

Conference Paper

Soft Skills Enhance Employee Contextual Performance: The Case of the Maritime Industry

Fratzeska Maria Chala¹ and Nancy Bouranta²¹M.Sc Researcher, School of Economics & Political Sciences, National & Kapodistrian University of Athens, Greece²Associate Professor, School of Business Administration, University of Patras, Greece**ORCID:**Fratzeska Maria Chala: <http://orcid.org/>**Abstract**

The maritime industry holds a prominent position in international business and world trade. This competitive and rapidly growing sector requires a highly trained workforce with specific soft skills, such as the abilities and traits that pertain to personality, attitude, and behavior. Soft skills combined with hard skills influence employees' ability to work effectively by enhancing their performance. This study focused on the maritime industry and empirically examined the effect of four soft skills (adaptability, communication, problem-solving, teamwork) on employee contextual performance. It also explored whether there is a significant relationship between soft skills and income.

An empirical survey was carried out through a self-assessment questionnaire which was administered to managers and employees of Greek shipping companies resulting in 191 usable questionnaires. Exploratory factor analysis, correlation, regression analysis and analysis of variance (ANOVA) were applied to examine the data. It was found that teamwork, problem-solving, adaptability and communication positively affect employee contextual performance. In addition, it was confirmed that problem-solving skills are related to employee income.

This study contributes to the literature, defining which soft skills are significant factors in employee contextual performance and income. There is little literature exploring these relationships, and even fewer studies have focused on the maritime industry. This paper highlights the importance of employees developing transferable soft skills to perform effectively in the workplace.

Keywords: maritime industry, soft skills, employee contextual performance, income**JEL CLASSIFICATION CODES:** M10 General, M15 IT Management

1. Introduction

Human abilities are divided into two categories, hard and soft skills, like the distinction between hardware and software in computers. Hard skills are mainly technical qualifications that are related to an employee's ability to accomplish a specific goal, task, or job [1;2]. They are teachable and could be easily quantified [3] as they revolve around education, work experience, knowledge, and professional skills [4]. An example of a

Corresponding Author:

Fratzeska Maria Chala

fratzeska.chala52@gmail.com

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hard skill is the ability to use computer programmes. On the other hand, soft skills are more subjective and are acquired through social processing and gained experience. Maniscalco [1] described soft skills as a “cluster of qualities, habits, personality traits, attitudes and social graces”. Soft skills revolve around certain basic categories such as integrity, communication, courtesy, responsibility, social skills, positive attitude, professionalism, flexibility, teamwork, and work ethic [2].

A combination of expertise and social skills could have a positive impact on an employee’s career path and productivity [5;6;7;8;9]. Robles [2] pointed out that soft skills are just as good an indicator of job performance as traditional job qualifications. Therefore, developing only hard skills makes employees task-oriented but less relationship- and initiative-driven [10]. Soft skills give hard skills the required plasticity to develop and keep up to date amid changing circumstances [4]. Despite literature pointing out the importance of soft skills for a successful workplace career path, little is known about why those skills are important and how they possibly influence employee performance [11]. Specifically, it is not clear whether soft skills play a significant role in job performance as skills and performance are both complex concepts, observable at a number of levels and through a variety of means, and many of the proxies used are inadequate [12].

The last few years, there has been a surge in the demand for maritime professionals possessing soft skills to meet the demands of the industry and the shifting global economy [13]. Managers require graduates to have abilities like a strong work ethic, multilingualism, and a high competency of computer skills [14]. However, there is limited research focusing on the maritime industry [10]. Thus, this paper explores the influence of four soft skills (adaptability, communication, problem-solving, teamwork) on employee contextual performance in a shipping work environment.

This study was conducted in Greece as it is the country with the largest ship ownership in the world. The fleet under the Greek flag is ranked 8th internationally and 2nd in the European Union [15]. Specifically, Greek shipowners own 20.6% of the world tonnage [15]. The Greek register numbers 706 ships (over 1,000 gt), with a tonnage of 39.19 million gt. Greek shipping remains one of the pillars of its national economy. Maritime service balance of payments amounts to approximately EUR 17,303 million for the financial year 2019 [16]. However, the contribution of the shipping industry to the Greek economy is significantly larger than its contribution to the balance of payments for services. It is at the core of a rapidly growing shipping network, which creates investment and employment opportunities in the country. The Greek seafarers number 9,325, exceeding 3% (including indirect and inductive employment) of total employment in the country according to the research of, (2020). Shipping, due to its size and characteristics, makes Greece a pillar of the multilateral trading system, despite the relatively small size of the country.

