key considerations on Technical and Vocational Education and Training (TVET) and UNEVOC, Tvet Qualitative Document Analysis of Voca...(Rahmaliaputeri, R. G., et al)

Country Indonesia.

Results and Discussion

In table 1 the analysis results show five themes with codes and code descriptions from the two analysis documents.

Table 1. Findings Specific document analysis

Tema	Kode	Halaman buku		Deskripsi kode
		A New Blue Curriculum: A toolkit for policy makers	Ocean Literacy: The Essential Principles and Fundamental Concepts of Ocean Sciences for Learners of All Ages	
Critical Thinking	Kreativitas dan inovasi	39, 40, 41, 42, 76	2, 4, 12, 12, 12	Keterampilan yang berhubungan dengan kemampuan untuk berpikir seperti menganalisis, mengidentifikasi dan mengembangkan solusi yang logis.
	Berpikir Kritis	11, 15, 19, 24, 25, 29, 36, 40, 52, 53, 67, 77	3, 4, 4, 12, 12, 12	
	Pemecahan masalah	10, 11, 19, 39, 50, 52, 53, 66	4, 4	
	Pengambilan keputusan	10, 15, 24, 40, 48, 50, 66	2, 2	
Hard Skill	Metakognitif (keinginan untuk belajar)	16, 19, 36, 39, 40, 63	12	Keterampilan yang berhubungan dengan teknis dapat diukur secara langsung.
	Komunikasi	11, 24, 36, 51, 66, 72, 76, 77	2, 12	
Teknologi	Bekerjasama	10, 24, 36, 38, 39, 42, 51, 66, 69, 73, 78	2, 5, 11, 12	Keterampilan yang berhubungan dengan pengumpulan informasi untuk mengambil Tindakan
	Pengumpulan informasi/data	10, 15, 24, 42, 48, 52	2, 12	
Soft Skill	Penggunaan teknologi informasi dan perangkat media	11, 19, 36, 39, 40, 41, 42, 69	4, 12, 12	Keterampilan interpersonal, sosial, dan kepribadian yang membantu individu berinteraksi.
	Integritas	10, 20, 36, 39, 53, 57, 72, 74		
	Disiplin	37		
	Tanggungjawab	15, 24, 25, 38, 42, 66	2, 11, 11	
Market Orientation	Kemampuan beradaptasi	36	3	Keterampilan yang merujuk pada kemampuan individu atau organisasi untuk memahami, menyesuaikan, dan merespon terhadap perubahan dan tuntutan pasar.
	Kepemimpinan	53		
	Nasionalisme	11, 29, 39, 42, 48, 51, 72		
Market Orientation	Pembelajaran Berbasis Kerja	10, 11, 19, 29, 38, 39, 40, 42, 52, 53, 65, 66, 68	3, 4, 4, 11	Keterampilan yang merujuk pada kemampuan individu atau organisasi untuk memahami, menyesuaikan, dan merespon terhadap perubahan dan tuntutan pasar.
	Kewirausahaan		76	

Findings is displayed in Table 1 shows results analysis from second document about mapping code in second page document. Researcher do analysis with Matching code into the existing sentences. After done matching code, then compared to from second document these analyzed based on theme and code can see in the table 2:

