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A survey of students, professors, and stakeholders' expectations for the new MSc study program in Maritime Environmental Protection and Management at the University of Montenegro/Faculty of Maritime Studies in Kotor

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Abstract

This study presents achieved results of conducted survey within the Erasmus + CBHE project "Development of Regional Joint Master Program in Maritime Environmental Protection and Management - MEP&M". The purpose of the study was to determine the expectation of students and professors at University of Montenegro/Faculty of Maritime studies Kotor and Montenegrin blue economy stakeholders toward new regional interdisciplinary joint MSc program Marine Environmental Protection and Management. In addition, the study included a survey of professors' and students' satisfaction with existing courses in different fields of marine environmental protection and management, the implementation of distance learning at the Faculty, and their knowledge of English, as the new program will be held in English and organized as blended learning. Survey on satisfaction level of blue economy stakeholders with cooperation with academia was conducted as well. According to the findings, the majority of respondents showed high expectations for the new MSc program and believe that having this program is very important for the University as well as blue economy sector in Montenegro. Also, satisfaction levels of different surveys showed that professors and students would need additional preparation in order to fully implement new MSc program, and that current collaboration between the university and the blue economy sector would need to be enhanced.

Key words: Questionnaire survey research, Master degree program, Maritime Environmental Protection and Management, University staff and students, Blue economy stakeholders

I. INTRODUCTION

This survey is conducted by the University of Montenegro within a project: „Development of Regional Joint Master Program in Maritime Environmental Protection and Management (MEP&M)” of the Erasmus + programme CBHE. This project has been funded with support from the European Commission. Project coordinator is the University of Montenegro (UoM), Faculty of Maritime Studies Kotor. Project duration is 3 years (15/01/2021 – 14/01/2024).

Anthropogenic activities that take place on a daily basis have a variety of negative effects on the marine and coastal environment. To fulfill the Sustainable Development Goals (SDGs) set by the United Nations for 2030, it is vital to preserve and increase the natural capital collected in the seas and oceans [1].

For this project, focus was on issues regarding protection of marine and coastal zone environment from global climate change and local/regional pollution issues in Montenegro and Albania. Blue economy sector in these countries is marked as most influential on local and regional source of marine pollution as well as contributor to the global climate changes. Maritime based economic activities, such as capture fisheries and aquaculture, offshore oil and gas, offshore wind energy, ocean energy, desalination, shipping and marine transport, and marine and coastal tourism, were included in the European Commission's 2019 Annual Economic Report on Blue Economy [2]. Blue economy sector in Montenegro and Albania is recognized in the EU Strategy for Adriatic Ionian Region (EUSAIR) [3]. Some of these activities are well-developed, while others are getting started, and all have an impact on the marine and coastal environments of the South Adriatic and North Ionian seas.

Apart from the EU, the United Nations Environmental Programme (UNEP) deals with environmental concerns in general [4]. Also, the International Maritime Organization (IMO) of the United Nations is dealing with specific control and prevention of ship-source pollution covered by the MARPOL Convention, such as oil, chemicals carried in bulk, sewage, garbage, and emissions from ships, including air pollutants and greenhouse gas emissions [5]. Ballast water management, anti-fouling technologies, ship recycling, pollution preparedness and response, and identification of special regions and particularly vulnerable maritime areas are among the other topics discussed on international level.

Thus, the project address the following specific objectives:

- Based on the state-of-the-art in MEP&M education and research, the aim is to develop a regional joint interdisciplinary master program in the English language for students and professionals having at least a BSc degree, to address the long-term needs in specific issues of coastal and marine environmental protection and management in South Adriatic and Ionian Seas, thus strengthening the international competitiveness of Montenegrin and Albanian higher education institutions (HEIs). Blended learning lecturing will be offered, with both classroom and distance learning options available. As a result, it will be the first of its sort in both Montenegro and Albania.
- To build up human and technical capacities of partner country (PC) HEIs to support the new master program in MEP&M.
- To enhance networking among PC HEIs, governmental institutions, Blue economy sector enterprises, and NGOs in order to act regionally in order to prevent and cope with consequences of global climate change and local/regional marine pollution.

A questionnaire survey was undertaken at three universities that will offer joint MSc program to identify academic staff, students, and stakeholders' readiness and expectations for this new MSc program. Those are University of Montenegro, Universities Alexander Moisiu Dures and University 'Ismail Qemali' Vlora. This paper gives an overview of questionnaire survey conducted only at the University of Montenegro. Partial results are presented in next sections. All questions and offered answers within questionnaires for academic/research staff, students and stakeholders are available in Gap analysis document on project's web site [6].

