

Article



# Employability within an Education for Sustainability Framework: The Ocean i3 Case Study

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Abstract: The Council of the European Union recalls that higher education plays a fundamental role in shaping the future of Europe. Therefore, curricula are required to take into account the competences demanded by the job market so that future workers can effectively undertake their professional activities and form part of an active, responsible, ecological, sustainable, and resilient society. Ocean i3 is a cross-border project with the aim of achieving sustainability in the oceans by training students to become environmentally concerned and responsible professionals. This study explores the perception of students and teachers regarding their participation in Ocean i3 and their understanding of employability. A qualitative methodological approach has been used, based on a case study in which semi-structured interviews have been carried out and the Elevator Pitch presentation technique has been applied. Nine students and four teachers from the University of the Basque Country and the University of Bordeaux have been interviewed. The results highlight the importance of the participants' first contact with the project, the need to be explicit regarding competences that favour employability during the development of the experience, and the need to increase and reinforce internships at social entities located in the territory. It is concluded that the project should focus more explicitly on the concept of employability to raise students' awareness of the impact that their current participation in Ocean i3 can have on their professional future and insertion in the workplace.

Keywords: higher education; employability; cross-discipline competences; sustainability; case study

## 1. Introduction

If 85% of the pollution on our beaches is caused by plastics, we must do something about it, given the danger and serious threat it poses to people's health, marine life, and the environment [1]. Indeed, the ocean is key to making the Earth a habitable place for humans. Rain, drinking water, the weather, climate, coastlines, a large part of our food, and even the oxygen in the air we breathe, is provided and regulated by the sea. Hence, the importance of caring for the ocean, which one of the 17 Sustainable Development Goals (SDGs) aims to guarantee; specifically, SDG 14 refers to Life below Water [2] and the Plastic Strategy [3] also addresses this concern. The international community, therefore, warns that an urgent paradigm shift towards sustainable, inclusive, and long-term development is required to ensure environmental sustainability [4].

Consequently, higher education cannot remain on the sidelines of this planet-wide problem, and it must respond by implementing actions that convey sustainability. Education for sustainability must be able to analyse and solve sustainability problems while preventing and preparing for future challenges by generating new opportunities. Due to the specific characteristics of sustainability issues, new generations need to be trained in key competences that have an impact on addressing sustainability challenges [5–8]. Since acquiring sustainability competences is an urgent pedagogical and educational task, a certain type of education is, therefore, required, which can make this possible [9].



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**Copyright:** © 2022 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (https:// creativecommons.org/licenses/by/ 4.0/). The Ocean i3 educational innovation project was created with the aim of reducing the presence of plastics along the Basque-Aquitaine coast. The University of the Basque Country, the University of Bordeaux, and Euskampus Foundation are involved in this learning ecosystem in which scenarios are recreated to address education for ocean sustainability.

Ocean i3 explicitly emphasises the development of sustainability competences without losing sight of what Resolution (2021/C 66/01) of the Council of the European Union includes in its strategic priority 4 on reinforcing European higher education. According to the Council, higher education must take the competences demanded by the job market into account so that future workers can develop their professional activity effectively and adapt and react to a changing professional environment [10].

In this complex and broad ecosystem represented by Ocean i3, we wanted to ask participating students and teachers about their perception of the concept of employability, i.e., skills that can facilitate their incorporation into the job market [11,12]. In short, the aim is to check whether the competences and skills that are designed to be developed in an educational environment for ocean sustainability actually promote and facilitate the development of employability competences that are demanded by the job market.

#### 1.1. Education for Sustainability and Higher Education

The terms sustainability and sustainable development have become increasingly popular in recent years. In fact, the roadmap should point towards a world that is sustainable in the long term, advocating the paradigm of sustainability to do so [4].

Early efforts to incorporate the concept of sustainability first appeared in the first chapter of the Brundtland report entitled Our Common Future [13], in the sense that it is: a change process, in which the societies improve their quality of life, reaching dynamic equilibrium between the economic and social aspect, while protecting, caring for, and improving the natural environment. This integration and equilibrium among these three aspects must be taught and transferred from this generation to the next and next [14] (p. 22).

However, the United Nations (2018) [4] consider that slow global economic growth, social inequalities, and environmental degradation, which characterise our current reality, pose unprecedented challenges for the international community. The possibility of continuing with the same models of production, energy, and consumption is, therefore, no longer viable. Consequently, the main development paradigm needs to be converted into one that leads towards sustainable, inclusive, and long-term development.

To respond to these challenges, the 193 Member States of the United Nations, together with various actors from civil society, academia, and the private sector, initiated an open, democratic, and participatory negotiation process that concluded in September 2015 with the promulgation of the 2030 Agenda for Sustainable Development; 17 Goals and 169 targets were set that present a comprehensive vision of the economic, social, and environmental dimensions, expressing the wishes, goals, and priorities of the international community for the following 15 years [3].

Higher education plays an important role in this task mandated by the United Nations. Specifically, universities are seen as an engine of change that must respond to society's problems. The challenges must be to experiment with solutions scientifically and technologically and train the human capital to bring about change. All of this based on a commitment to freedom, justice, peace, and solidarity [15].

Accordingly, the process and contributions that higher education has made over the last 30 years to the institutional trajectory of sustainability are not insignificant. The first was the Talloires Declaration (1990), followed by the Halifax (1991), Rio (1992), and Swansea (1993) declarations, the Copernicus Charter (1993), the World Summit on Sustainable Development (2002), the Guidelines for the Inclusion of Sustainability in the Curriculum (2005), the Declaration on University Global Engagement (2017), and the Declaration for Universities to Work Towards a More Sustainable Planet drafted in Spain in 2019 [16–20].

There is no doubt that higher education has had and continues to have an important role in education for sustainability in that it must equip students with the necessary tools and skills to face society's current and future challenges [21–23].

However, this is not an easy task if we take into account the dizzying pace of change in all areas of life; it seems that everything is fleeting and mutable in our society, except for change, which is constant. Thus, the world of education is no stranger to this constant change, to this volatile, uncertain, complex, and ambiguous (VUCA) world in which we live and learn [24,25]. This moment of educational versatility obliges students to obtain and maintain tools to keep pace with this change, meaning they must work on the required competences to continue life-long learning [26]. These competences are fundamental for the development of knowledge, skills, and abilities, as well as the attitudes of students who will become the world's future problem solvers, agents of future change, and managers of the transition towards sustainability.

