Sustainability and strategic directions in maritime education and training provision: An exploration of employers' perceptions

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Keywords

Maritime education, sustainability, employability, skills

Abstract

The paper explores the importance of sustainability from the perspective of prospective employers of future and existing Maritime Education and Training (MET) graduates. More specifically, it investigates employers' views on the incorporation of sustainability into MET provision. For this purpose, a questionnaire survey that addresses the concept of sustainability – among other emerging trends - from the angle of maritime education and training was distributed to European shipowning companies in the context of related EU funded research (SkillSea). A total of 23 responses were received but, albeit the relatively small sample, the findings suggest clearly that there is a significant gap between the skills presently acquired through MET. They also reveal the need for METs to develop a strategy aiming at a more comprehensive inclusion of the mega-trend of sustainability as a subject into the curricula of the various types of MET institutions. This paper contributes to the literature by addressing the mismatch between current and future needs and related issues arising for maritime education and training.

1 INTRODUCTION

Organisations on a path towards incorporating sustainability initiatives face a common challenge: the recruitment of people who possess the right mix of skills (Klingenberg & Kochanowski, 2015). The root of this struggle is traced back to the provision of education and in particular to the extent to which sustainability concepts are effectively integrated into curricula.

Although the "greening" process is not the sole content of sustainability, its heavy reliance on education is confirmed by several studies in the wider business literature. Siebenhüner and Arnold (2007) state that learning should play central role in any organization pursuing sustainability. The critical role of educators in achieving this objective is highlighted by Banerjee (2011), among others. Lacy et al. (2012) point out that organizational learning toward sustainability should be acquired through formal education in educational institutions and through training.

A mere acceptance of the need to be sustainable is not sufficient. The effective implementation of sustainability initiatives requires deep understanding of what revolves around the concept of sustainability. Another important aspect of sustainability integration in the activities of organisations is presented by Craig and Allen (2013), who suggest that employees should first truly realise the importance of sustainability and then expand their knowledge about it using adequate resources. From a similar angle and regarding employers, the study of Klingenberg and Kochanowski (2015) reveals that recruiters do not understand in depth all aspects of sustainability either, even though they consider it to be an important topic. This can inhibit further the adjustment of educational offerings to organisational needs. This 'chicken and egg' situation can potentially be resolved by focusing on education providers and ensure that the topic of sustainability is covered in sufficient depth and breadth. In this vein, input from various stakeholders would be very valuable and, therefore, a consultation mechanism could be a pertinent tool.

The exploration of the connection between maritime education and green shipping practices is of growing importance, given the evident sustainability trend in the maritime industry in recent years. The role of the human element on board ships is expected to play a pivotal role in the transition to green sea transport. Their role becomes even more crucial when it comes to the implementation of non-prescriptive regulatory policies, such as the IMO greenhouse gas (GHG) strategy.

In alignment with the consensus in the business literature, Krause et al. (1991, p. 627) point out that sustainable maritime development is dependent on the acquisition of knowledge about the marine environment, as well as on training. Therefore, from this perspective, MET plays a vital part in accelerating the sustainability paradigm in the shipping industry.

The International Safety Management Code (ISM) was introduced into shipping practice, in the late 1990s (IMO, 1997). By that time, the prevailing concept of operational safety had evolved into 'safety plus quality', while the title 'Safety & Quality' had begun to be widely adopted by related shipping company divisions worldwide as they started to operate through company ISM-compliant safety management systems. Then, by the second decade of the new century, the sustainability agenda became increasingly dominant globally, being encapsulated in the adoption of the 17 Sustainable Development Goals by the United Nations, in the context of the 2030 Agenda for Sustainable Development (UN, 2015).

Since then, the focus - of not only maritime regulators but also of the industry itself - has started shifting to shipping operations being sustainable and not just competitive, safe and of quality. Sustainability in shipping goes far beyond safety, which has been the main over-riding clause for the maritime transport industry until the recent past.

Sustainability entered the European Union agenda quite early; by the first part of the 2010s the EU had taken concrete institutionalized steps to promote sustainable shipping, forming – by the Commission Decision of 24 September 2013, with relevance to the EEA as well – the group of experts on maritime transport sustainability, the European Sustainable Shipping Forum (ESSF) (European Commission, 2013; EMSA, 2020). This followed the creation of a sustainable EU shipping and international maritime transport team within the Directorate General for Mobility and Transport (DG MOVE) and the decision to formulate the Sustainable Waterborne Transport Toolbox approach. Thus, a clear sustainability framework, together with appropriate mechanisms, had been created in the context of the EU by early 2013. This was a direction that had been taken up in previous decades, with maritime transport environmental policy accelerated after the accidents involving the tankers Erika (1999) and Prestige (2002) in European waters.