1. METHODOLOGY

This study is a simple descriptive research study using questionnaire survey method [7]. As a data collection instruments, general and Likert-type scales questions were designed by project

consortium and adopted by project management board [6]. There were three questionnaires with different questions, first designed for university staff, second for student population and third for stakeholders in Blue economy sector in Montenegro. Participants include 24 university staff members, 67 students and 16 stakeholders. Questionnaires were prepared in electronic form. Participants were informed about the purpose of the survey and how the results will be utilized by university employees. Participants were encouraged to take part in the survey and informed that it would take up to 15 minutes to complete the questionnaire. It was stressed that their involvement was entirely optional, and that their comments would be unanimous and secret.

2. RESULTS AND DISCUSSIONS

2.1. Results and analysis of questionnaire survey for academic staff

This questionnaire was completed by a total of 24 professors and researchers from the UoM's Faculty of Maritime Studies Kotor (Faculty) and Institute for Marine Biology (Institute), since both institutions will take active part in the new joint MSc MEP&M program's development. Researchers from the Institute are performing only research, while professors from the Faculty both research and teaching. Respondents were mostly females (70.8%), within age category 41-50 (41.7%) and with academic/research title Assistant Professor/Scientific associate (37.5%) [6].

Different activities in broader fields of MEP&M are conducted at the Faculty and the Institute. All surveyed staff consider that the UoM offers in-curricular or extracurricular activities (e.g. projects, research, workshops, seminars, trainings, summer school etc.) focusing on the behavior, skills, knowledge and creativity development in the broader fields of MEP&M. Some of these activities have been previously concluded 29.2%, 54.2% of them are currently active and 16.7% are planned for the future. Only 16.6% of surveyed staff has delivered a course in the broader fields of MEP&M in the last five years, while 9 % of them did it in academic year 2021/2022.

Likert scale was used for part of survey in order to get feedback from staff on their current involvement in the field of MEP&M, their future expectations as well as preparedness for teaching in English and in online manner [7].

More than 90% of staff agreed that some specific fields of MEP&M should be included more in their existing courses, Figure 1, while over 80% agreed that specific fields of MEP&M should be included more in their research, Figure 2.

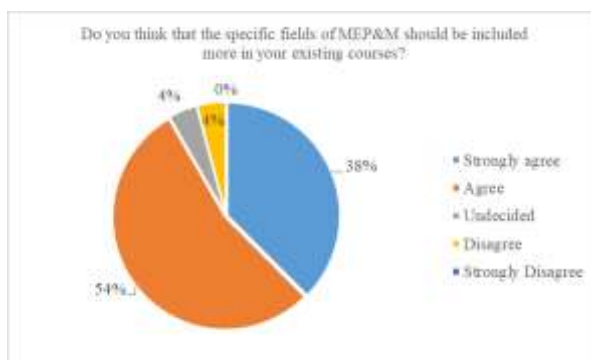


Figure 1

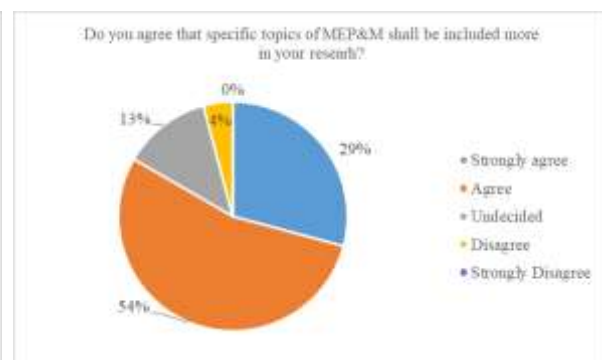


Figure 2

This is the first of kind questionnaire regarding implementation of distance learning at the Faculty since start of the COVID 19 pandemic. Academic staff was familiar with basic functioning of distance learning even before pandemic, when all classes were automatically transferred to digital (online) mode. Thus, most of respondents, over 70%, replied that are extremely or very familiar with online teaching, Figure 3. Most of them, 58%, thinks that technology used for online teaching is of fair quality, while only 38% are satisfied with it,

Figure 4. Similarly, most of staff thinks that teaching methodology for online teaching is of fair quality, 59%, while only 33% is satisfied, Figure 4. Staff are the least satisfied with the quality of e-materials for distance learning, with 67% rating it as fair and only 29% rating it as excellent or good, Figure 6. This implies that e-technology, e-methodology and e-materials must be enhanced. This will be accomplished through training activities and the purchase of high-end distance learning technologies within the scope of the project.