However, one of the problems currently highlighted in the literature is the difference in approach between education on sustainability and education for sustainability. In the former, the burden of learning these competences focusses on cognitive components and, thus, on transmission, facilitating the acquisition, and measurement of knowledge and skills. In contrast, the latter moves into the realm of transformative learning, dealing with competences considered as soft or cross-discipline skills, which have been and continue to be a challenge for higher education. Moreover, there is no clear consensus in the latter approach on what competences should be the drivers of education for sustainable development. In frameworks specifically linked to education for sustainability, we find terminology such as transformative competences or key cross-discipline competences. For example, UNESCO proposed four key competences in 2014: capacity for critical analysis, systemic reflection, collaborative decision-making, and a sense of responsibility towards present and future generations. In 2018, the term proposed was key cross-cutting competences differentiating eight competences for sustainability: systems thinking competency, anticipatory, normative, strategic, collaboration, critical thinking, self-awareness, and integrated problem-solving competency [27]. The OECD Future of Education and Skills 2030 project (2019) [28] has developed the *Learning Compass 2030*, an evolving learning framework that sets out an aspirational vision of education in 2030. This learning framework allows for what cannot be measured to be treasured, because a competency is a holistic concept that includes knowledge, skills, attitudes, and values, and skills are only a prerequisite for exercising a competency. To be ready and competent for 2030, students need to be able to use their knowledge, skills, attitudes, and values to act in coherent and responsible ways to change the future for the better.

Although there is still no consensus regarding basic competences for sustainability [29–32], the different reference frameworks serve to frame, objectify, and develop the competences required in today's society, those that prepare for an uncertain future, and those that are consciously aimed at transforming reality. However, some of the developers of these frameworks conclude that these competences cannot be taught; rather, the students themselves must develop them through action and reflection based on their experiences [8,33]. Hence, this set of skills is sometimes defined as those needed to successfully tackle situations that involve solving global sustainability problems [5–9,30,34–36].

If this is the case, how do we work on these competences at universities so that students can develop them through their actions and adopt them as their own? The response is that the academic approach must be to address challenges arising from the human impact on ecosystems using problem- and solution-oriented research and teaching [8]. A focus on methodology is, therefore, key because it must allow real learning contexts to be created in which tasks are authentic, confronting students with problems, dilemmas, challenges, and factual situations in which assuming the role of professionals is not an option but an obligation [37]. Therefore, educational practice based on developing competences for sustainability requires fostering active learning in students, promoting methodologies that bring training to the professional and social reality [38]. Active methodologies and system

transformation are directly related to ESD [39]. Such methodologies include: case analysis, problem- and project-based learning, service-learning, challenge-based learning, etc. [40,41]. The literature is very extensive on these learning methods, but without wishing to dilate us but with the aim of briefly approaching them, here they are shortly outlined:

Case analyses are used to develop critical thinking and problem-solving skills by presenting students with real-life situations. They are scenarios that apply knowledge learned in the classroom in a *real-life* situation [42,43].

One of the active learning methodologies for sustainable development is Problemand Project-Based Learning. This methodology focuses on experiential learning organized around investigation, explanation, and meaningful problem solving. In addition, relevant problems are introduced early in the learning cycle, and they are used to provide the context and motivation for the learning that follows in a learning method [44].

With regard to Service-Learning, it is a form of experiential education in which students participate in activities that address human and community needs along with structured opportunities intentionally designed to promote student learning and development [45,46].

In the case of Challenge-Based Learning (CBL), the student is exposed to a real situation that he/she will have to face. These challenges, however, do not specify in principle how to carry out the process. This methodology can be a way to respond to social challenges. To do so, challenges must be set from generality to precision [47,48]. Without being reductionist, but with the aim of clarifying the responsibility that higher education has when it comes to embedding the practice of sustainability in the curriculum, education for sustainability should allow students to analyse and solve sustainability problems, prevent and prepare for future challenges, and generate new opportunities to transform our current reality into a sustainable one. In other words, its main objective is to train students to deal with uncertainty, to cope with ambiguity, and to face the complexity of the problems that professionals encounter on a daily basis; the ultimate aim being to ensure a better future, which is only conceivable if it is a sustainable future.

## 1.2. Employability as an Objective of Higher Education for Sustainability

Curricula must be based on developing competences valued in the job market in order for students to develop a professional profile that allows them to effectively exercise their professional activity [49,50].

However, the concept of employability is dynamic and evolves according to the socioeconomic climate at each moment [11]. The current literature defines it in two senses: as a person's capacity and as an interaction between the person's capacities and the context. The former is the most widespread and refers to the set of personal skills and knowledge that increase the possibility of finding a job, keeping it, and if necessary, getting a new one [51,52]. In this regard, the United Nations International Labour Organisation (2000) notes that it is the ability of people to find and keep a job, to advance in the workplace, and to adapt to change. It is interesting to note that there are three main perspectives on employability: contextual, organisational, and individual [53]. Within the latter perspective, employability is understood as the knowledge, skills, and competences obtained during studies. It is from this perspective that universities focus on their ability to provide undergraduates with the necessary competences sought by employers [52,54].

In this sense, the reference frameworks that are considered when addressing student employability include the document entitled *Character Education for the 21st Century: What Should Students Learn?* Designed by the Center for Curriculum Redesign [55], this document seeks a holistic approach to deeply redesign the curriculum by offering a complete framework across the four dimensions of education: knowledge, skills, character, and metacognition. Knowledge must strike a better balance between traditional and modern subjects, as well as interdisciplinarity. Skills relate to the use of knowledge, and engagement in a feedback loop with knowledge. Character qualities describe how one engages with, and behaves in, the world. Metacognition fosters the process of self-reflection and learning how to learn, as well as the building of the other three dimensions. We could also highlight the *New Vision for Education 21st Century Skills by the World Economic Forum* (2015) [56], which sets out 16 skills for students: (1) Foundational Literacies (how students apply core skills to everyday tasks) defined as literacy, numeracy, scientific literacy, ICT literacy, financial literacy, and cultural and civic literacy; (2) Competences (how students approach complex challenges) defined as critical thinking/problem-solving, creativity, communication, and collaboration; and (3) Character Qualities (how students approach their changing environment), which are curiosity, initiative, persistence/grit, adaptability, leadership, and social and cultural awareness. Another reference framework is the aforementioned *Learning Compass 2030* [28] in which the specific competences are transformative as they enable students to develop and reflect on their own perspective and are necessary for learning how to shape and contribute to a changing world.

