

Content Analysis of Ocean Literacy as the Basis of Blue Curriculum's Framework in Vocational Education

¹Mutia Hardika*, ²Isma Widiaty, ³Yoyoh Jubaedah

Universitas Pendidikan Indonesia, Indonesia

Email : ¹harumediaa@upi.edu*, ²isma@upi.edu, ³yoyohjubaedah@upi.edu

* Correspondence author

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ABSTRACT

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content analysis.

This research aims to analyse the need for Ocean Literacy content indicators to be adapted as the basis of Blue Curriculum's framework in Vocational Education. The Systematic Literature Review (SLR) method was used as the research approach using carefully selected articles from the Sciencedirect database. The selected articles were those published between 2018 and 2023. The PRISMA method was used to filter out documents that did not fit the inclusion and exclusion criteria outlined in this study. After examining and reviewing the selected articles, it was found that there are several indicators that can be put forward in Ocean Literacy content. These are ocean potentials, ocean strategy and management, ocean activities and their impacts on marine ecosystems, ocean-related tourism and culture, ocean sustainable development, and ocean-related policies. This discovery is expected to be integrated into the educational curriculum in vocational education as one of the strategies in managing various marine potentials for sustainable development.



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Introduction

The ocean is one of the areas that has great potential to be developed. In connection with that, the ocean is also home to abundant underwater cultural heritage (Natali P., 2023). Various studies on the potential of the ocean with all its diversity have become the concern of world researchers recently (Cheng J., Zhang, X. & Gao, Q., 2023; Zimmerhackel, J.S., et al, 2023; Fauville, G., et al, 2019; Mikkelsen, N., et al, 2023; Francolini, E.M., et al 2023). This phenomenon occurs because people's lives are closely related to the sea (Tsai, L.T., et al, 2023). Both in terms of economic (Francolini, E.M., et al 2023; Karantoni, M.E., 2023; Xiaoqing, Z., et al, 2023), social (Francolini, E.M., et al 2023; Xiaoqing, Z., et al, 2023; Jacob, C., et al 2023), etc

But today the world is changing rapidly, threatening the marine and coastal systems on which

humans depend for ecosystem goods and services (O'Leary, B.C., et al. 2023). Societal challenges, including accelerating biodiversity decline, climate change impacts, unsustainable economic and social development, increased disaster risk and threats to food security jeopardise human health and well-being (E.S. Brondizio, et al., 2019; WEF, 2022; Delmotte, V. M., et al., 2021). Climate change, resource exploitation, biodiversity loss and other pressures also threaten marine systems locally and globally (Halpern, B.S., 2015; alpern, B.S., 2019; Nash, K.L., et al., 2017; Nash, K.L., et al., 2020) with ongoing impacts on human activities (McKinley, E., et al., 2022). So in this case, ocean protection has become one of the most pressing points on the world's environmental agenda (Panto, E., et al., 2019).

In recent years, ocean literacy has become a global movement that connects the human dimension to the ocean and aims to intensify positive changes in people's behaviour (Ocean Literacy Network, 2013). Ocean literacy is defined as the understanding of the marine environment (F. Cava, et al., 2015; Pazoto, C.E., et al., 2022) to increase knowledge about the marine environment, which enables people to make responsible decisions about the marine environment (Ocean Literacy Network, 2013; Cretella A., et al. 2023). So in recent times, many studies have been conducted related to measuring ocean literacy to provide a benchmark for individuals' understanding of ocean issues (Markos A., et al., 2017; Gao, Q., 2023). These studies provide a good reference point for marine literacy benchmarks (Qu, Y., et al. 2023).

However, despite the general interest in this concept, there are still shortcomings in the formal education system that can encourage marine literacy (UNESCO, 2020). One of them is due to the lack of curriculum development based on ocean potential (*Blue Curriculum*). However, marine literacy is expected to be integrated into the curriculum and educational policies of the formal education system by 2025 (Markos A., et al., 2017) in order to motivate people to behave more responsibly and informed towards the ocean and its resources (Ashley, M. et al., 2019).