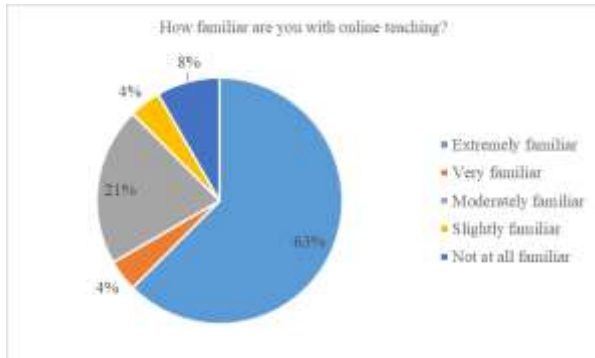


Figure 3

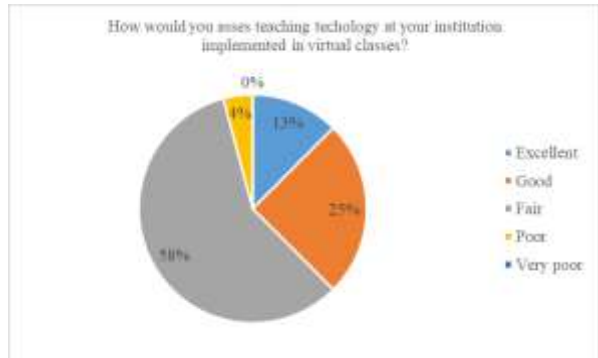


Figure 4

Due to the fact that the MSc MEP&M program would be taught in English, it was critical to obtain input on staff competence. Figure 7 shows that the majority of them (45.8%) have sufficient English skills to conduct English teaching.

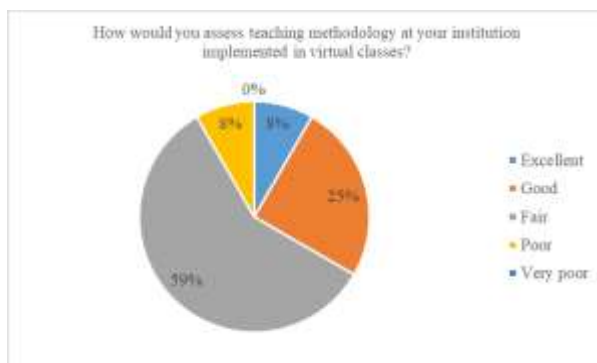


Figure 5

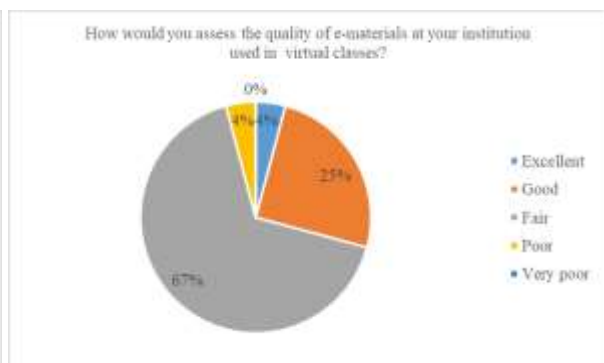


Figure 6

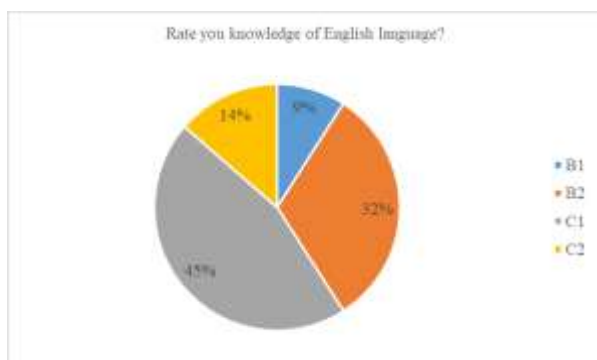


Figure 7

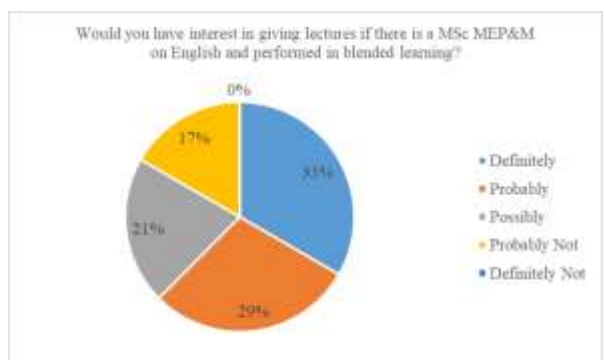


Figure 8

Finally, staff were surveyed to see whether they would be interested in teaching in the new MSc MEP&M program and what topics they would be interested in. The majority of Faculty and Institute staff were enthusiastic about participating in the MSc MEP&M program once it began, with 62% of them stating that definitely or probably will participate, Figure 8. Most of them