However, the direct or indirect relations between sustainability, maritime transport and MET must be placed in context, firstly at the international level and secondly at the European level. In 2017, the International Maritime Organization, specifying the relation of its activities with Sustainable Development Goals, selected most SDGs as relevant (IMO, 2017).

In the current international and European context of shipping, with technology and sustainability leading changes, the answers to the need for MET provision equipping students with transferable skills have been fragmented or mainly theoretical. Any answers given were partially answering a question that had not been posed fully: how to equip maritime professionals with skills that will allow them to adapt to changing industry needs. The social emphasis on sustainability worldwide, together with the emphasis – especially at the level of EU/EEA countries – on the importance of the Blue Economy, has changed the scene for MET provision drastically, dictating the need for the incorporation of elements of sustainability into a comprehensive educational strategy.

Matching the future directions of MET with future skills needs is especially critical in the context of Europe's enduring high dependence on maritime transport to sustain its open economy. An adequate number of maritime professionals attracted and retained in the sector – with their career prospects supported and enhanced by appropriate training – is essential in that respect. MET institutions can have an impact upon sustainability. This has been put forward for higher education in general (Findler et al, 2019) and can be implemented practically through shifting curricula appropriately (Qian, 2013), among other practical measures.

The current STCW framework practically focuses on compliance with IMO instruments in place. Therefore, requirements of the annexes of the MARPOL Convention – the IMO's main preventive pro-sustainability instrument in place – are incorporated in the STCW Convention and update it accordingly. In this regard, seafarers and MET facilities are often passive actors, who receive new input and should garner or provide educational content respectively. Seafarers and METs alike are thus restricted to a top-down enforcement-originating didactic approach, diminishing interest in 'over-and-above' performance as well as for proactiveness at a management level, either on- or off-board. This is an inherent characteristic of the system, which does not necessarily assist proactiveness at MET level; such proactiveness is, however, of a high potential added value for not only graduates but the whole system of shipping.

2 SAMPLE DETAILS AND METHODOLOGY

The research to assess the perception of the industry in this respect is based on a questionnaire survey, which was distributed and completed from 02/07/2021 to 15/10/2021, with a total of 23 responses received from employers of maritime professionals.

In the context of maritime education and training, the purpose of the survey was to obtain a snapshot of the employers' perception of the effectiveness of MET education provided currently on the basis of current and desired future skills of maritime professionals, in the light of the sustainability trend.

A special focus on strategic options for delivering key subjects, which emerge as current significant gaps, was also included in the web-structured questionnaire developed for the purpose of the survey. The final part

involved respondents replying in an assumed role as potential MET evaluators.

The questionnaire was addressed to shipping industry executives via a Survey Monkey e-mail link and the link was sent for circulation to European shipping employer associations through the relevant SkillSea partner for further dissemination through its member associations. A wider range of European countries was thus included although the sample which responded was rather small.

The respondents' companies own/manage various vessel types, with most of them being bulk carriers, containerships, tankers, and Ro-Ro Ferries, therefore, covering the main shipping sectors. Another important demographic characteristic is that most of the participating companies are of large size, with over 35% of them employing more than 1,000 seafarers.

3 RESULTS

In this section, the survey results are presented.