The following section of the paper briefly present previous literature review on the relationship among soft skills and employee contextual performance or income. The methodological analysis and results are presented in the two subsequent sections. In the final section of the paper, the results are discussed, and the main conclusions and limitations of the study are presented.

2. Literature Review

Researchers agree that soft skills enhance an individual's employability and performance in the workplace [9;17;18;19;20;21;22;23] According to Miller & Bromiley [24] work performance reflects the ability of an employee to achieve the goals he has set. It is the way to accomplish job tasks according to a given job description. Individual performance leads to firm-level performance in a range of financial ratios such as share price or profits [25].

The link between soft skills and employee performance has been empirically examined in literature. Specifically, Fernandez & Liu [26] established the relationships between the use of soft skills (i.e., readiness to learn; influence; planning; and task discretion) and occupational outcomes (earnings or occupational status) among adult workers in the U.S. Anggiani [8] found that hard skills significantly influence hospitality frontline employees' (receptionists, housekeepers, and concierges) performance. She also concluded that soft skills had a dominant influence on performance compared to hard skills, as soft skills reflect behaviors that directly impact customers' impressions and feelings. Duan et al. [27], focusing on a college environment, proved that soft skills have a positive and significant effect on lecturer performance; the more positive soft skills the lecturers have, the better teaching performance they will display. Another research pointed out that interpersonal skills, stress management, self-awareness, and adaptability of employees contribute towards improving job performance [28]. Emotional intelligence, which is also considered to be a soft skill, is significantly correlated with employee performance [28, 29]. Some other studies attempt to explore the skills and performance relationship used in proxy training. Ibrahim et al.[9] indicated that employees' acquisition of soft skills and the training methodology adopted by the trainer significantly predict work performance. Interpersonal skills improvement through off-the-job training programs may improve worker's post-training performance and lead to future promotion [11]. In a different insight, a recent study revealed that there is a direct positive relationship between soft skills practiced by managers (communication, leadership, teamwork, and critical thinking) and employees' job performance [30]. In the same line, Fernando et al. [31] found that senior managers in the Sri Lankan shipping industry estimated that their soft skills contribute to their employees' performance.

In the maritime industry, research has shown that future maritime business professionals ought to possess soft skills to meet the demands of the industry and the shifting global economy. Chen et al.[10] examined current and future employability skills for maritime business graduates in Australia, the USA, and Canada. Communication, problem-solving, adaptability, teamwork and technical skill through digital literacy and technology emerged as the most important skills. Another relative survey which was a part of the Skillsea project (EU-funded) was conducted. More than 1,600 maritime professionals (seafarers and shore-based personnel), originating from 51 countries, participated to reveal the most important skills that employees should have in ship management companies [32]. The results revealed the areas where seafarers consider that there is lack of skills: creative thinking, problem-solving, digital technologies such as cyber-security, teamwork and inter-personal relations as well as maritime law.

In view of the aforementioned, it is obvious that a wide variety of soft skills are required to ensure employees' success in their jobs. Based on Brungardt's [33] typology of soft skills, this study empirically examines the effect of four soft skills (adaptability, communication, problem-solving, teamwork) on employee contextual performance. Contextual performance is defined as behaviors that contribute to the social and psychological core of the organization [34]. The soft skills' description is followed.

Adaptability is the ability to react effectively and quickly to labor market changes [4]. It is also described as an employee's ability to learn new skills and behaviors [3]. It is an essential skill, testing the ability of an employee to adapt to current and anticipated changes, to achieve the short-term and long-term goals of the organization in which he works or leads. In the future, it is going to become even more important due to frequent changes in the business environment [4].

Communication skills include the ability to listen and observe in order to truly understand, discuss, effectively convey our thoughts and ideas orally or in writing, relate and express ideas in a clear and effective way, utilize strategies and skills to work with others, to persuade or influence, to encourage participation, to negotiate, to give and to receive [35]. It is frequently accepted that communication is an essential skill that everybody should have [36]. This skill makes interaction between members of the working team possible. Managers should be the first to establish bridges between the members of the organization, through careful and effective communication [37]. Communication with foreign seafarers, clients, and government services, and opening new communication channels are basic elements of working in a shipping office [38].

Problem-solving is an individual's capacity to use cognitive processes to resolve real, cross-disciplinary situations where the solution path is not immediately obvious [39]. Thus, employees should be able to think critically and holistically, collect and analyze data to assist themselves or managers in decision-making [10].