In these frameworks, we find that the character qualities and attitude skills are those that most closely define the objective of employability; at the same time, these aspects are the ones that can drive and favour the development of competence. However, there is little consensus on which competences actually foster employability [57].

Knowledge becomes irrelevant without the ability to navigate the complexity around us. Companies increasingly value the interpersonal and systemic skills of their employees over analytical skills. In fact, the studies show that there is a general consensus in the literature on the need to work on relational competences—-interpersonal, communication, and teamwork skills [57–60]. In the survey *Character Qualities for the Workplace* (BIAC, 2015), leaders from major international industries across different sectors revealed that employers are increasingly recognising the importance of this new set of workplace competences. The cross-sector industry is requiring education professionals to integrate these competences into their existing curricula. In fact, 80% of companies surveyed believe that the competences that enable professionals to cope with uncertainty, ambiguity, and complexity are not only necessary today, but will be even more important for their organisations in the future [61]. Businesses and higher education institutions must work together to increase students' awareness of these competences in order to adapt to changes in the job market and improve their employability [62].

Ultimately, the education system, and higher education institutions in particular, should seek to pro-actively focus their actions in addition to adapting to the needs of emerging and already created jobs. On the one hand, these actions should be to offer training that develops competences for students' professional and personal lives. On the other, students should be able to learn to move at the job market's constant rate of change [11]. Higher education must, therefore, promote the development of competences based on sustainable development, addressing the challenges of current and future society through employment, and achieving the sustainability and growth of our society [63].

Academic work should aim to adopt an attitude of the *know to be* principle in professional practice; it should participate in and influence social problems, tackling problems of climate change, racism, and poverty, among others. The objective of this academic work is for students to be willing to work for sustainability in their future profession, and to be prepared to actively participate in the unstable job market [12,64].

What is certain is that education must be up to the task of responding to the demands coming from industry and the professional sphere. Nevertheless, it must not neglect the need to develop competences that help in the transition to a more sustainable world, responding to socio-economic demand in a lasting way so that the solution leads to the current transformation of reality.

The aim of this research is to investigate students' and teachers' perceptions of their participation in Ocean I3 and their understanding of employability. The specific objectives focus on:

 Analysing the motivational elements that have led participants to become involved in the Ocean i3 project.

- Identifying the competences and skills that participants associate with the concept of employability.
- Pointing out action proposals that improve how employability is addressed in the Ocean i3 project.

#### 2. Methodology

In accordance with the framework provided by the literature and the research objectives, we have opted for an interpretative approach that aims to know and understand the point of view of students and teachers regarding the concept of employability linked to their participation in Ocean i3 [65]. The innovative educational project called Ocean i3 is located on the Basque-Aquitaine coast. The University of the Basque Country, the University of Bordeaux, and Euskampus Foundation are involved in this learning ecosystem in which scenarios are recreated to address education for ocean sustainability. In this case, the qualitative approach has guided us to understand unique and particular situations such as this one, to seek the meaning and sense that the participants themselves give to the actions and to how these people live, perceive, and experience phenomena or experiences in this context [66–69].

## 2.1. Research Context

Around 25 million pieces of plastic waste are produced each year in Europe, of which less than 30% is recycled, resulting in consequences that are harmful to marine animals, the environment, and the overall population. It, therefore, seems urgent for the international community to put intervention policies in place that look towards a sustainable future [1,2,33].

Against this backdrop, the Ocean i3 project (*i*rakaskuntza–*i*kerkuntza–*i*raunkortasuna concepts in Basque meaning research–teaching–sustainability), led by the Euskampus Foundation, the University of the Basque Country, and the University of Bordeaux, aims to contribute to the reduction of plastic pollution along the Basque-New Aquitaine coast. Ocean i3 has been selected by the European Regional Development Fund (ERDF) through the Interreg V-A Spain-France-Andorra Programme (POCTEFA 2014–2020) as a project of interest for territorial development. In September 2021, the Sustainable Development Solutions Network (SDSN) included the project as good practice to accelerate education on the SDGs in universities. It should be highlighted that Ocean i3 contributes to solving complex societal challenges. This is one of the most important ways universities can help achieve the SDGs, and the good practice guide that included Ocean i3 aims to show universities what they can do to expand and accelerate its implementation [70].

Work within Ocean i3 is done by following a Mission-oriented Research and Innovation approach [47,48] to address the 2030 SDGs, specifically goals 14 (underwater life), 6 (clean water and sanitation), and 4 (quality education).

The methodology used is CBL; CBL is challenging in that it requires students to approach a real, complex, and relevant problem, which the students and the entire community must provide a solution for [41,71]. This methodology understands that students learn best in situations that are close to reality, in which they navigate between feelings of success and failure, taking risks, and facing uncertainty [72]. It is, therefore, a methodological bridge between higher education and the professional world [73].

According to the literature, this methodology is highly positive because it generates beneficial effects in the teaching–learning process by improving student training [71,74–76], and contributes to the development of cross-discipline competences [77], influencing those that employers demand [78].

One of the specific features of Ocean i3, among others, is the participation of social agents from the private and public sectors and civil society in general. These social agents directly deal with plastic pollution and the blue economy of the Basque-Aquitaine cross-border coastline. To this end, knowledge is built, and solutions are designed jointly by members of the university community together with territorial agents. All of this is

based on three objectives: training, stimulating agents and disciplines, and pedagogical innovation [79].

To give meaning to this mission, the social agents of the Basque-Aquitaine territory propose achievable and measurable challenges that the students tackle in their End of Year Projects or Master's Degree Projects (dissertations), coursework, and voluntary internships in a collaborative, multidisciplinary, multilingual, and multicultural context. The focus of this mission is always on competences that favour education for sustainability [80]. Ocean i3 is a project in which sustainable development and higher education interact in a sustainable way in the field of education, research, and social transfer based on the care, respect, and protection of the ocean [81].

## 2.2. Method

In this study, the case study method was chosen, one of the most characteristic strategies of the qualitative approach [82]. It is considered particularly appropriate for analysing a situation with intensity [83] and understanding it in depth, considering the overall context in which it is located [84]. This method has been chosen because the aim has been to analyse the particular context of the Ocean i3 project. The analysis concept unit has been the perception of students and teachers regarding the concept of employability that is promoted in the Ocean i3 project based on education for ocean sustainability.