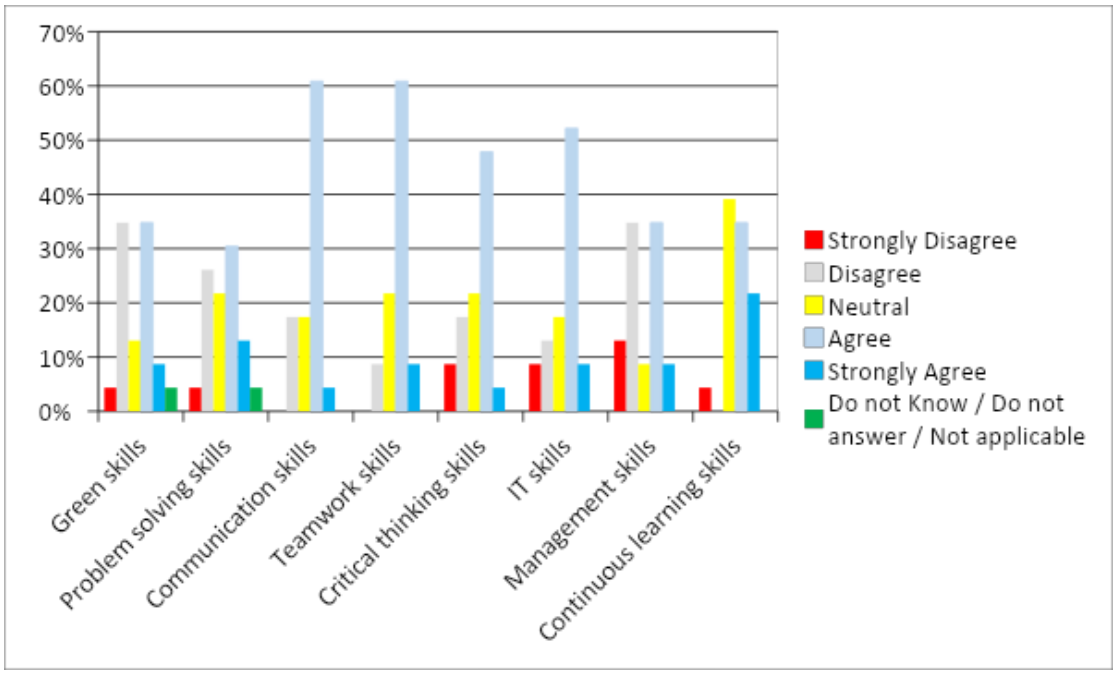

Fig. 1. Skills possessed by MET graduates

In terms of evaluation of the degree that the skills and knowledge acquired by MET graduates following their training - as presented in Figure 1 - they are assessed to be possessed by the following share of employers who responded (in descending order): teamwork (70%), communication (65%) and IT (61%). More evident gaps are recorded for continuous learning skills, which are assessed to be possessed only by 57% graduates, in critical thinking (52%), problem solving (44%), management (44%) skills and green skills by not even a full 44%. These gaps underline the industry's perception of lack of sufficient familiarity of graduates with modern sustainability related concepts, such as green shipping.

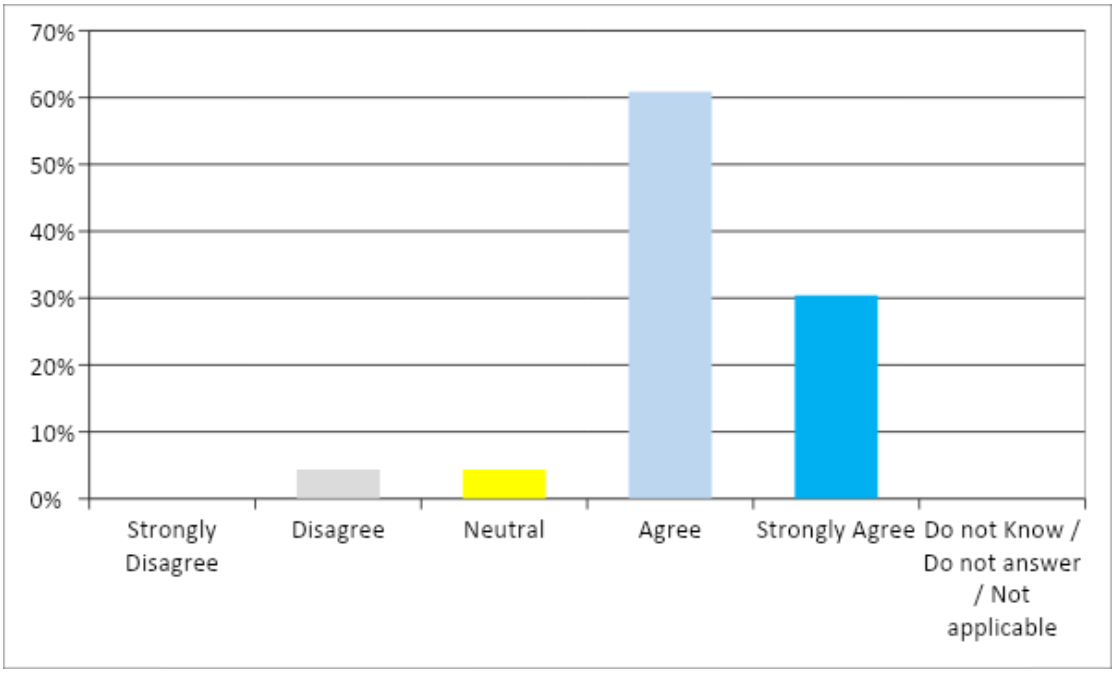

Fig. 2. Sustainability should be incorporated in MET curricula

The survey results depicted in Figure 2, clearly demonstrate the shared view among respondents that sustainability should be incorporated in MET curricula in order to equip graduates with the knowledge and skills required in the job market. Totally, 91% of respondents are in favour of the incorporation of sustainability.