Teamwork is the ability to cooperate with others to meet organizational objectives [40]. It helps in developing the skills and perspectives of the employees through the automatic exchange of positive opinions, feedback, experiences and viewpoints between the members of the team, and this process creates a constant development regarding the services of the organization and employees' occupational performances [41]. Organizations look for employees who can collaborate, motivate, and empathize with their colleagues [42].

Bearing in mind the above discussion, the following research hypothesis is formulated based on a sample of Greek shipping companies:

2.1. Hypothesis 1: Soft skills are positively related to employee contextual performance

Additionally, it was examined the relationship between the soft skills and income. According to Borghans et al. [43] people who possess soft skills which are concerned to be very important for high job performance, tend to receive lower wages than the other employees. On the contrary, Bacolod & Blum [44] supported that people who has developed soft skills nearly doubled their income. Kuhn & Weinberger [45] focused on

earnings to leadership skills which are measured by observable leadership activities in a sample of white men. Estimations showed that people who took part to team activities during their life, earned 3.8-22.1% more than others. Weinberger[46] re-examined the relationship among wage returns and leadership through using behavioral indicator of leadership. They found that there is a statistically significant increase to wage near to 5.3%. Motivated by these contradictory findings, this study hypothesizes the following:

Hypothesis 2: Soft skills are positively related to employee income

3. Methodological Frame

3.1. Sample and Procedure

A qualitative research was carried out through a structured questionnaire which was administered to managers and employees of Greek shipping companies. As mentioned, shipping is the country's most important industry which employs about 16,000 people [47]. The sample was formed with participants who fit the profile of the study (has worked in the shipping industry for more than two years) and were therefore recruited with a snowball sampling method. Snowball is a convenience sampling method which is applied when it is difficult to access subjects with the target characteristics [48]. Participants were invited to complete the questionnaire via direct e-mail. The questionnaires were filled out within six weeks, starting on November 18, 2020, for data collection. A sample of 202 questionnaires was collected, 11 of which were not included in the results as being ineligible. Hence, the total usable sample for analysis consisted of 191 questionnaires. 67.5% of the samples were female while 32.5% were male. Most participants (56.6%), belong to the category 31-50 years old, followed by the category 18-30 years old (21.9%), leaving in third place the category 51 years old and over (21.5%). Many of the participants were highly educated with 58.1% of them being holders of a postgraduate diploma and 25.2% being holders of a bachelor's degree. The remaining percentage of 16.7% had a high school degree or they were technical education graduates. 64.4% were employees and 35.6% were in managerial positions. Finally, regarding the employees' gross income, 37.2% earns below 2,000 euro per month, 17.8% between 2,001-3,000 euro, 18.8% between 3,001-5,000 euro and the 26.2% earns more than 5,001 euro per month.

3.2. Measures

A self-assessment questionnaire was used to collect quantitative data. This included items aimed to explore employees' perceptions of four soft skills: adaptability, communication, problem-solving, and teamwork[33]. Respondents rated their competence on these soft skills, specifying the level of agreement or disagreement in a 7-point psychometric Likert scale. Each soft skill was operationalized with a specific description and a few representative items was linked to each variable based on previous studies (Table 1). Employee contextual performance was measured using a four-item scale developed by Koopmans et al.[49]. An example includes: "I started new tasks myself,

when my old ones were finished”. Participants were also asked to select the bracket that represents their gross monthly income. The income ranges are 0-2,000 euro, 2,001-3000 euro, 3,001-5,000 euro and more than 5,001 euro.

TABLE 1: Soft skills measures

Variable	Number of items	Definition	Bibliographical source of variable
Adaptability	5	ability to learn new skills and behaviors [3]	2;10;50
Communication	6	ability to convey complex ideas orally, in writing, presenting, and listening [2]	2;10,23;50;51;52;5354;55;56
Problem-solving	4	capacity to use cognitive processes to resolve real, cross disciplinary situations, where the solution path is not immediately obvious [39]	2;10
Teamwork	4	ability to cooperate with others to meet objectives [40]	2;10;50;52;54;56;57;58

The questionnaire also included a number of questions on employees’ socio-demographic characteristics, such as gender, age, and educational level or job position to aid in explaining any differences in perceptions.

A pilot survey was conducted with a small group of employees (14 participants) to test the accuracy of the questionnaire. Modifications were made to the items of the constructs, including semantic changes to verify that the meaning the participants assigned to each question matched the intended meaning of the question. Confidentiality was assured through not providing identification data and keeping responses anonymous.

4. Results

4.1. Preliminary analyses

In this sub-section, the results of Exploratory Factor Analysis (EFA), reliability, and validity of the used instrument tests are presented. Following the descriptive analysis of the data, the skewness and kurtosis of the variables were also tested; the results satisfy the conditions for a normal distribution.