Indonesia, as one of the archipelagic countries that geographically has abundant coastal areas, certainly has great potential in the use of the sea to open up economic opportunities and as a source of learning sustainable education to be able to improve people's lives. Where the main goal of sustainable education is to encourage responsible and sustainable behaviour in various aspects of human life (Zhao, S. & Cheach, K.S.L., 2023) including human behaviour towards the ocean. Therefore, understanding the characteristics of marine systems is necessary as they are closely interrelated (Cheng J., Zhang, X. & Gao, Q., 2023).

Thus, integrating the blue curriculum through ocean literacy in formal education in Indonesia is very important to do, especially in the education curriculum in vocational education. This is in line
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with vocational education which not only educates and trains existing skills, but must also function as a driver of change (Kemendikbud, 2017). Because vocational education also functions as a process of acculturation (adjustment to change) and enculturation (carrier of change) for the community (Kemendikbud, 2017). The areas of expertise in vocational education can be seen in Table 1 below.

Table 1. Areas of Expertise in Vocational Education

<i>Areas of Expertise</i>	<i>Expertise Programme</i>
Building and Construction Technology	Building Maintenance Engineering, Civil Building Construction and Maintenance, Construction and Housing Engineering, Building Modelling and Information Design, Furniture Engineering
Manufacturing and Engineering Technology	Mechanical Engineering, Automotive Engineering, Welding and Metal Fabrication Engineering, Logistics Engineering, Electronics Engineering, Aircraft Engineering, Ship Construction Engineering, Analytical Chemistry, Industrial Chemical Engineering, Textile Engineering
Energy and Mining	Power Engineering, Renewable Energy Engineering, Geospatial Engineering, Mining Geology Engineering, Petroleum Engineering
Information Technology	Software and Game Development, Computer Network and Telecommunications Engineering
Health and Social Work	Healthcare, Medical Laboratory Techniques, Pharmaceutical Technology, Social Work
Agribusiness and Agritech	Crop Agribusiness, Livestock Agribusiness, Fisheries Agribusiness, Integrated Agricultural Enterprises, Agricultural Product Processing Agritech, Forestry
Maritime Affairs	Fishing Vessel Technics, Fishing Vessel Nautics, Commercial Vessel Technics, Commercial Vessel Nautics
Business and Management	Marketing, Office Management and Business Services, Institutional Accounting and Finance
Tourism	Tourism, hospitality, culinary, beauty and spa service businesses
Arts and Creative Economy	Fine Art, Visual Communication Design, Work Design and Production

Based on Table 1, it is known that vocational education has a connection with the utilisation of various potentials and biodiversity in the ocean, such as the tourism sector which is synonymous with culinary, hospitality and tourism service businesses and also various other fields. So that the integration of the Blue Curriculum in the vocational education curriculum is expected to bring positive changes, one of which is a sustainable economy to support sustainable development. Therefore, this research aims to analyse the needs of ocean literacy content, which can be used as one of the considerations for developing a *blue curriculum-based ocean literacy content framework* in vocational education.

Method

This research uses the Study Literature Review (SLR) method combined with content analysis and presented in descriptive form. The purpose of SLR is to collect analyse and synthesise existing scientific evidence to answer research questions (Carrera-Rivera, A., et al., 2022). The framework used in SLR to organise and report research results transparently is PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analysis). PRISMA is a technique or guide used in SLR research, in compiling systematic steps with the aim of collecting, identifying and synthesising data information in SLR research (Page, M.J., et al, 2021). This is done with the aim of ensuring that reporting is comprehensive, transparent and accurate regarding research methodology and results.

Data Collection

This research aims to analyse Ocean Literacy-related content and then identify Ocean Literacy content indicators as a basis for developing a Blue Curriculum Framework in Vocational Education. The database was selected from ScienceDirect to ensure that the data selected were reputable scientific publications, especially in this study, namely research journal articles. In this case, after going through various trial searches through various keywords, it was finally selected using the keywords "ocean literacy" OR "sustainable literacy" OR "Blue literacy" OR "Blue curriculum", which resulted in (n = 333) scientific publications. The data obtained was then processed using the PRISMA method to obtain articles that meet the needs of the research conducted. A content analysis was then conducted to identify indicators of ocean literacy content.