#### 2.3. Instruments

Two instruments have been used in a complementary way. Firstly, a semi-structured interview, and secondly, a presentation technique known as the Elevator Pitch.

In qualitative studies, the most common data collection technique is the semi-structured interview. This instrument was chosen to better understand the object of study from the interviewee's point of view. In short, as in semi-structured interviews, the objective has been to gather information based on their own experience [85–88].

The Elevator Pitch technique, on the other hand, consists of a short speech that aims to have an impact and be agile and quick as it should last approximately 45 s to one minute, the average length of a lift ride. This instrument was chosen because one of the main features of an Elevator Pitch is that it must be a clear, concise, and brief speech, and its purpose is to spark the listener's interest in an idea or project. There are multiple adaptations, variations, and modalities of this technique [89–91], and it has in fact been adapted for this study so that interviewees are able to reflect the imprint that Ocean i3 has left on them in terms of employability based on their own recollection and personality. However, the intention is to compile these small employability *pills* in order to gradually build a collective audio-visual narrative. The student pills analysed in this study are the first to be hosted on the project website with the aforementioned aim of forming a repository and generating community narrative [92].

Together with the interview script, the interviewees were provided with an email providing a brief explanation of the Elevator Pitch technique, the aim of the recordings, as well as some practical indications on how to approach the brief speech following this technique.

In this sense, the participants were allowed to choose the language in which they wanted the dialogue to take place, seeking their well-being and comfort at all times. However, the disadvantage of making this decision is the potential loss of nuance in translation. Hence, a code is included at the end of the quotes and in brackets, which refers to the original language of the quote and, therefore, the language in which the interview was conducted (B = Basque/F = French/S = Spanish). In order to respect the originality of the interviewees' voices, the quotes have been transcribed as they were recorded. This undoubtedly gives the texts a freshness and naturalness but, at the same time, they are not always syntactically or grammatically correct.

In addition, due to the pandemic situation and for the safety of the participants, data collection has been conducted online. As a result, on the one hand, because of the

geographical and time flexibility it has facilitated the meeting. On the other hand, it has been more difficult to connect with the other person or create a closer context.

#### 2.4. Participants

An email was sent to all students who participated in the Ocean i3 project during the academic years 2018–19 and 2019–20, a total of 59. Of these, 17 responded to the email and nine were willing to be interviewed. The remaining eight who did not take part stated a lack of time as the main reason why.

This sample guaranteed the multidisciplinary and multicultural nature of the Ocean i3 community to be studied as the representation was scaled according to the absolute numbers of students participating in the project [79]. The fieldwork was, therefore, initiated (see Table 1). The interviews were conducted by video-call and lasted between 20 and 30 min. This method was chosen given the sanitary situation caused by COVID-19, which did not favour face-to-face meetings and university regulations encouraged virtual events. Other variables such as flexibility and savings in travel and time also made the virtual option more advisable. The Elevator Pitches and interviews were conducted and recorded on the Blackboard Collaborate platform.

Table 1. Profile of participating student.

Student Code	University	Degree	Gender	Academic Year
S-1	UPV/EHU	Advertising	Male	2019/20
S-2	UPV/EHU	Advertising	Female	2019/20
S-3	UPV/EHU	Engineering	Female	2018/19
S-4	UPV/EHU	Pedagogy	Female	2019/20
S-5	UPV/EHU	Business Administration	Female	2019/20
S-6	UB	Biology	Female	2019/20
S-7	UPV/EHU	Law	Female	2018/19
S-8	UB	Biology	Female	2019/20
S-9	UPV/EHU	Advertising	Male	2019/20

Teaching staff were selected for their long-term continuity over the project's academic years and for the disciplines and universities they represent. Four teachers were eventually interviewed (see Table 2).

Table 2. Profile of participating teaching staff.

Teacher Code	University	Field of Knowledge	Gender
T-1	UPV/EHU	Education	Female
T-2	UB	Sport sciences	Female
T-3	UPV/EHU	Business Administration	Male
T-4	UPV/EHU	Law	Female

As in the case of the student body, the representation is scaled according to the number of teachers participating in the project [79].

#### 2.5. Analysis Procedure and Methodological Rigour

The analytical procedure has enabled us to *organise the chaos* and systematise the information collected in order to present the results as a dialogue, and in relation to the research targets and the supporting theoretical framework. In short, it consists of making sense of the information, coding the qualitative data inductively, and generating an open system of categories through comprehensive analysis [85,93]. Participant contributions have effectively defined the categories, and the categorical system has been built as a result of these contributions (see Table 3).

Dimension	Category	Subcategory	
		Space	
	Quality of the first relationship	Communication channe	
First contact with Ocean i3	mot relationship	Message	
		Project selection	
	Project and challenge selection	Challenge selection	
		Internships	
		Team working	
		Interdisciplinary	
	Competences and skills	Communication	
Strengths for employability		Multilingualism	
		Problem solving	
		Adaptability	
		Autonomy	
		Effects of COVID-19	
Weaknesses for employability	Contextual and	Simultaneity of the challenges	
readinesses for employability	methodological	Continuity of work	
		Internships with various professionals	
	Employability as a goal		
Proposals for future	More internship options		
improvements	More relation with social partners		
	Job vacancies		

Table 3. Categorical system.

Nevertheless, we must also bear in mind that the interview script was focused on the research objectives and based on the literature review. This may have distorted, in part, the construction of an inductive system. Likewise, the questions were adapted according to the answers given by the interviewees, which led to the emergence of new topics of interest and new categories. Flexibility and open-endedness have accompanied the process of analysis throughout the study [94].

The content has been automatically coded and examined using the NVivo 12 Plus software tool.

Regarding methodological rigour, it is well known that quality standards for quantitative studies are well defined and universally known, but this is not the case for qualitative studies. However, there are criteria for assessing the rigour and scientific quality of qualitative studies: credibility, confirmability, and transferability [65,95].

Credibility is achieved when the findings of the study are recognised as real or true by the people who participate in the study. In this case, the data obtained through the interviews and the conclusions derived have been socialized inside the context of Ocean i3 and through social networks.