A Principal Component Analysis with Varimax Rotation was conducted to assess the structure for the 19 items of the soft skills instrument. The factor analysis of soft skills revealed a four-dimensional factor that explains 63.7% of total variance. To guarantee the convergent and discriminant validity, a low loading item (<0.6) was excluded from the subsequent data analysis. Moreover, one more item was deleted due to its multi-factor loading. All the rest, 17 items, were represented by four factors. The Kaiser-Meyer-Olkin (KMO) value and Sphericity statistics exceeded suggested cut-off points, indicating good relationships among items. EFA results showed that the survey instruments had good construct validity. Convergent validity was also tested, calculating the average variance extracted (AVE) by each factor.

The obtained AVE value for communication, adaptability and teamwork constructs were 0.46, 0.48, and 0.46, respectively. The AVE values are close but not higher than

TABLE 2: Exploratory factor analysis of soft skills and employee contextual performance

Kaiser-Meyer-Olkin = 0.902 Items	Factor loadings			
	Communication	Adaptability	Problem-solving	Teamwork
Capability of summarising and/or synthesising information	0.735			
Ability to communicate with customers and other stakeholders	0.728			
Writing skills including reports or emails	0.694			
Active listening and understanding	0.628			
Creation of coherent arguments	0.605			
Capability of being resilient		0.740		
Self-motivation to become better and more efficient		0.705		
Adapting to changes in the shipping industry		0.701		
Ability to learn new skills, tools etc.		0.630		
Ability to make and justify decisions			0.775	
The ability to negotiate when necessary			0.765	
Capability of thinking critically when necessary			0.750	
Multi-tasking when and where it is essential			0.545	
Ability to play multiple roles				0.746
Facilitating and accepting team decisions				0.697
Developing international relationships among colleagues				0.633
Cooperating with others				0.627
Eigenvalue	41.774	8.570	6.929	6.384
Variance %	16.982	16.641	16.178	13.856
AVE	0.46	0.48	0.51	0.46
Composite Reliability	0.67	0.65	0.68	0.84
Cronbach alpha (α)	0.809	0.815	0.820	0.761

the proposed cut-off point of 0.5. However, according to Fornell & Larcker [59], even if AVE is less than 0.5, but composite reliability is higher than 0.6, the convergent validity of the construct is still adequate. In our analysis, the convergent validity of these constructs is higher than 0.6 for each construct, so it can be stated that convergent validity was established. Construct reliability was estimated using the Cronbach alpha (α) coefficient which is one of the most accepted formulas for assessing instrument reliability [60]. Results indicate that the used constructs have α -value greater than 0.7 which is proposed as a cut-off value [61]. Specifically, the Cronbach's alpha for the soft skills ranged from 0.761 to 0.820, indicating high reliability.

The Exploratory Factor Analysis of the employee contextual performance scale revealed only one factor, accounting for 60.6% of the variance. The KMO (0.736) index and the Bartlett test of sphericity ($\chi^2 (736) = 222.387, p < 0.05$) provided satisfactory results. The Cronbach's alpha for the employee contextual performance instrument is 0.778.

4.2. Hypotheses Testing

Correlation analysis was used to verify the hypothesized relationships among soft skills and employee contextual performance. The Pearson correlation coefficients for all pairs of soft skills and employee contextual performance constructs are provided in Table 3. The means and standard for all of the survey variables are also presented. Soft skills have a positive and statistically significant correlation with employee contextual performance.

TABLE 3: Bivariate correlation matrices for soft skills and employee contextual performance

	Mean	SD	2	3	4	5
1.Communication	6.05	0.66	0.597**	0.601**	0.522**	0.522**
2. Adaptability	6.18	0.62		0.574**	0.581**	0.548**
3.Problem-solving	6.22	0.66			0.509**	0.536**
4.Teamwork	6.21	0.61				0.532**
5.Employee contextual performance	6.01	0.66				

Note: **p \leq 0.01

TABLE 4: Hypothesis Test (H1)

Relationship	Beta	SE	t statistics	p-values
Adaptability -> performance	0.202	0.083	2.599	0.010
Communication -> performance	0.157	0.077	2.049	0.042
Problem-solving -> performance	0.211	0.075	2.816	0.005
Teamwork -> performance	0.225	0.078	3.120	0.002

The hypothesized relationships were also tested by Linear Regression Analysis based on the significance of the coefficients. The results of the regression indicate that the four predictors explained 42.6% of the variance ($R^2=0.426$, $F [4, 186]=34.458$, $p<0.001$). The remaining 57.4% probably is explained by factors not captured in this model. The p-value is less than 0.001, thus the model is significant for the prediction of the relationship among the predictors (soft skills) and criterion variable (employee contextual performance). Specifically, it was found that adaptability, communication, problem-solving and teamwork have a statistically significant impact on employee contextual performance (Table 4). Based on the standardized beta calculation, teamwork has greater influence on employee contextual performance ($\beta=0.225$, $p=0.002$) than other soft skills. Problem-solving follows with a lower standardized beta ($\beta=0.211$, $p=0.005$) as well as Adaptability ($\beta=0.202$, $p=0.010$) and Communication ($\beta=0.157$, $p=0.042$).