Study Selection

To ensure the suitability of the identified articles, a careful inclusion and exclusion process was conducted. This is done so that the data obtained is relevant and reliable, and of course can help to produce answers to existing research. The inclusion-exclusion criteria developed can be seen in table 2 below.

Table 2. The inclusion-exclusion criteria

<i>Inclusion</i>	<i>Exclusion</i>
Articles published 2013-2024	Articles published before 2013
Scientific articles in the form of research articles	Scientific articles that are not research articles
Research articles categorised as open access and open archive	Research articles not categorised as open access and open archive

Results and Discussion

Based on the search results taken from the Science direct database and the keywords used, articles were found with a total of (n = 333). Then the researcher carried out deletion of publications outside the 10-year time span, or articles before 2013 as many as (n = 37), resulting in (n = 296) publications used for stage 2 screening. Then, publications other than research articles were removed (n = 78), resulting in (n = 218). Next, research articles were filtered again by specialising in open access articles, and removing (n = 164), resulting in (n = 54). Using this filter, the 54 research articles were then downloaded to be analysed independently based on their titles and contents. Irrelevant articles were then discarded as many as (n = 39) and left (n = 15). For more details, the PRISMA flow diagram that has been implemented can be seen in Figure 1 below.

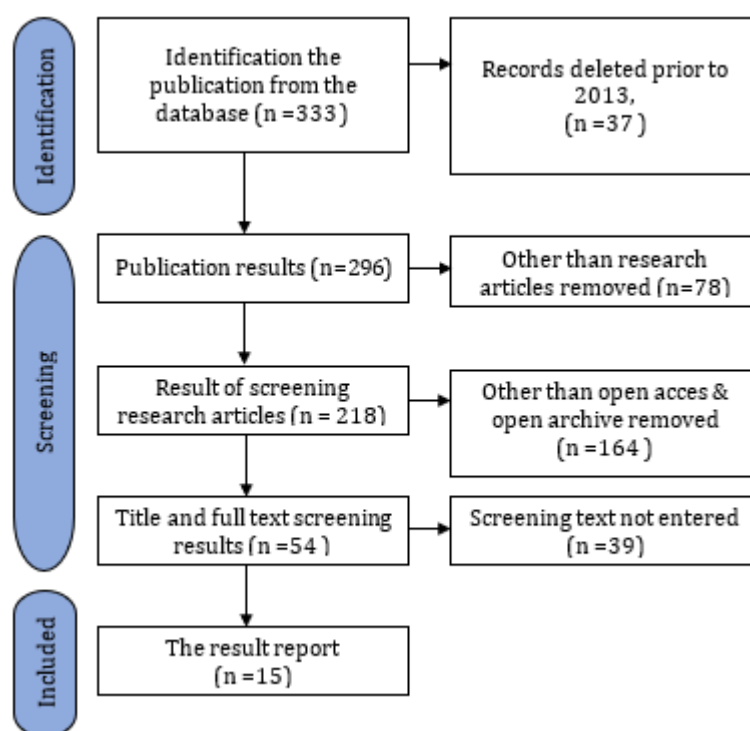


Fig 1: PRISMA Flowchart

From a total of 333 documents that have been selected by the PRISMA method, it was found that there were 37 documents that had been published before 2013. Of the 296 documents selected in stage 1, 78 of them were not research articles. Then based on the results of stage 2 selection, out of 218 documents, it was found that 164 of them could not be accessed freely. In-depth analysis was then carried out by reading the research articles one by one manually, so that out of 54 documents, the following 15 articles were finally obtained after passing a rigorous process. The articles can be seen in the table 3.