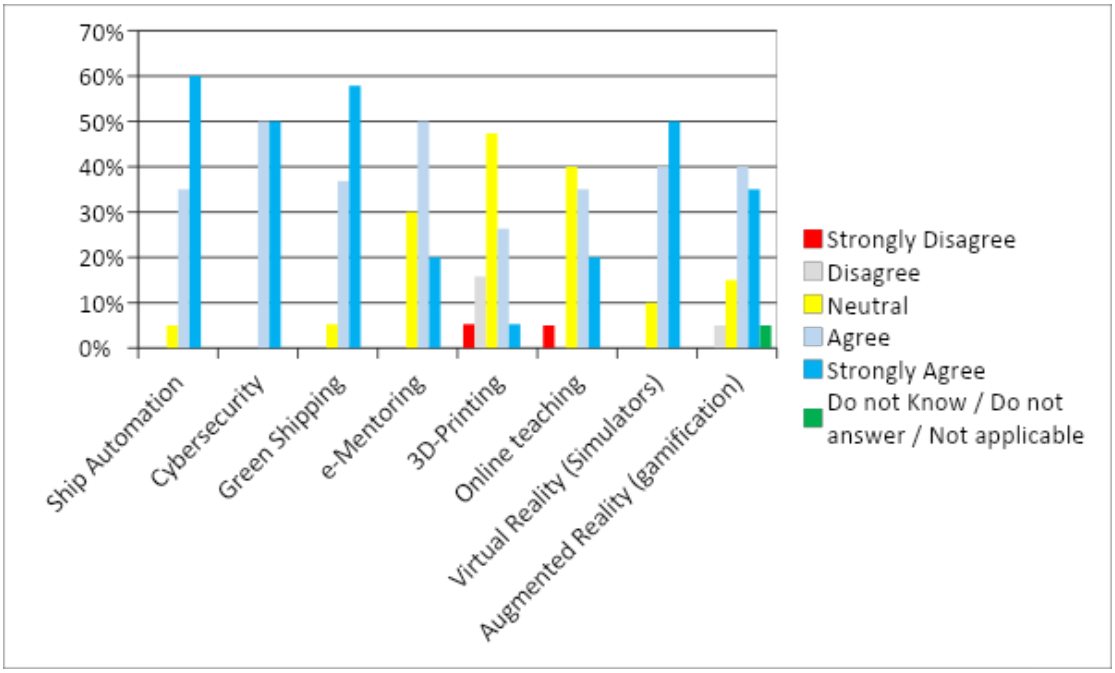

Fig. 3. Concepts that should be emphasized by MET institutions

Results illustrated in Figure 3 underline strongly that - according to the respondents - MET institutions should place emphasis on cybersecurity (96%), ship automation (91%), green shipping (91%) and virtual reality (91%). It is notable that green shipping skills was found to be one of the least possessed skills as

previously commented on the basis of results shown in Figure 1.