showed interest in teaching in the fields of marine environmental protection (24%), marine pollution (10%), fisheries (10%), conservation and management of marine environments (10%), marine ecology (8%), sustainable development (6%), coastal planning and protection (6%), management of protected marine areas (6%), etc [6]. When it begins, for the first time since its establishment in 1961, researchers from the Institute will be active in teaching (Faculty was established in 1959).

2.2. Results and analysis of questionnaire survey for students

This questionnaire survey was completed by a total of 67 students from the Faculty because the Institute does not provide teaching for students. Students were largely females (70.1%), mostly in their third year of BSc (56.7%), and mostly enrolled in the study program Navigation and marine transport (38.8%) [6].

Part of the survey was conducted using a Likert scale to obtain input from students on their present participation in the area of MEP&M, future expectations, and readiness for enrolment in the new MSc MEP&M program [7].

From the commencement of their studies at the Faculty, 59.7 percent of students studied courses in the broader fields of MEP&M [6]. Survey showed that students were very satisfied with content of these courses, with almost 90% of them rating it as excellent and very good, Figure 9. Also, 76.1% students reported that have had part of curricula dedicated to fields of MEP&M [6], with almost 80% of them very satisfied with its content, Figure 10. Students agree with high confidence (above 80%) that Faculty should implement more activities related to broader fields of MEP&M, Figure 11. When asked if education in MEP&M fields is relevant for their future career, 2/3 of students are highly confident that it will be so, Figure 12.

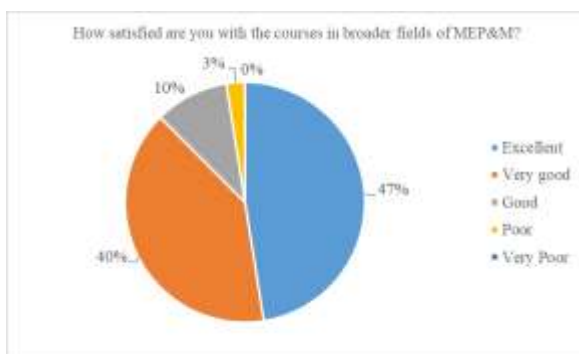


Figure 9

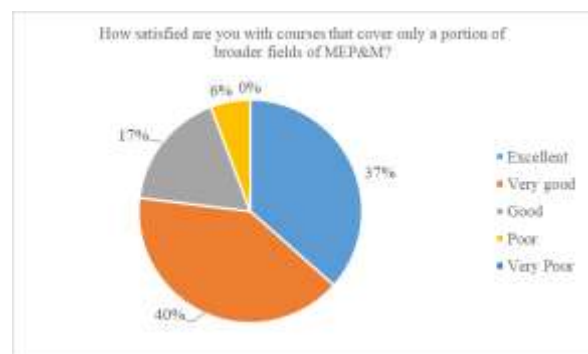


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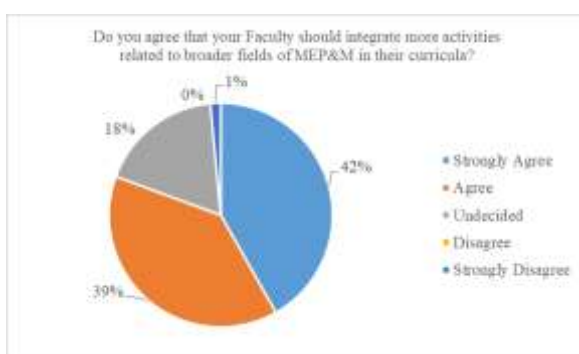