Table 3. Selected Article Title

Author	Publitation Title	Year
Frisch,L.C., et al.	Gauging perceptions of ocean acidification in Alaska.	2015
Finke, G., et al.	Namibia’s way to Marine Spatial Planning – Using existing practices or instigating its own approach?	2020
McKinley, E., et al.	Marine social sciences: Looking towards a sustainable future	2020
Michalowska, M.	Artists in the face of threats of climate change	2020
Shuckmann, K.V., et al.	Ocean science, data, and services for the UN 200 sustainable development goals	2020
Britton, E., et al.	Accelerating sustainable ocean policy: They dynamics of multiple stakeholder priorities and actions for oceans and human health	2021
Mahadeo S.	Marine spatial planning in the Eastern Caribbean: Trends and progress	2022
Stofen-O, A.	Parachute science through a regional lens: Marine litter research in the Caribbean Small Island Developing States and the challenge of extra-regional research	2022
Omstedt, A.	Marine spatial planning in the Eastern Caribbean: Trends and progress	2022
Bettencourt, S., et al.	Marine litter education: From awareness to action	2023
Celine, J., et al.	A two way proces – Social capacity as a driver and outcome of equitable marine spatial planning	2023
Gutierrez, D., et al	A proposal for engagement in MPAs in areas beyond national jurisdiction: The case of Macaronesia	2023
Kenny, I., et al.	Aligning social and ecological goals for successful marine restoration	2023
Natali, P. & Thompson, B.S.	Saving two fish with one wreck: Maximizing synergies in marine biodiversity conversation and underwater cultural heritage protection	2023
Pace, L.A., et al.	Exploring future research and innovation directions for sustainable blue economy	2023

Of the 15 articles, 1 article was published in 2015, 4 articles were published in 2020. 1 article was published in 2021, 3 articles were published in 2022 and 6 articles were published in 2023.

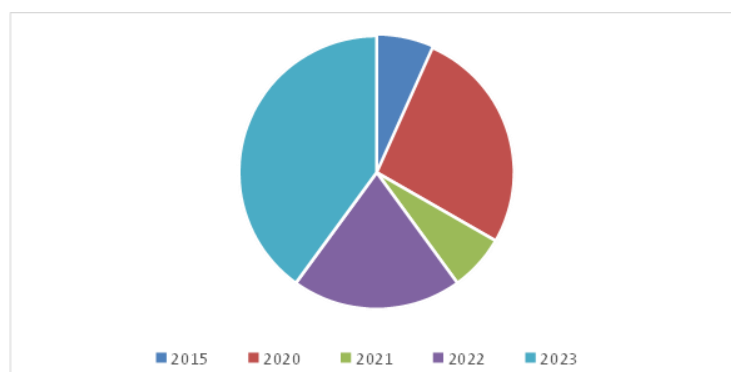


Fig 2: Selected articles by year

Email : joves@mpv.uad.ac.id
 Website : <http://journal2.uad.ac.id/index.php/joves>

Based on the data collected, a careful content analysis was conducted to identify content related to ocean literacy. These contents can be seen in Table 4.