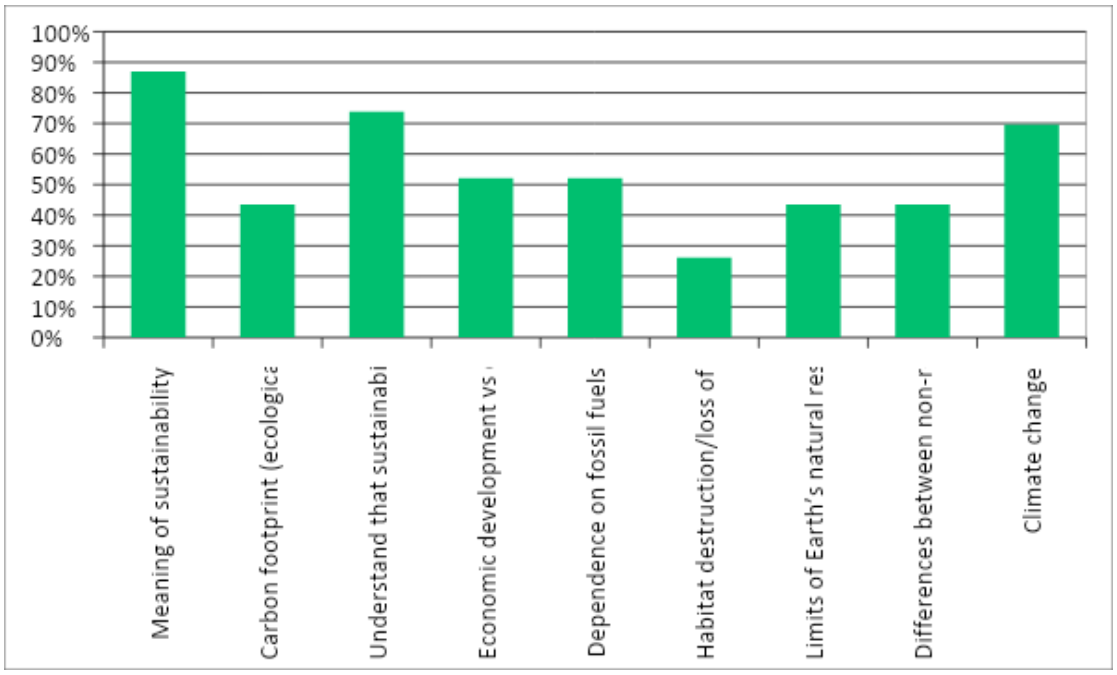

Fig. 4. Topics that should be covered in sustainability education

As shown in Figure 4, in the question regarding the specific topics that should be covered in this area - which allowed multiple responses - the large majority of respondents (87%) felt that the meaning of sustainability itself must be the top priority. A significant percentage of respondents selected also "the understanding that sustainability involves complex social, cultural, political, economic, and scientific issues" (74%), with "climate change" (70%), and "economic development versus economic growth" (52%) following in popularity. The least important topics for the participating employers were "carbon footprint" (44%) and "habitat destruction/loss of biodiversity" (26%).

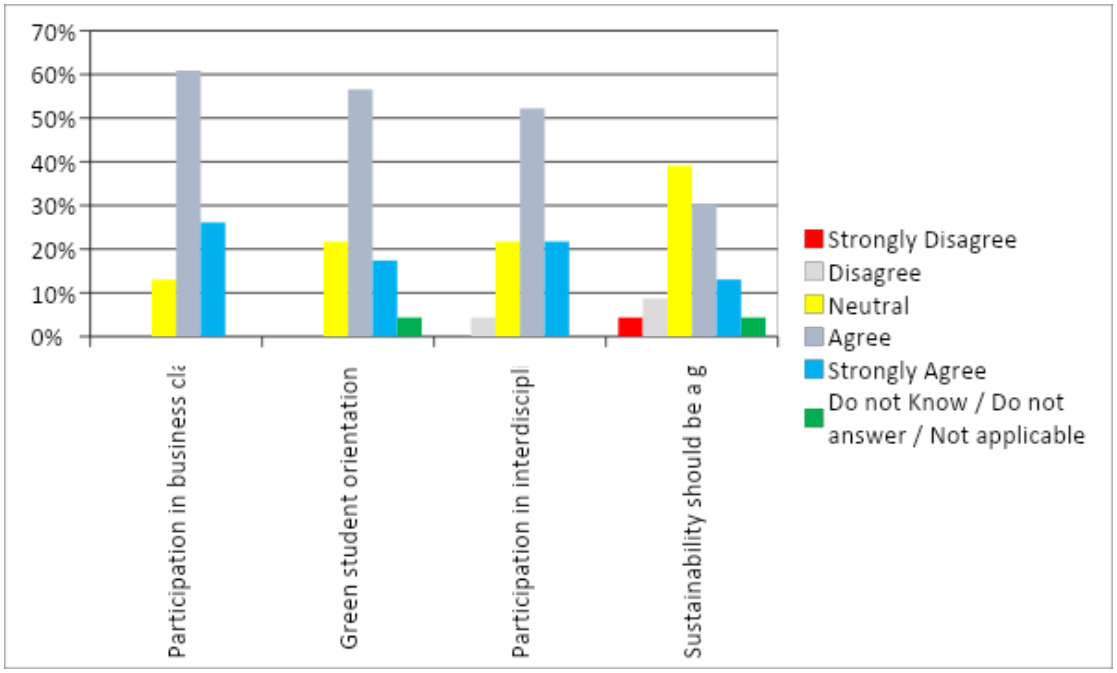

Figure 5. Level of agreement with each of the following educational practices

It appears that, while respondents see the value of sustainability, they do not necessarily realise that it is deeply rooted in practical matters, such as ecological footprint and biodiversity.