Figure 11

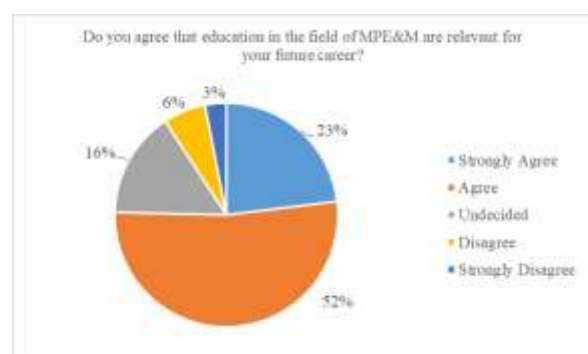


Figure 12

As previously mentioned, students were familiar with different types of distance learning provided by the Faculty for last several years. Most of them rated this experience as excellent and good (61%), Figure 13. Referring the assessment of the technology used, students were largely satisfied, rating it as excellent by 40% and as good by 27%, Figure 14. Students assessed

the teaching approach as satisfactory, as excellent 27% and as good 25%, Figure 15. The quality of the e-materials used for the online classes was assessed as excellent 24% and as very good by 42% of students, Figure 16. Finally, students evaluated professor's performance for distance learning and results show that they were very satisfied, Figure 17. They rated professor's performance as excellent (41.8%), very good (26.9%) and good (20.9%).

Concerning the students' degree of English language knowledge, it is suitable for attending English organized lectures since half of them have knowledge in category C, C1 with 34% and C2 with 16%, as shown in Figure 18.

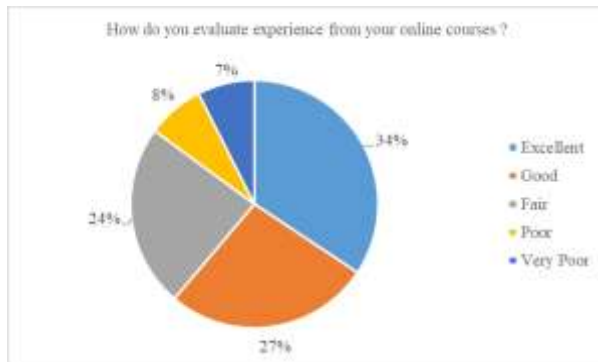


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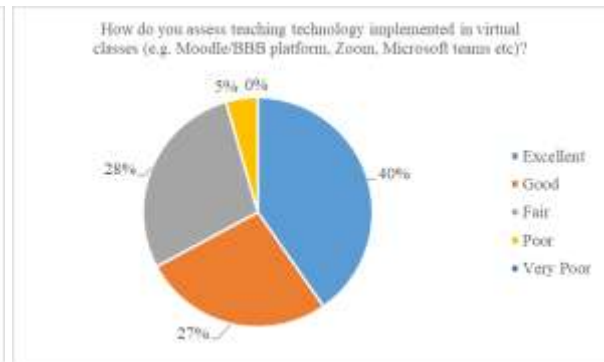


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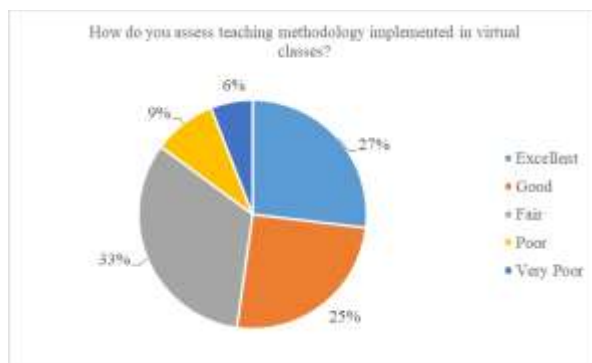


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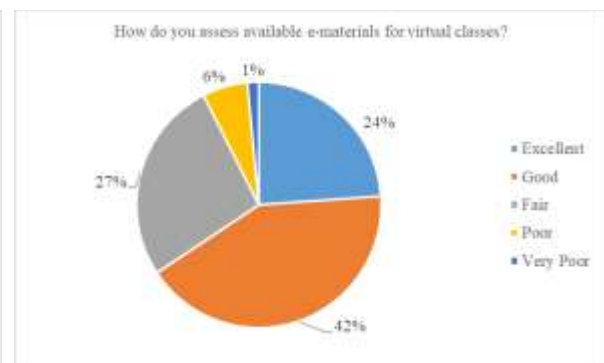


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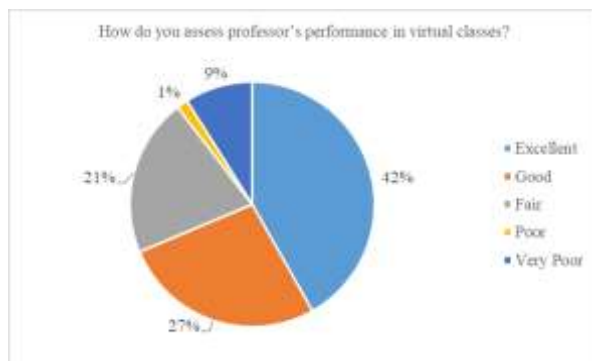