Confirmability refers to the neutrality of the interpretation or analysis of the information, which is achieved when another researcher can follow the lead of the original researcher and arrive at similar findings. In this study, the co-ordinating team of the Ocean i3 project has exercised this role of contrast and verification.

Finally, transferability is the possibility of transferring the results to other contexts or groups. The contribution in terms of transferability lies in the fact that the results obtained

regarding participation and perception of employability in this project can be transferred to other education for sustainability ecosystems.

#### 2.6. Ethical Issues

This research has been approved by the UPV/EHU Ethics Committee (Reference: M10\_2021\_187), and ethical issues were taken into account throughout the study [96,97]. Students and teachers were informed of the research objectives, the procedures to be used, and their right to autonomy and decision-making throughout the process [98]. Participants gave their informed consent to participate in the study. Likewise, anonymity and confidentiality were guaranteed by the research team by assigning a code to each interviewee depending on the group (Student = S and Teacher = T) and a random number.

#### 3. Results

The results are presented according to the research objectives and are articulated based on the content presented in the categorical system. This has meant that we are able to delve into student and teacher perceptions on the concept of employability related to their participation in Ocean i3 as an object of enquiry. Participants have discussed the motivating elements that led them to become involved in the project, the competences with which they associate the concept of employability, and possible lines of action that would improve the Ocean i3 project's approach to employability.

#### 3.1. What Motivated Participants to Join Ocean i3?

The first thing that stands out is how participants made their first contact with the project. In the case of the students, they get to know the project through the teaching staff assigned as the director of their dissertation project. This was either from teachers who visited the classroom to explain the project or in initial meetings with the directors. All students, therefore, made their first contact through a teacher who informed them about the project and invited them to participate:

Voice 1. After choosing my Final Year Project, or rather being assigned one, I had my first interview with who was going to be the project director where we discussed this project and I liked it (S-2/B).

Teaching staff on the other hand had their first contact with the project through institutional channels (university deans), where they received information about the project and became interested in it:

Voice 2. Well, we first made contact with the project when we received a message from our school's directorate (  $\dots$  ) they encouraged those interested in the theme behind Ocean to get in touch to find out if the working group in the Legal Clinic could be expanded in any way (T-3/S).

It can be seen that some of the motivations or reasons for deciding to participate in the project are similar in both groups. One of the main reasons was the international dimension of the project. The idea that students do not have the opportunity to have contact with other academic cultures and social realities being so close to another country was mentioned. Other reasons mentioned were the multilingualism and multiculturalism characteristics that the participatory context generated by Ocean i3 offers students:

Voice 3. I found maintaining relationships with France particularly interesting (S-7/B).

The fact that it was a different, innovative project that goes beyond the classroom walls influenced participants' choice. Students revealed their interest in working in contexts different from the experience that academy had offered them so far, which was more focused on classroom routines and activities. According to the students, many were disoriented and lost in the choice of topic for their dissertation; they did not know what to research and/or work on, and Ocean i3 was presented as a great opportunity to channel these concerns:

Voice 4. I wanted to do something different, something that was approached from a different point of view compared to what I had done so far. I had no idea what topic to base my dissertation on at all (S-5/S).

They positively highlight the fact that the work was not presented as a problem to be solved in a theoretical way, but based on practice, experience, and reality, with activities that have a real impact on the human and environmental ecosystem. In this sense, they emphasised that working on sustainability was very attractive and challenging for them. Students express their concern about climate change and environmental pollution. Consequently, as the sustainable nature of the dissertation and the complexity of the challenge increased, so did their interest in it.

Voice 5. I find the misuse of nature, the misuse of plastic, the care of the sea, etc., all very interesting. I always try to instil this knowledge in young people or children or people around me. So when I saw that work was being done in different areas and in different ways within the university, I thought "wow, this is the subject that I am interested in" (S-4/B).

The participants also highlight an attractive aspect of the project is that in which each social agent shares their own concerns and problems. The participants are in contact with the social agents on a daily basis, and they are challenged, in a way that the entire community becomes involved in the sustainability of the ocean:

Voice 6. On the one hand, sustainability. Not sustainability in the sense of sustainability studies, of which there are plenty. But rather research studies for sustainability, with a transformative idea. This seemed to be one of the strong points of the Ocean project. It is not only research on the question of sustainability or environmental problems, but trying to transform reality (T-3/S).

The possibility of doing an internship within Ocean i3 was another aspect that stood out when it came to getting involved in the project and something that attracted students. Offers of voluntary internships with social agents linked to the sea and associated with the territory expanded the students' chances of getting involved with the project and committing to it:

Voice 7. The possibility of doing an internship was what interested me most. I had the opportunity to turn my Final Year Project into something real thanks to the internship, so that is what it was (S-2/B).

Once students had selected the Ocean i3 project and decided to take part, they faced a new decision; they had to decide between the different challenges put forward by the social agents. Students spoke of multiple motivations, reasons, and experiences behind this decision. Some say that they made their choice by chance, and others made it with their future professional performance or with a future job in mind. It is the latter who highlight a strategic vision that has guided them in their choice of challenge:

Voice 8. There was a physical meeting where all the challenges were presented one by one, with posters on the walls with the most significant aspects. Two of the challenges that were best related to education and the ones that I liked the most were by the Surfrider Foundation (that I had already heard about), so I signed up because I saw that I could work in this field in the future (S-4/B).

The voices of the participants reveal that they do not join or commit themselves to an education for sustainability project (Ocean i3 in this case), because of what it can bring in terms of employability, but because Ocean i3 marks a difference with respect to the learning contexts in which they have participated so far. What attracts students and even teaching staff are the characteristics of the project: the use of different languages, the cultural contrast, academic learning with the interaction and involvement of social agents, the challenge-based approach to learning, the combination of participation modes (academic work, internships, etc.), and the conviction of working in favour of a visible, accessible, and urgent environmental problem. Moreover, they are also attracted by the challenges and the possibilities they entail, such as the fact that the social agent proposing the challenge is who drives the projected learning with a focus on employability (see Figure 1).

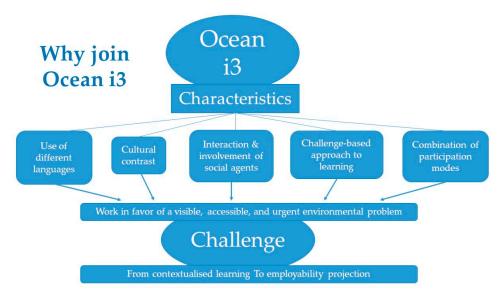


Figure 1. Motivations to join Ocean i3.