Table 4. Article Content Identification

Research Title	Identify Ocean Literacy Content
Marine spatial planning in the Eastern Caribbean: Trends and progress, (Mahadeo S., 2022)	Knowledge of marine spatial planning, knowledge of the impacts of Blue Economy development on marine activities and ecosystems, knowledge of the contribution of marine and coastal ecosystems to the economy and community livelihoods, knowledge of marine tourism and its contribution to GDP (Gross Domestic Product) and employment, knowledge of marine space and resource management
Marine litter education: From awareness to action, (Battencourt, S, et al, 2023)	Knowledge of the concept of marine debris and its sources/pathways, knowledge of the impacts of marine debris and marine debris management schemes, knowledge of the role of education in sustainable development in the 2030 sustainable development agenda, knowledge and skills in reducing marine pollution through education.
Gauging perceptions of ocean acidification in Alaska. Marine Policy, 53, pp.101-110, (Frisch, L.C. et al, 2015)	Knowledge of the ocean's potential to support economic viability and cultural sustainability, knowledge of the impacts of ocean acidification as a threat to the ocean and communities, knowledge of Alaska's unique vulnerability to ocean acidification, knowledge of the importance of community understanding and risk awareness in climate and ocean acidification policy, knowledge of using scientific sources to obtain information about weather and ocean health.
Saving two fish with one wreck: Maximizing synergies in marine biodiversity conservation and underwater cultural heritage protection, (Natali, P. & Thompson, B.S, 2023)	Knowledge of how to assess opportunities and potential arising from marine biodiversity, knowledge of how to utilise the presence of underwater cultural heritage to support marine biodiversity conservation and vice versa, knowledge of how to sustainably utilise natural resources, knowledge of how laws provide direct and indirect protection to marine biodiversity, knowledge of how synergies between wreck management and fisheries management (there is reciprocity), knowledge of synergies around tourism and sustainable livelihoods, knowledge of maritime conservation zones in Indonesia, knowledge of synergies between efforts to protect and preserve underwater cultural heritage and efforts to support marine biodiversity, knowledge of local stakeholder engagement, effective long-term monitoring and enforcement mechanisms, productive dialogue and collaboration between community institutions and marine education initiatives, knowledge of cooperation between maritime, marine resource, environmental and tourism institutions to effectively manage marine space for increased multipurpose use.
How to develop an understanding of the marginal sea system by connecting natural and human sciences, (Omstedt, A., 2023)	Knowledge of the various stresses caused by human activities on the marine environment and its ecosystems, knowledge of the impact of the gap between scientific knowledge and treatment of the ocean, knowledge of how to improve the relationship between humans and the ocean, knowledge of marine threats, knowledge of methods to improve the management of the ocean and its marginal seas, knowledge of the concept of sustainability in the marine scope.
Parachute science through a regional lens: Marine litter research in the Caribbean Small Island Developing States and the challenge of extra-regional research, (Stofen-O'Brien, A., et al., 2022)	Knowledge of marine debris and the environment, knowledge of tourism, resources and ecosystem services and their contribution to community livelihoods, knowledge of the impacts of marine environmental pollution on environmental and economic well-being, knowledge of methods used to address marine debris pollution, knowledge of government programmes to address marine debris pollution, knowledge of efforts to strengthen the marine debris knowledge base, knowledge of the importance of international cooperation to achieve inclusive and sustainable development.
Ocean science, data, and services for the UN 200 sustainable development goals, (Schuckmann, K.V. et al., 2020)	Knowledge of the interconnectedness of the sustainable development goals for oceans and life underwater, knowledge of the conservation and sustainable use of the oceans, seas and marine resources knowledge of the sustainable blue economy, knowledge of the UN marine science decade for Sustainable Development 2021-2030, knowledge of the complexities of marine governance, knowledge of biodiversity and ecosystem services.
Accelerating sustainable ocean policy: They dynamics of multiple stakeholder priorities and actions for oceans and human health	Knowledge of the impacts of climate change, biodiversity loss and further degradation due to human activities, knowledge of the urgency of shifting local policy perspectives to "ocean policy", knowledge of dynamic and adaptive ocean management strategies, knowledge of the relationship between ocean health and human health, knowledge of the importance of building capacity for communities to better understand the synergies and linkages between climate change, ocean health and human health and well-being now and in the future, knowledge of inclusion issues in governance and decision-making in the field of ocean policy, knowledge of the importance of meaningful dialogue, discursive spaces, participatory processes and engagement of community stakeholders in initiatives, which broaden public perception and understanding of the interconnectedness of the marine environment or human actions.
Exploring future research and innovation directions for sustainable blue economy, (Pacc, L.A. Et al, 2023)	Knowledge of the integration of commercial activities, research and innovation in various industrial sectors in the blue economy, knowledge of the utilisation of the potential of science and innovation to develop innovative ocean sustainability solutions, knowledge of the exploitation of marine resources and the use of coastal and marine areas for industrial and recreational activities, knowledge of the sectors that drive research and innovation in the ocean sector, knowledge of sustainable utilisation of marine and coastal resources, knowledge of potential economic opportunities, knowledge of strategic planning and management of activities related to the coastal and marine environment, knowledge of the role of science and research in conserving and restoring marine ecosystems, knowledge of the appeal of open ocean governance in decision and policy making, knowledge of public awareness of biodiversity,
Namibia's way to Marine Spatial Planning – Using existing practices or instigating its own approach?, (Finke, G., et al., 2020)	Knowledge of the richness of marine resources and the economic potential they offer, knowledge of the links between legislation and marine governance, knowledge of the socio-cultural and economic values of the sea, knowledge of the protection of marine biological resources and biodiversity and their benefits for the blue economy, knowledge of ecosystem services of marine and coastal environments, knowledge of marine and coastal policy and management, knowledge of marine and coastal challenges, knowledge of community and ocean interactions, knowledge of the implications of community and ocean interactions for effective policy development and management, knowledge of ocean and coastal management, knowledge of marine and coastal ecosystem degradation, knowledge of ocean utilisation and sustainable management, knowledge of ocean decision-making, knowledge of the ocean's most pressing challenges, knowledge of cultural connections and their influence on a sense of place and identity for coastal communities, knowledge of the sociology of the ocean, knowledge of ocean-related international relations and tourism, knowledge of marine spatial planning, knowledge of perceptions of stakeholder groups, knowledge of the role of blue spaces in supporting individual and community well-being.
Marine social sciences: Looking towards a sustainable future, (McKinley, E. et al., 2020)	Knowledge of basic principles of marine spatial planning, knowledge of community relations in marine, knowledge of marine ecosystem management, knowledge of stakeholder participation, knowledge of marine spatial plans, knowledge of marine planning, knowledge of marine development, knowledge of sustainability goals, knowledge of stakeholder engagement on marine governance, knowledge of the importance of the ocean as an ecosystem service, knowledge of threats and pressures to the ocean, knowledge of biodiversity protection, knowledge of synergistic engagement of stakeholders and local residents,
A two way process – Social capacity as a driver and outcome of equitable marine spatial planning, (Celine, J., et al., 2023) A proposal for engagement in MPAs in areas beyond national jurisdiction: The case of Macaronesia, (Gutierrez, D., et al., 2023)	Knowledge of ocean governance, knowledge of enhancing the social value of the ocean, knowledge of the important role of marine spaces and resources for community well-being, knowledge of marine resource inputs to community development, knowledge of marine ecosystems, knowledge of socio-cultural and economic objectives related to marine ecosystems, knowledge of marine ecosystem restoration planning, knowledge of the important role of stakeholders and local communities in marine ecosystem restoration.
Aligning social and ecological goals for successful marine restoration, (Kemp, I. et al., 2023)	Knowledge of the natural impacts of climate change on the social and cultural heritage of marine environments, knowledge of the physical and biological impacts of climate change, knowledge of the relationship between people and the oceans in the context of human and natural resource exploitation, knowledge of the linkages between natural resource exploitation and state policy, IT infrastructure development and natural change and their impacts on people's lives, knowledge of the impacts of global warming on indigenous peoples of the incoming polar regions (e.g. shoreline changes and consequent need for migration), knowledge of the results of corporate globalization and the political consequences of resource exploitation.
Artists in the face of threats of climate change, (Michalowska, M., 2020)	