Table 2 Analysis Results of all theme

Theme	Code	A New Blue Curriculum: A toolkit for policy makers	Ocean Literacy: The Essential Principles and Fundamental Concepts of Ocean Sciences for Learners of All Ages
Critical Thinking	Creativity and Think critical	Student take role active with propose innovative ideas, support society, and acknowledge ability individual and collective to solve challenge marine through innovation with approach direct to environment sea.	Students who have competence cross discipline expected become explorer and researcher capable future find opportunity big in exploration marine. Integrating various skill.
	Solution Problem	Understanding student holistically it will importance ocean, strengthening awareness with conserve source Power marine through the blue curriculum and prepare future generation _ to challenge environmental and sustainable solutions.	Understand ocean, through use of models, simulation, exploration, experimentation and discovery No only important For protect our planet but also for understand and preserve source Power sea for sustainability life solutions.
	Decision-making	Strengthen understanding student about sea, pushing involvement in solution problem sea, and develop literacy sea For prepare future generation face challenge environment and contribute to continuity sea.	Increase public understanding of importance sea No only strengthen awareness environment, but also develop competence student in participate active For solve complex problems.
	Metacognitive	Empowering student For take continuous Action, improve knowledge about sea and put it into practice Skills through responsible decision making.	Student communicate in a way effective about sea, and develop ability For make the right and responsible decisions about source Power marine.
Hard skills	Communication	Give deep awareness and understanding, to student through role sea, pushing involvement in Continuous Action	Exploration, experimentation and discovery required For student get more understanding _ deep about marine systems and processes.
	Collaborate	Application Literacy Marine in school No only increase understanding student about importance sea, but also strengthen Skills effective communication, engagement, in simulation debate, and participation in discussion democratic about continuity sea.	Understanding will sea involve principles and concepts, communication and retrieval decision, temporary exploration sea interdisciplinary, with collaboration of experts from various field, enrich competence students and foster perspective ideas new in investigation sea.
Technology	Collection Information / Data	School in a way active involve student with community and society in activity marine, improve cooperation with institutions local and partnership education, and encouragement collaboration through project marine direct.	Exploration ocean interdisciplinary need collaboration of experts from various field, introduce students at work team interdisciplinary, and stimulate growth of ideas and perspectives new in investigation marine.
	Integrity	Literacy marine No only give information about importance sea to society, however literacy marine own understanding and skills take related decisions marine.	Understand principles and concepts base sea, capable communicate in a way meaningful about sea, and able make informed and responsible decisions _ answer about sea and sources its power
Soft Skills	Discipline	Marine education is inclusive of students' needs, integrating technology, providing access to marine resources, supporting Marine Literacy and skills development through virtual reality and technology applications.	Marine experiences, both real and virtual, increase students' marine awareness; technology new, Incl satellites and ships dive not manned
	Not quite enough answer	Guide student in make choice sustainable to environment sea and influence change collective, values and attitudes play role key, supported by characters Education based interventions and initiatives school, apply values based ethics and competence cross discipline, strengthen commitment school to behavior sustainable to sea	
	Ability Adaptation	Ocean Literacy development supports competence student in disciplined, helpful prevent problem social environment school, and create supportive atmosphere growth positive personality.	No only involve understanding principles and concepts base sea meaningful communication, as well taking informed and responsible decisions answer, but also bring not quite enough answer collective in nurse ocean, which is influenced by laws, regulations, and management source Power sea.
	Leadership	School in a way active involve student with community and society in activity marine, improve cooperation with institutions local and partnership education, and encouragement collaboration through project marine direct.	
Market Orientation	Nationalism	Push learning directly specific _ context For increase thinking critical, solving problems, but also develop competence leadership student.	
	Learning Based Work	Through approach all over school in application of ocean literacy, students pushed For own holistic understanding of importance guard sea, appreciate knowledge local, build citizenship and nationalism through participation active as responsible citizen to issues marine.	Through use of models, simulations and experience directly, as well participation in environment sea, participant educate build understanding about system sea, develop connection personality that improves and grows awareness, Collective action For individual and manage source Power sea in a way effective with apply continuity.
Market Orientation	Entrepreneurship	Through literacy applied marine in approach all over school, students involved in learning based problem _ action, through activity extracurriculars, visits field and use method active diverse learning with partnership school, project based maritime affairs and participation in Community activities.	
	Entrepreneurship	Understand importance intrapreneurship, entrepreneurship and leadership is part from competence students, for in a way creative and proactive overcome challenge in issue maritime, as well inspiring innovation and Sustainable action	

Discussion

With found it theme, code and description are mandatory owned in vocational education, then is connected in learning blue curriculum. Learning involves various interconnected components

related and interacting. Study explains that learning about draft marine done with simultaneous formal and informal education programs so that can improve the school curriculum and improve literacy marine (Venzo et al., 2023). In Efforts to implement blue curriculum, for increase quality of vocational education, which adapts practice teach with development latest. Explained by Lioyd and Payne (2012) in journal (Zhou et al., 2022) his research explains that there are those who teach vocational programs need ' dual ' skills that require educator For always follow development skill certain things, all at once develop Skills necessary pedagogy For convey knowledge to student. Based on findings explained into a number of components under this:

a. Student

Learning blue curriculum produce student as central in learning and positioning as perpetrator main, capable interact with respect, participate in a mutual world Connect, focus on needs and strengths individual and use method Student centered pedagogy. Learning must base on Collaboration with the Community with involve students and institutions local, community and expert, enabling Collaboration and exchange knowledge. Students develop competence For Act with mobilize knowledge, skills and values from various discipline knowledge and education level (Geng & Law, 2019). Learning blue curriculum must capably educate student equipped with a global outlook with awareness personal, cultural and political and abilities for understand outside conditions environment. Student role active in the school system and provide innovation through ideas for overcome challenge marine, support public local with develop solution to problem marine (Tsai et al., 2023)

Values and attitudes must be owned by students in blue curriculum, like develop respect and values to sea for example avoid play with creature live on the Beach, avoid trample and destroy creature life). Build values like Work hard work, creativity innovation, empathy, work together, and solidarity is important in think about crisis climate and justice social. Develop a sense of caring to sea and act as ocean local. Develop commitment (eg promise or committed to issues marine like reduce plastic waste, recover ecosystem sea, etc.). Apart from that, learning must create capable students behave positive about relevant social topics with sea (eg concern towards coastal communities and marginalized groups).

b. Educator

Educator own role important in ensure Power competitive graduates in the labor market Work (Zhou et al., 2022). In blue curriculum learning, educators expected understand literacy marine, for teach and explain marine to students and propose Educator must capably explain ocean with

meaningful way to student through access to source power, data, and materials latest with endeavor develop project for increase literacy marine. Educator interested in carry out activity learning based project with example marine. Apart from that, teachers are capable facilitate learning with visit field, module or teaching materials such as books and virtual, flexible and hybrid learning adapted with need individual student (Gardner et al., 2019).