## 3.2. What Are the Competences That the Participants Associate with the Concept of Employability in Ocean i3?

Participants state that the project proposed challenges put forward by social agents in the territory and that the work evolved around these challenges. In fact, they emphasise that the project does not involve typical academic work, as it responds to real challenges and is essentially a dual challenge—-to provide an academic response and to answer to the social agents, which makes the learning process more complex. There is direct contact with companies and institutions, as participants get to know the entity well, how they work, and why they do what they do. Participants are also aware that both their individual and collective academic contributions can make a great cover letter at the end of the Ocean i3 experience. The project involves group work, but with the added bonus that the groups are formed of people from different disciplinary areas, thus enriching the individual and collective productions in response to the challenge. The group work also adds value to the learning process by listening, dialogue, and reaching a consensus with professionals from diverse fields, with very different ways of working and understanding the world and its problems. One of the teachers emphasised these aspects by stating:

Voice 9. When our students go out into the working world they will be presented with complex problems. To work on these problems they will need to work in teams, in interdisciplinary working groups, and usually in a multicultural and multilingual group. That is what Ocean i3 works on (T-4/B).

While the teaching staff agree with the perception that Ocean i3 works in line with the requirements of the job market, the students, on the other hand, do not perceive this so clearly. In fact, the interview process itself has alerted some students to this matter, and they have been able to verbalise their opinion as part of this process:

Voice 10. The project does not have employability as an objective, or at least I did not see it that way (S-1/S).

Teaching staff attach importance to how the project tackles employability, underlining that it is very clear, even if it is not made explicit:

Voice 11. I think that important aspects of employability are worked on, even if sometimes students are not very aware of this fact; perhaps the students' awareness does not really reach that point of internalisation (T-3/S).

While the student body has doubts regarding how employability is approached within the project, all participants perceive that a range of cross-discipline competences are developed through Ocean i3, which are demanded by the job market.

As noted, the most prominent competence has been teamwork; in particular, working in multiple groups and interacting in different contexts with professionals from other fields:

Voice 12. Teamwork is very important for me. That is, understanding that I do not have all the answers, that my point of view alone is not enough, that I have to listen to others and work in a team (T-2/F).

Participants add that working in multi-disciplinary teams also fosters the ability to share their thoughts, and to approach new points of view from different disciplinary perspectives. This position contrasts with the standard ways of working that are influenced by the field of knowledge they come from, as they are able to take a step back, reconsider their understanding, and rethink the problem.

Voice 13. The groups we are in are also very diverse, we have students, teachers, and researchers. I even have a nurse in my challenge! (S-6/F).

Voice 14. Above all I would say the interdisciplinarity that I highlighted earlier. In fact, the problems we face in life are often very complex, and this interdisciplinarity will also help us to work on complexity. Otherwise, how could we see the forest for the tress? We would not see it from other points of view (T-4/B).

Participants also note communicative competence as a key skill that is developed through participation in the project:

Voice 15.  $(\ldots)$  you also develop communication skills, see yourself more relaxed in this area, and gain experience that makes you feel more confident (S-8/F).

This skill is developed in participants' native language but also in the range of languages that the project encourages them to use:

Voice 16. The multi-lingual aspect was extremely interesting ( ... ) and I think it is even the strong point of Ocean i3; it reflects the diversity in the communities we have in the Basque Country, Spain, France, and all the way along the Aquitaine coast up to Bordeaux. So we have diverse territories, and therefore diverse languages. This diversity is clearly established, and this is the objective, which is not small. This linguistic diversity, therefore, brings a much broader vision than the one I had within my university circle and therefore gave me a new network, and new horizons for the continuation of my research (S-6/F).

The students have felt responsible and committed to the tasks and this has required them to develop the ability to be autonomous in their own learning process:

Voice 17. When we entered the project we were working with a lot of autonomy. They told us that we were going to have a lot of work but they wanted people who could work on their own. Our teachers would not be chasing us up in the workplace, would they? (S-2/B).

In addition, participants underline the development of complex problem-solving competences by working on the challenges as equally important.

Voice 18. When we were presented with the challenges, they all seemed really interested, but very complicated. We started thinking along general, abstract lines, but we had to come down to earth as far as possible (S-8/F).

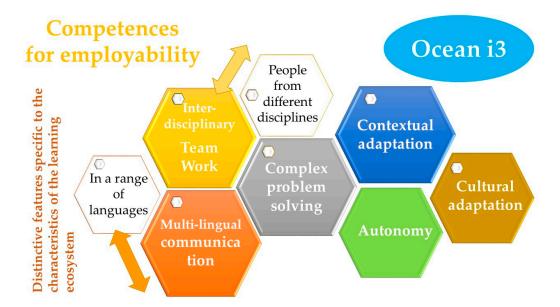
At the same time, there is also the ability to adapt to different situations in order to solve possible conflicts arising from the context:

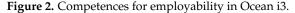
Voice 19. The first is the ability to adapt, we live in a world where nothing is certain ( ... ). What does the ability to adapt mean? That you know how to read the world in a new way every day. That is, you must have some certainties, but you have to question the world or our environment every day with different questions, or ask the same questions every day in search of different answers. It means reading the world and asking questions, looking for answers and not automatic responses (T-2/F).

In the same vein, participants mentioned that working outside of the university, having a context that allows direct contact with local authorities, and working closely with the community, is perceived as a transitional process towards complexity and an adaptation process to the new reality:

Voice 20. The project has an interesting strong point: it is able to bring the university world and the real world (company, NGO, institution, etc.) together, something that is often seen as being very far-off. I think the students themselves often finish university with fear, nervous about the "job market". (...) I think it could be way of bringing these two worlds together (S-1/S).

Participants' voices reveal that while teaching staff are very clear that participating in Ocean i3 offers students the possibility of developing competences demanded by the job market, the students on the other hand become aware of this development during the course of the conversation. The competences that are highlighted have added distinctive features specific to the characteristics of the learning ecosystem, such as: teamwork (in teams with people from different disciplines—-interdisciplinary teamwork); communication (in a range of languages—-multi-lingual communication); complex problem solving; contextual and cultural adaptation; autonomy, etc. (see Figure 2).