Based on the ocean-related content identified from the article above, researcher formulated ocean literacy-related content as follow on table 5.

Table 5. Researcher Formula

No	Content	Content Description
1	Marine Strategy and Management	Marine strategy and management includes marine spatial planning, both in terms of marine space and resource management. It also involves educating the public on the need to protect the ocean, for example by creating a marine waste management scheme, providing counselling on skills to reduce marine pollution and the various methods used to tackle marine pollution. A variety of strategic plans are used involving various parties, not only the communities around the coast, but also all levels of society, so that the role of blue spaces in supporting individual and community welfare can be maximised.
2	Marine Ecosystem and Activities	The development of the Blue Economy has impacts on marine activities and ecosystems. Therefore, it is important to know the various contributions of marine and coastal ecosystems to the economy and people's livelihoods, but it is also important to know the impacts and pressures that various human activities have on the marine environment and ecosystems. Not only does pollution and the ocean impact environmental and economic well-being, but it also impacts climate change, biodiversity loss, and others.
3	Tourism and Culture	Marine biodiversity and underwater cultural heritage can be utilised for marine tourism. Tourism involves not only the potential under the sea, but also the resources and ecosystem services that contribute to community livelihoods and GDP. Cultural connections and their influence on the sense of place and identity of coastal communities is also one of the main attractions of tourism. This is not only aimed at the local community, but also the international community.
4	Sustainable Development	Education has a role to play in the sustainable development agenda. Achieving sustainable development requires sustainable utilisation of natural resources and synergies around tourism and sustainable livelihoods. In this case, education is needed regarding how the concept of sustainability in the marine scope, the importance of international cooperation to achieve inclusive and sustainable development, and public understanding of sustainable development goals for oceans and underwater life. So that the preservation and utilisation of marine, ocean and marine resources in a sustainable manner can be done.
5	Marine Potential	Marine potential is not only marine biodiversity, but also biodiversity and ecosystem services, marine resource wealth and the economic potential it offers. The ocean's potential not only supports economic sustainability, but also cultural sustainability.
6	Marine Related Policies	The law has both direct and indirect protections for marine biodiversity. This requires local stakeholder engagement and monitoring and enforcement mechanisms as well as productive collaboration between community institutions, marine education initiatives and government programmes. Marine policies and decision-making in the marine sector can also broaden public perceptions and understanding of the interconnections between the marine environment or human actions, thereby emphasising the importance of meaningful dialogue, discursive spaces and participatory processes and stakeholder engagement to marine governance.