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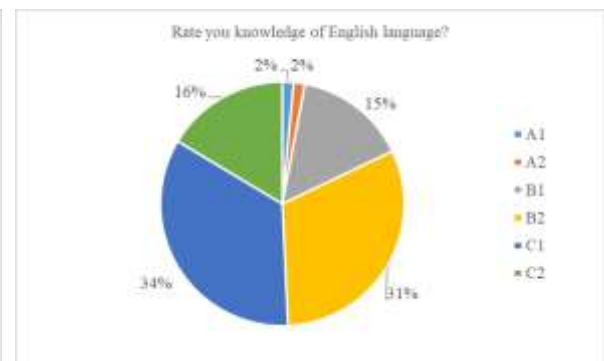


Figure 18

Finally, students were asked if they would be interested in joining the new MSc MEP&M program, if they want to work in this sector, and in which larger field of MEP&M they would prefer to be employed. Figure 19 shows that the majority of students are enthusiastic about joining new MSc MEP&M program once it begins. At least 45% of them are highly and some 30% moderately interested in attending this MSc program. Only 15% of students are confident that they will work in this field, while some 40% are taking in account this possibility, Figure 20. Most of them are interested in fields of green maritime transport (11%), maritime safety and security (9%), marine pollution (8%), marine environmental protection (7%),

environmental law (7%), management of protected marine areas (6%), sustainable development (6%), coastal planning and protection (5%), and others (39%) [6].

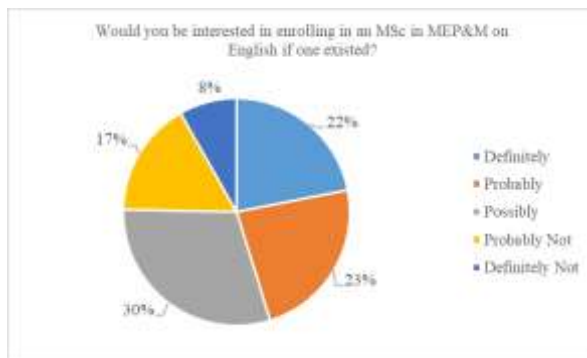


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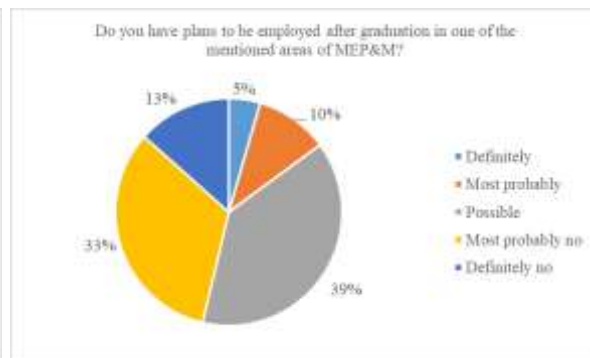


Figure 20

2.3. Results and analysis of questionnaire survey for stakeholders

One of the UoM's most important strategic goals is to promote academic-industry partnership. Previously, thanks to the results achieved within the BLUEWBC project of the Erasmus+ CBHE program, we collected the database of the relevant stakeholders employed in the Blue economy sectors, innovation and entrepreneurship [8]. The UoM also collaborates with a large number of industry partners and governmental institutions, mostly through joint projects, research and student practicums.

16 Montenegrin stakeholders responded to the questionnaire survey, comprising 8 governmental institutions, 4 private SMEs, 2 non-governmental organizations, and 2 of other category.

According to the classification of their institution/company activities, 25% of them fall into the "Transportation and Storage" sector, 12.5% into "Agriculture, forestry and fishing," 6.3 % into "Water supply, sewerage, waste management and remediation activities," and 6.3 % into "Accommodation and food service activities" and "Information and communication," respectively. When it comes to the size of the institutions/companies, almost half of them (43.8%) are medium sized (50-249 employees), small (11-49 employees) and micro (less than 10 employees) sized companies account for 25% each and large companies (> 250 employees) account for 6.3% [6].

Representatives of stakeholders who were filling up the questionnaire were mostly females (62.5%), most of representatives account within age category 31-40 (41.7%) and most of them have BSc level of education (68.8%) [6].