#### 3.3. What Are the Weaknesses of Ocean i3 That Can Affect Employability?

Participants note that the most significant shortcoming has been the situation created by the COVID-19 pandemic. They mention that this special situation has sometimes resulted in a feeling of isolation as coordinators have had to reconsider the project format, changing from a face-to-face approach to a virtual one.

Voice 21. Perhaps I was not aware of the importance of holding the seminars in person, as it has just happened recently, and following the seminars online has been a little complicated (S-2/B).

Some deficiencies were identified regarding the distribution of the workload. Some students note that they felt overloaded with work at some moments:

Voice 22. At the time I still had two subjects to finish, then I had the internship, and then the dissertation, so it involves a lot of hours in the end. Meetings were required sometimes, which I understand we had to have as we would not work on the positive aspects I have mentioned if we did not have these meetings, but I often felt overwhelmed or thought that I would not meet the deadlines (S-3/B).

Despite being involved and working with a social agent on a specific challenge, the students commented that they lacked information on how they had responded to the other challenges. They highlight that they would have liked to have had more time to learn more about the evolution of the challenges by other classmates:

Voice 23. As I was in challenge number one, sometimes I was not able to have information from the other different challenges, which was a shame (S-9/S).

Participants also noted shortcomings with how the internships were managed. Specifically, they not that more agreements should be set up so that more internships could be carried. In this way, all students could be able to see themselves reflected in the internship offers send and in the professional profile of the social entities:

Voice 24. I felt that employability was heavily connected to a few specific professional areas. It was difficult to access an internship from the educational world in my case, for example. The roadmap was more suited to legislators or students from other fields (S-4/B).

Some participants noted the uncertainty around what was going to happen with the work that had been carried out, identifying a weak point regarding the continuity of the completed work.

Voice 25. Sometimes it seems to me that there is not really a continuation of the theses by the public or private agents. They say that there is continuity, that your work is part of a larger project, but then you do the work and do not see this continuity, I am not sure how to explain it (S-7/B).

Finally, it is also mentioned that perhaps the project needs to be sized so that it does not lose its meaning and achieves its purpose:

Voice 26. ( ... ) the programme has taken on such a dimension that perhaps we should reflect a little on the future ( ... ) I think that a weak point of the programme is that aside from the problems caused by the pandemic, the dimension that the community is taking on means it is not easy to get people involved every year, and for the students to feel involved and to understand in some way what we are here for. Nowadays I think that is the biggest weakness. It is something that we should try to improve somehow (T-3/S).

Participant voices reveal some weaknesses, such as: working simultaneously on different challenges means that participants lose valuable information that is handled in other groups to which they do not belong; the lack of continuity with regard to the work carried out; the possibility of doing internships at organisations with a varied professional profile, and, among others, the sanitary situation caused by the pandemic has not favoured the human proximity and closeness that face-to-face participation in Ocean i3 offers.

#### 3.4. What Can Be Done to Improve How Employability Is Addressed in the Ocean i3 Project?

Both students and teaching staff are clear that the most important aspect for improving the project is the possibility of doing an internship at a local organisation. Most of them consider that the range of internship areas and the number of internships should be extended so that students can undertake their work from within the social entity itself:

Voice 27. (...) a dissertation does not have to be purely theoretical, rather there should be room for a practical aspect which in the end is what I believe makes

us grow more. For example, what I most valued about my work was that I was able to make it tangible by creating a web page for the project or for social media. So in the end you can see the results, and this is what in the end add exceptional value to your work. So agreements could be made to do more internships (S-8/S).

Participants also believe that it is important to have closer contact with social agents. They feel that the participation with these agents could be better leveraged:

Voice 28. (...) to strengthen the relationship or this network that we are building, right? It is complicated during a pandemic but I think it would be interesting if there were more interaction between students and agents. If there could be short stays such as visits so that the relationship is not so formal in some way. We should have activities, moments, reasons essentially, to get closer to the agents, visit them, share their activities ... ours too, but also theirs. I think that up until now what we have done has basically been to invite agents to our activities and it seems to me that it is important that our students and ourselves as researchers also somehow "muddy" our agent's activities, spaces, and projects. (T-3/S).

The consideration is that more use should be made of the relationship created between both universities, by promoting complementary activities and fostering a closer or more direct relationship between students and teaching staff with a view to their employability:

Voice 29. Perhaps they could further strengthen the relationship with France (S-7/B).

The possibility of creating a job pool to make it easier for students to find a job after the end of the project is also mentioned. Creating a list of job offers needed by participating social agents:

Voice 30. I do not think we have ever thought about it, but creating a job pool could encourage students who have participated in the project to also look out at the employment world (T-4/B).

Furthermore, to make it clear to students that employability is one of the project objectives, participants believe that more explicit work should be done on this aspect so that all participants are aware of it from the beginning of the experience:

Voice 31. ( . . . ) to work on this awareness that one of the objectives of our work is to develop competences that help them to find a job and, furthermore, a job in accordance with values that I am sure people who are part of this community share (T-3/S).

Participant voices reveal to improve how employability is approached, opportunities to undertake internships at entities related to the sea and embedded in the territory need to be increased. In addition, there should be closer contact with social agents, a job pool should be created, and work should be done on the concept of employability in a more explicit way (see Figure 3).

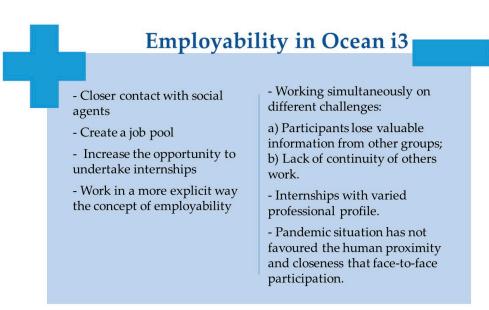


Figure 3. What we need to consider for the future in terms of employability in Ocean i3.

## 4. Discussion

The approach to employability is a key factor in the current educational paradigm, and in order to promote it, it is essential that students develop the competences that will be required in the job market [49]. In fact, in order to develop these competences, contexts and experiences must be offered in which students can put them into practice [8,11] and it is the case for participants in Ocean i3 project. Overall, the results show that the value of Ocean i3 lies in the fact that it has offered the possibility of taking a step back from the participating universities and interacting with social agents in the territory, working with them, understanding the complexity of environmental problems and the difficulties society faces to deal with them.