The second hypothesis states that there is a statistically significant difference in the employees' self-perceptions of their soft skills between groups of different income. Analysis of variance was used to compare means of the continuous variables (soft skills) in the income independent comparison groups.

Table 5 shows that there is no statistically significant difference between adaptability, communication or teamwork and income. However, the results of ANOVA test indicate there is a statistically significant difference in the problem-solving skill between income groups. Specifically, based on these findings, the highest mean value for problem-solving skill is observed (mean = 6.45) for income over 5,001 euro per month. It can be argued that the lower problem-solving skill level of employees is (mean <6.2), the lower the income they earn (0-5,000 euro).

TABLE 5: Test ANOVA - soft skills and income

Soft skills	Sum of Squares	df	Mean Square	F	P-value
Adaptability					
Between Groups	1.161	3	0.387	0.995	0.396
Within Groups	72.704	187	0.389		
Total	73.865	190			
Communication					
Between Groups	2.590	3	0.863	2.008	0.114
Within Groups	80.425	187	0.430		
Total	83.015	190			
Problem-solving					
Between Groups	4.139	3	1.380	3.207	0.024
Within Groups	80.441	187	0.430		
Total	84.580	190			
Teamwork					
Between Groups	1.231	3	0.410	1.096	0.352
Within Groups	69.975	187	0.374		
Total	71.205	190			

5. Discussion

It was supported that the combination of personal qualities and interpersonal skills increases individual performance [9;21]. On the contrary, limited soft skills could be a major barrier to professional development of a person possessing the necessary technical skills and professional experience [42]. However, there is little previous academic research or empirical study focusing on the relationship between soft skills and employee contextual performance. Hence this study tries to fill that gap by examining the effect of four soft skills (adaptability communication, problem-solving, teamwork) on employee contextual performance.

It was proved that the selected soft skills have a statistically significant impact on employee contextual performance, highlighting their importance in work environment. Teamwork has greater influence on employee contextual performance following by Problem-Solving, Adaptability and Communication. These findings are in lines with those of previous studies. Specifically, Anggiani [8] verified this relationship in hospitality industry, Duan et al. [27] did it in a college environment, whereas Zhang & Fan [28] supported the above relationship on construction project. Ibrahim et al. [9], using training as a proxy variable, explored the skills and performance relationship on Malaysian private companies. Limited literature examines the link between soft skills and employee contextual performance in maritime industry [10, 31]. As an extension to the current literature, this survey focuses on this vastly competitive environment and highlights the importance of soft skills required for maritime personnel. Thus, HR recruiters should analyse the required soft skills for the open positions and ask candidates behavioral and situational questions to match them with job description. Companies should support employees to develop and nurture soft skills through training and give them opportunities during work activities to practice. Colleges and universities should integrate soft skills in their curriculum to prepare their students for the dynamic labour market.

As concern as the relationship between employee income and soft skills, it was found that Problem-Solving soft skills is associated with higher earnings; employers offer higher wages to employees with high Problem - Solving soft skills. This means that the employers are willing to pay a higher salary for employees who can find solutions quickly and effectively for complex or unexpected situations.

6. Conclusions

The results of this empirical survey support that four soft skills such as teamwork, problem-solving, adaptability and communication positively affect employee contextual performance. Thus, human resource departments should support employee development of soft skills through seminars, coaching or experiential learning, since work in the marine industry changes constantly and becomes more demanding. In addition, it was confirmed that problem-solving skill relates to employee income.

The main limitation of the study was the localized study group. Even though Greece is one of the main maritime centers of the world, it is not a representative sample. Thus, this

research could be expanded by sampling multiple countries. Another possible limitation is that the data is not objective, but they are based on employees' self-perceptions. Tsirkas et al.[62] found that employees overestimate their soft skills; they believe that they possess them in a higher level than their employers perceive. Thus, the findings were consistent with research in self-rating bias. Additionally, the small sample size of the participants limits the possibility of applying more advanced statistical techniques.

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