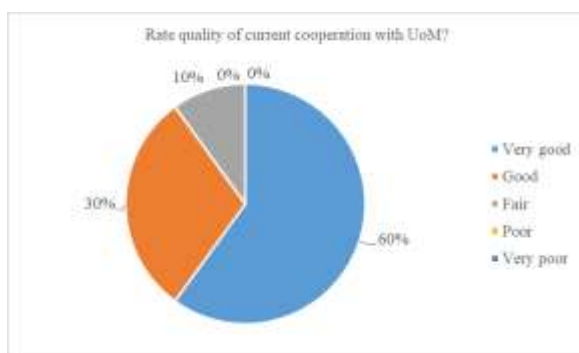


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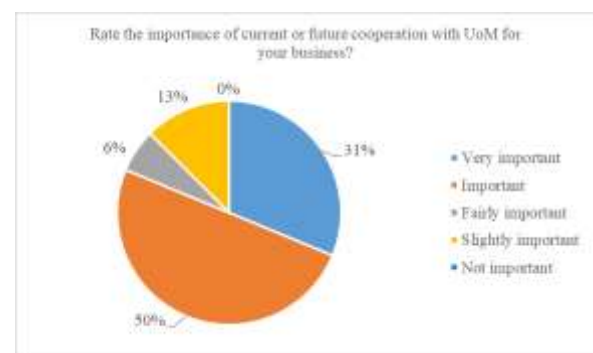


Figure 22

81.3% of the participants responded that their companies have already cooperated with the UoM in the past and that 62.5% of them have signed an agreement. Those who say they haven't collaborated with the UoM yet are all eager to do so [6].

Stakeholders are very satisfied with current cooperation with UoM. They rated cooperation as very good 60 % and as good 30 %, Figure 21. Education (35%) is the most common kind of cooperation, followed by innovation (23%), research (23%), and other (19%) [6]. Stakeholders consider existing or future collaboration with the UoM to be extremely important for their business, with 31% ranking it as very important and 50% rating it as important, as shown in Figure 22.

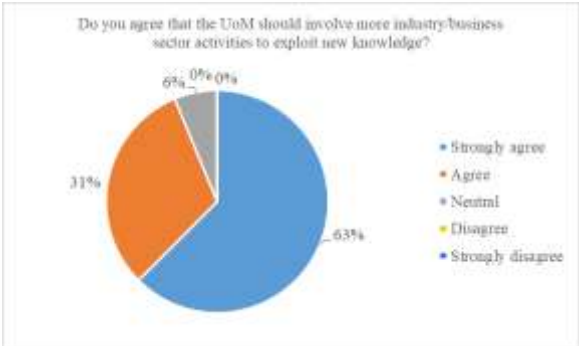


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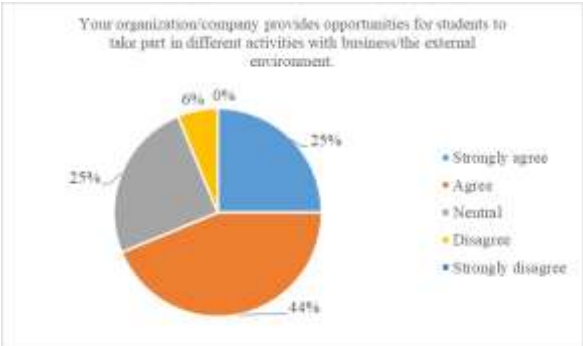


Figure 24

Figure 23 shows that the majority of stakeholders strongly agree (63%) and agree (31%) that the UoM should be more dedicated to collaboration and information sharing with all economic market participants.

In addition, 69% of stakeholders strongly agree or agree that their organization/company provides opportunities for students to take part in different activities within business, Figure 24.