c. Facility Learning

Blue curriculum set source adjusted and updated power (eg books, plans learning and syllabus, videos, documentaries, reality, books electronics) which will used by teachers and students in the learning process. Topic marine can also be introduced through class interactive in the laboratory, visits field (eg visit in see results sea and things research at the center science) for do example studies case (R & Gurning, 2018). Research result from (O'Brien et al., 2023) showing in Applied Ocean Literacy learning at informal schools, found method creative and innovative For study the physical and chemical processes that drive it ocean. This matter can achieve through experience virtual learning or use example life real for build connection with draft ocean literacy.

d. Learning materials

Knowledge and skills practical enter the all over curriculum, which includes there is learning. Literacy marine connected with related subjects for Sustainable development (ESD) and science, technology, Engineering, arts and mathematics (STEM), geography, statistics. Ocean literacy can also be linked to non-environmental subjects, such as art history, sports, social sciences and other subjects. Ocean literacy elements such as the topics of climate change, overfishing and plastic pollution are recognized by students as topics that are relevant locally and globally. Students must be aware of their local role as young citizens and encourage change in society (e.g. reducing the use of plastic bags, making the right decisions when buying food or household necessities).

e. Learning methods

Blue curriculum empowering student for proposed project, build values and develop citizenship sea inside and outside structure school. Activity learning based project with example marine for example rather than presenting examples mainland, teachers can refer for example to ocean relief, phytoplankton For explain principles scientific or geographic. Projects and studies case in Ocean Literacy multidisciplinary, interdisciplinary and transdisciplinary used in various Subjects encourage student for develop diverse competence. Transdisciplinary Subjects push student For think (critical thinking), and understand sea as an interconnected system relate. On appropriate learning in blue curriculum, the recommended method like learning based inquiry, learning based

project, learning based nature , STEM education (science , technology , mathematics and work art), Learning based problem knowledge , Learning based Action knowledge .

f. Evaluation Learning

Evaluation blue curriculum is part of the development process sustainable and permanent curriculum that is responsible answer continuously revise and adjust framework and guidelines curriculum for increase results learning. Learning and teaching focused on giving chance to students and shape Education with environment near with sea, loving sea, and understand sea. Temporary That is, learning and teaching also guide student for reflect participation student in educational activities based maritime, building ideas for utilize and appreciate source Power sea with guard balance ecology sea, active do conservation source Power sea and harmony between humans and oceans. Currently , not yet There is conducting research evaluation blue curriculum learning in vocational education , however results study (Lai, 2021) do pre-test and post-test experiments carried out on students as many as 56 students at the 3rd grade level of the school base with do experiment given marine education activities during eight week and visit field during One day in Taipei city , then done test perception and attitude marine student through collection LKS sheets , interviews with students and notes teacher's reflection on teaching , Tests on students devoted to tests marine education achievements students and tests attitude to marine education scale .

The result showing that after follow activity teaching marine education, and activities education marine student own more understanding in about sea matter This showing attitude student towards marine education tend positive. Evaluation process learning can do internally or carried out by the assigned review process including ocean literacy experts, scientists marine, marine education network and contributing teachers in Ocean Literacy. This process can test effectiveness fill curriculum, applied methodology and assessment student for understand educational strategies. This process can repeat through cycle ongoing evaluation continuously consider input from holder interests involved.

Conclusion

Findings from analysis document showing that integration blue curriculum and learning at school vocational can give solid foundation. For understanding student to principles sustainability, in particular issues environment and marine. Implementation of a blue curriculum containing maritime cargo throughout the education curriculum. Through document analysis, learning in the blue curriculum must apply several components including critical thinking such as creativity and innovation, critical thinking, problem solving, decision making, metacognition. Hard skills such as

communication, collaboration. Technology such as collecting information or data, using information technology and media devices. Soft skills such as integrity, discipline, responsibility, adaptability, leadership and nationalism. Market orientation such as work-based learning, internships, entrepreneurship. Components found in document analysis are implemented into learning in vocational education, through students, educators, learning facilities, learning materials, learning methods and learning evaluation. Blue curriculum learning practices must be able to create learning that involves students being able to touch, hear and feel nature so as to change their perspective on the vulnerability of the sea and feel the importance of responsibility for managing natural systems and can provide inspiration for the various careers available in the blue economy.

In its development, the blue curriculum case study has not yet been discovered so it is a novelty in the field of education, especially vocational. However, the topic of marine literacy has been discussed in several countries as informal and formal learning, such as in Canada, South Africa, Costa Rica, Kenya and Sweden, such as integrating OL and the national curriculum, for example the sea is included in local or indigenous stories and literature, art classes, History classes, film screenings, and field trips. Thematic activities are also organized considering cultural heritage and practices, monthly beach clean-ups and awareness campaigns are organized for secondary schools. (Regional et al., nd).

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