The The management of the various potentials that exist in the ocean can certainly provide many
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opportunities in implementing sustainable development. Moreover, the marine economy is the key to job creation, value addition, and sustainable development in a country and region (Santos, T. & Cabral, JA. 2024). Therefore, having human resources in the form of an expert, skilled and productive workforce is a demand for a country rich in natural resources such as Indonesia, so that all added values from natural resources as raw materials for various industries can be enjoyed as much as possible by the Indonesian people themselves (Kemendikbud, 2017).

Furthermore, given how the ocean supports the well-being and livelihoods of millions of people around the world, it is imperative that we raise awareness and understanding of this through education (O'brien, M., et al., 2023). Educating young people about the importance of marine and coastal environments is integral to enhancing ocean stewardship communities that act sustainably, and that can participate in effective decision-making about the ocean and its complex and dynamic problems (Fauville, et al., 2019). The existence of marine-related knowledge will increase public awareness to be able to think wisely in various marine-related activities and decision-making. Thus, marine science will continue to be needed for sustainable development, healthy oceans and a livable planet (Schuckmann, K.V., 2020).

The integration of blue curriculum in vocational education, for example in the field of tourism, both through the processing of various kinds of marine culinary, natural, social and cultural utilisation can be used to maximise the sustainable use of marine potential. In addition, through marine literacy, it is hoped that local and international stakeholders, the existing education system, and communities living around the coast can make wise policies in utilising all the potential that exists in various activities carried out at sea. Moreover, with the establishment of KEU (main economic activities) in each MP3EI corridor since 2011 in accordance with the potential and advantages of each region, it is expected that the human resources in these areas will also be the actors as well as the ones who get the most benefits (Kemendikbud, 2017).

Then, through marine literacy in the vocational education curriculum, it is hoped that it can improve the education curriculum in vocational schools, as the results of Tsai's, et al. (2023) research which examined marine literacy among Taiwanese and Japanese high school students, which later became one of the references for high schools, teachers, and policymakers in Taiwan and Japan and helped improve the curriculum, learning environment and marine education policies. Therefore, integrating the Blue Curriculum through Ocean Literacy is very feasible in vocational education. Moreover, this is in line with the expectations of the UN Decade of the Ocean which stipulates that ocean literacy can be integrated into the curriculum and education policies of formal education systems by 2025 (UNESCO, 2020).

Conclusion

It is concluded that there are several indicators that can be put forward in Ocean Literacy content. Namely the potentials that exist in the ocean, marine strategies and management, various marine activities and their impacts on marine ecosystems, marine-related tourism and culture, sustainable development in the marine sector, and policies related to the ocean. By understanding these contents, it is hoped that the management of all marine-related potential and biodiversity can be developed more optimally to develop sustainable development n.

There are many limitations in this study, such as the lack of literacy sources from only one search source, as well as limited research methods. Therefore, it is recommended for future researchers to be able to multiply literature studies from reputable journals from various sources in order to obtain a wider scope of literacy. Then instead of analysing manually, it would be better if you can use an application that can facilitate the data analysis process such as using the NVivo application. In addition, it is hoped that research can be carried out by involving SMK teachers, the World of Business / Industry and various parties related to the vocational education curriculum and the maritime service to maximise research results.

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