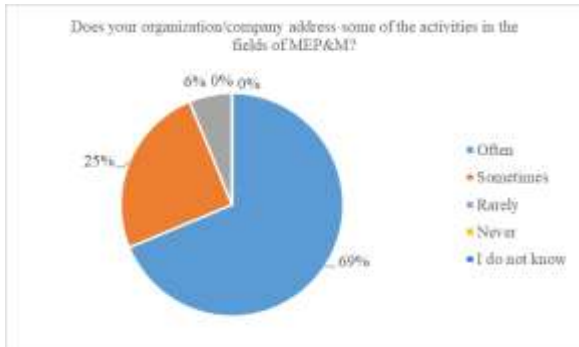


Figure 25

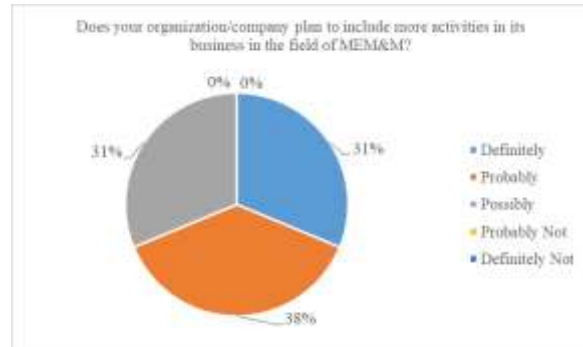


Figure 26

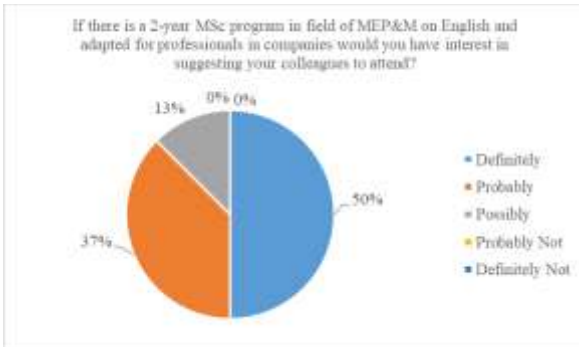


Figure 27

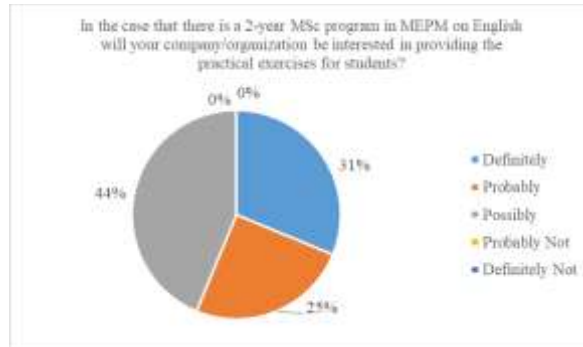


Figure 28

Almost 70% of the stakeholders report that their institution/company often addresses some of the activities in the fields of MEP&M, Figure 25. Majority of activities are within areas of marine pollution (14%), marine environmental protection (11%), international conventions on marine environmental protection (10%), environmental law (8%), sustainable development

(8%), marine ecology (7%), management of marine protected areas (7%), maritime safety and security (6%), maritime transport (6%), and other (24%) [6]. Figure 26 shows that more than 2/3 of stakeholders want to incorporate additional activities in the field of MEP&M in the future.

When asked if they would suggest to colleagues from their institution/company enrolling in an MSc MEP&M program on English designed for professionals if one existed, the vast majority replied positively (50%) and probably (37%), as shown in Figure 27. In addition, the majority of institutions/companies (56%) would help students in offering practical exercises for the curriculum, Figure 28.

3. CONCLUSIONS

This paper summarizes the findings of a questionnaire survey designed to ascertain the expectations of students and academic staff at the University of Montenegro's Faculty of Maritime Studies Kotor and Institute for Marine Biology, as well as Montenegrin blue economy stakeholders, toward a new regional interdisciplinary joint MSc MEP&M program. It included a poll about their satisfaction with existing MEP&M courses, the Faculty's implementation of distance learning, and their English proficiency, as well.

The study was a basic descriptive research study that used a questionnaire survey approach. General and Likert-type scales inquiries were devised as data gathering devices. Different questionnaires were created for students, university staff, and stakeholders.

According to the findings, the majority of respondents had high aspirations for the new MSc program and believe that having this program is extremely important for the University as well as the Montenegrin blue economy sector. Furthermore, satisfaction levels from various polls revealed that professors and students would need additional training to effectively implement the new MSc program, and that current cooperation between the institution and the blue economy sector would need to be strengthened in order for the new MSc program to be implemented effectively.

Acknowledgements

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BIOGRAPHY

Prof. dr Danilo Nikolic

Full professor at University of Montenegro, Faculty of Maritime Studies Kotor. Research areas include: Sustainable development, IC Engines, Fuels, Combustion and Emission, and Environmental protection. He received numerous prestigious grants among which are the following ones: Fulbright fellowship at the University of Michigan, USA, 2007-2008; Fellowship from Japanese National Institute of Advanced Industrial Science & Technology – AIST, Tsukuba, Japan, 2005-2006; Fellowship from KEIO University, Tokyo, Japan, 2000-2001, etc. From 2011-2017 he was at the position of dean of the Faculty of Maritime Studies Kotor. From 2017 – 2021 he was at the position of rector of the University of Montenegro. He is the president of the Montenegrin Committee for oil and gas, an expert for the ecology sector, etc. Also, he is a member of the Scientific Committee for Transport of HAZU - Croatian Academy of Sciences and Arts. He was coordinator and contact person of many TEMPUS, Erasmus+ CBHE projects, HERIC, Interreg IPA, IPA II, bilateral and national projects.