The next question investigates the perception of suitable approaches of sustainability education in MET again through the possibility of multiple responses.

As shown in Figure 5, "participation in business classes that focus on sustainability", "green student orientation", and "participation in interdisciplinary courses that focus on sustainability" are considered as valuable educational approaches by 87%, 74%, and 74% of respondents, respectively. Notably, only 13% of respondents do not believe that sustainability should be a graduation requirement.

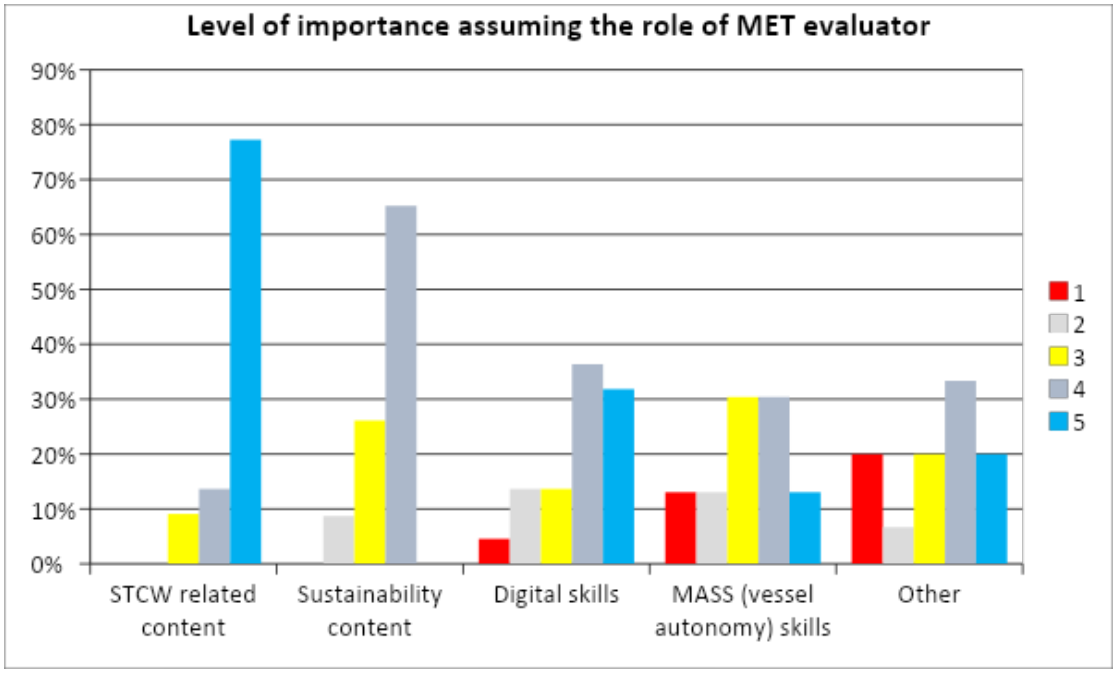

Figure 6. Level of importance assuming the role of MET evaluator

The respondents were then asked to assume the hypothetical role of a MET evaluator and assign relative importance to a number of traditional and emerging areas of MET education.

Results presented in Figure 6 illustrate that almost all of the respondents (91%) would evaluate STCW related content as the most important item for MET institutions. Among the emerging subject areas sustainability was evaluated as important by 70% in the second overall place, followed by digital skills (68%) which may have a lower percentage than sustainability but with a marked element of strong agreement as well.

5 CONCLUSIONS

There is a significant gap between the skills presently acquired through MET and the needs of the industry especially in a forward-looking perspective of skills' anticipation. The mismatch observed between the assessed actual skills provided through MET education and desired ones suggests clearly that sustainability needs to be incorporated more comprehensively in maritime education with the result marking a significant gap in this area.

The current environmental regulatory instruments demand not only a turn towards proactiveness to beneficially impact competitiveness, but also over-achievement. It may be not the lack of available educational content or of expertise but of an innovative educational approach that results mostly in employers and employees not being as responsive to environmental challenges as they could, going above and beyond what is mandated by the international regulatory context.

In this context, educational approaches need to follow the spirit and needs of the Blue Economy and Growth objectives of the UN and of European policies, setting higher standards for both employers and employees while at the same time enhancing the competitiveness of European industries and of the European workforce in promoting sustainability. In the context of changes in the operating environment and in the operations of shipping itself, the timely adaptation of the syllabi and of the evaluation strategies of MET is critical.

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