As cautioned in the literature, promoting methodologies that encourage active student learning is a key in such complex contexts [38,40,41]. Accordingly, Ocean i3 explicitly works on sustainable development through ocean protection by incorporating challenges in which students face real tasks [79], assuming the role of a professional that the current job market demands [11]. In this sense, the results underline that the Ocean i3 participants are motivated to get involved by the challenging approach to learning, the connection, interaction, and involvement of academia with social agents linked to the sea, the range of different ways to get involved with environmental issues and social agents (academic work, internships, etc.). These distinctive features are what give the project an identity or brand (alluding to the sum total of the values and opportunities offered by the Ocean i3 learning context), which differentiate it from others in which participants had taken part in previously.

It is in this real and complex context that the development of competences in education for sustainability is promoted in direct contact with social agents working on the Basque-Aquitaine coast [80]. However, it is no less true that the results reveal that these education for sustainability competences, given their cross-discipline nature, are also those that companies demand when hiring employees [52,54]. The competences that have been worked on constantly and repeatedly, according to the participants, have been teamwork, interdisciplinarity, oral communication, autonomy, complex problem solving, and adaptability to new and different situations. Key competences and skills that are proposed in current education for sustainability frameworks [5–9,30,34–36] and to enhance student employability [28,57,61].

The results show that the environmental problem that is worked on within Ocean i3 is what stimulates them to participate and commit themselves to improving the situation. This vital connection is what is called for in the literature for participants to be willing

to work for sustainability in their future and prepared to face the instability of the job market [12,62].

The results reveal that within the Ocean i3 experience itself, as a learning ecosystem that universities host in interaction with partners, the concept of employability must be explicitly worked on in order to increase students' awareness of the competences demanded by the current labour market and that are outlined for the not-too-distant future [61,64].

#### 5. Conclusions

Participants perceive the brand that sets Ocean i3 apart from other learning contexts as motivating elements to sign up to the project, which include:

- The use of different languages, the cultural contrast, academic learning with the interaction and involvement of social agents, the challenge-based approach to learning, and the combination of participation modes (academic work, internships, etc.).
- The variety of challenges that are accessible and close to the reality of participants, which present a visible and urgent environmental problem to be tackled, such as ocean plastic pollution.

It is also interesting to note that variables such as gender, degree, and university of origin are not relevant for analysing the perceived employability of Ocean i3 participants. However, the role variable (student/teacher) is.

The teaching staff is the group that is most aware of the approach to the concept of employability in Ocean i3. This contrasts with the students, who are aware and fully understand that cross-discipline competences for sustainability are worked on, but not that these will help them enter the job market. From there it is concluded that:

- The concept of employability should be explicitly worked on in order to increase students' awareness of the competences demanded by the job market, which are also those that are worked on in contexts that have an impact on education for sustainability.
- The competences that are perceived as contributing to employability have added features inherent to the characteristics of the learning ecosystem in which they are developed, such as: (a) the added value provided by teamwork and that is the fact that the people who participate in these teams come from very different fields of knowledge (hence the fact that the competence to work in interdisciplinary teams is developed); (b) oral communication; not only in participants' native language but also in a range of languages (Basque, French, Spanish, and English), thus emphasising multilingual oral communication; (c) contextual and multicultural adaptation, insofar as academic and social-cultural codes specific to each context and situation must be handled; (d) resolving complex problems linked to the real, close, and accessible problem of ocean plastic pollution; (e) autonomy when demonstrating students have the knowledge, skills, and presence of mind in the project.

The participants propose the following actions in order to make the concept of employability more visible and deeper:

- to provide more space and time to share the achievements obtained while tackling the different challenges;
- to encourage continuity with regard to the individual and collective work carried out;
- to extend the internships offered with entities linked to the sea and present in the territory;
- to reinforce international links between universities and with the social agents of both territories;
- to set up a job pool to facilitate the job search process at the end of the Ocean i3 experience.

#### 5.1. Implications and Recommendations

What has just been described entails a series of recommendations for those involved in the internal and external management of the project. With regard to the internal recommendations, more synchronous and/or asynchronous workspaces should be created to discuss and contrast the progress made with regard to the challenges. It is also recommended that the work carried out by the students in previous editions (individual and collective) be recovered so that the newly incorporated students can learn from them and give them continuity. With regard to the recommendations for improving the external relations of the project with the socio-economic field of the territory, the extension of internship offers for students to gain experience and develop skills for sustainability that increase their chances of finding employment.

#### 5.2. Limitations of the Study and Future Lines of Research

With regard to the limitations of the study, we could mention four, a priori, and they are:

- (1) The sample. Not having interviewed the entire participating population (specifically students and teachers of all grades) may not have helped in the overall interpretation of the phenomenon under investigation.
- (2) The lack of available data. We refer to the fact that this work has been an exploratory enquiry that has revealed to us this double perspective on the concept of employability that, a priori, we were unaware of. The results obtained have highlighted that, depending on the role of the participants (students and teachers), the perception of the concept of employability after participating in Ocean i3 is very different and, therefore, this has a clear implication for how to approach this concept in the future.
- (3) Previous studies. The extensive literature on the topic of education and competence development for sustainability, as well as the broad literature on the concept of employability linked to higher education. However, there is very little, if any, research on sustainability education ecosystems with a focus on employability competences.
- (4) Self-reported data. We are aware that interview data are not always free of bias [99]. We refer in particular to the bias that comes from interviewees attributing positive aspects to themselves and negative aspects to externals or others, and the exaggeration bias, which consists of attributing more significant aspects than there really were when they are asked about.

Future lines of research are proposed internally and externally to the project. Regarding the former, this study has represented a first tentative approach to delve into this complex phenomenon and to be able to continue investigating, using mixed research methods, which employability competences should be promoted and how to develop them in education for sustainability ecosystems. In addition, it is also interesting to consider the variables of gender, degree, and university of origin when designing the data collection instruments in order to be able to investigate them.

Externally, it would be very interesting to investigate the concept of employability in other sustainability education projects in higher education; how and with what is the development of these competences worked on and assessed.

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**Institutional Review Board Statement:** The study was conducted in accordance with the Declaration of Helsinki, and approved by the UPV/EHU Ethics Committee (Reference: M10\_2021\_187, 20 May 2021, minutes 138/2021).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

**Data Availability Statement:** Some of the data generated and used during the course of this study are available at the following web address: https://oceani3.com/en/inicio-english/.

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