

The perception of students from a higher education institution regarding the importance of education in OSH subjects during COVID Pandemic

Paulo Anacleto, Isabel Loureiro, Nelson Costa, Susana Costa, Pedro Arezes

¹ ALGORITMI Centre, Department of Production and Systems, School of Engineering, University of Minho, Guimarães, Portugal

Email: pg33806@alunos.uminho.pt

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Abstract

Work safety in general is a set of methods that aim to control the risks associated with the workplace. In engineering courses, this discipline is mandatory; however, non-engineering courses are presented optionally. Thus, as not all students have contact with the discipline of safety and health at work, the need arises to understand the perception of students about this discipline. For this, a questionnaire was developed to capture the perception attributed to occupational health and safety. This questionnaire was made available online, via institutional email. The work was carried out at a Portuguese public university. 275 students (80.2% of the expected) enrolled in 17 undergraduate courses (those that are not related to engineering) answered the questionnaire. For statistical analysis, courses were grouped into clusters (N = 10) according to pre-established criteria. As results it was noticed that: (1) in relation to curricular preferences, cluster 3 presented better indicators about the importance of Safety and Health at Work, while cluster 5 presented the worst indicators of importance; (2) in cluster 7, 100% of respondents stated that safety is of utmost importance and in return, only 40% stated the same in cluster 4. It is concluded that there is a difference between the perception of the importance given to Safety and Health at Work among the studied clusters. This highlights how important the dissemination of content is in relation to safety, a factor that has the potential to reduce the perceived disparity among students of the various courses.

Keywords: Curricular Unit; Education; University; Safety Perceptions; Undergraduate Students; Portugal

1 Introduction

In Portugal in 2019, approximately 305,000 young people (those aged 15-24 years) were engaged in some form of paid activity (Instituto Nacional de Estatística, 2019). In the last report of occupational accidents, in 2018 of the approximately 196,000 accidents recorded (<18 to >65 years), 6.6% (n = 20.100 occupational accidents) occurred among young people aged 15-24 years (Instituto Nacional de Estatística, 2018a). In the same period, 4 young workers lost their lives performing some work activity (Instituto Nacional de Estatística, 2018b). The seriousness of this situation is evidenced when studies carried out in Finland (Salminen, 2004), Canada (Chin et al., 2010) and Australia (Pisaniello et al., 2013) identified that young workers had more accidents than adult workers. Not unlike previously noted, in Portugal young people suffered 2.84 times more accidents at work than adults (Instituto Nacional de Estatística, 2018a). It is important to note that most of the jobs occupied by young workers are those that do not require specialized technical skills and, therefore, such establishments, being small businesses, provide little or no notions of safety (Delp et al., 2002). In this sense, relying on the training provided by the company can be somewhat weak and it favours work accidents among the young population even more (Chin et al., 2010). Another possible explanation for this situation would be the general assumption that such working environments, as they are simple and basic activities, offer no or little risk to young people and that is why there is a disregard on the part of employers towards them (Chin et al., 2010).

Having exposed this scenario, it is evident that safety education is a fundamental and urgent matter (Chin et al., 2010) and, therefore, increasing students' knowledge and capacity in relation to this theme is an indisputable aspect not only in relation to the reduction accidents, but also to cope with day-to-day activities. Given this context, the University of Minho provides the teaching of occupational safety in two different ways. The first, in courses "more connected" to industry, such as Engineering and Chemistry, for example, the subject

of safety is a mandatory part of the curriculum. However, for those courses "further away" from the industry, such as International Relations and Sociology, the discipline is provided as optional/no mandatory.

In view of this, this study aimed to assess the perception of undergraduate students enrolled in those courses considered to be "further away" from the industry in relation to Occupational Health and Safety.

2 Materials and Methods

2.1 Description of the Study Area

The study was carried out at the University of Minho, a Portuguese public university located in the north of the country. The University of Minho (UM) is divided into three campuses. Two located in the city of Guimarães (Campus de Azurém and Couros), and another located in the city of Braga (Campus de Gualtar).

Regarding the sample size, it was designed as proposed by Israel (1992), considering aspects such as the population size (N = 2427), the confidence level (95%) and the sample error (5%). From the parameters listed above, the ideal number of participants was established in 343 individuals. However, at the time of the end of the period to respond to the survey (October 15, 2019), the total number of study participants was 275 (80.2% of the expected).

The data were collected through the Survio platform and analyzed using Microsoft Excel 2019.

2.2 Study Population and Sample Size

Seventeen undergraduate courses participated in this study, totaling 275 students. These 17 participating courses were chosen because they are the only ones to offer Occupational Health and Safety as a curricular unit option. The engineering courses were not present in this study due to the curricular unit "Occupational Safety and Health" being a mandatory component of the disciplines grid. In order to optimize the analysis process, 17 participating courses were grouped according to the compatibility of the curricular units available / offered as an option, resulting in the creation of 10 clusters (Figure 1).

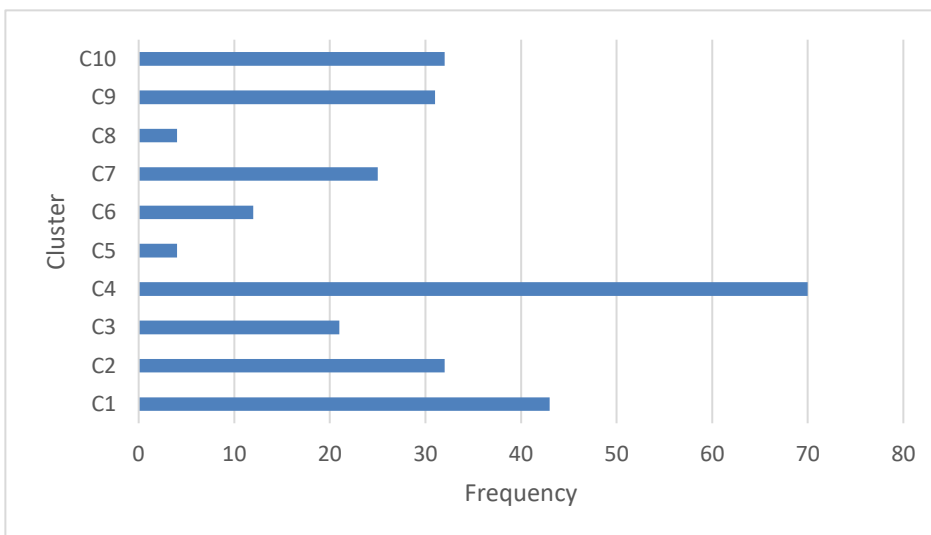


Figure 1 - Clustering and number of participants

2.3 Survey Instrument

A questionnaire was developed as a tool in order to determine the students' perception regarding the importance of teaching the subject of "Health and Safety at Work". The questionnaire composed of 15 questions (closed) was structured on the Survio platform. The survey is organized in 4 sections (Figure 2) and was validated by the professors of the Industrial Engineering department, Susana Costa and Isabel Loureiro.

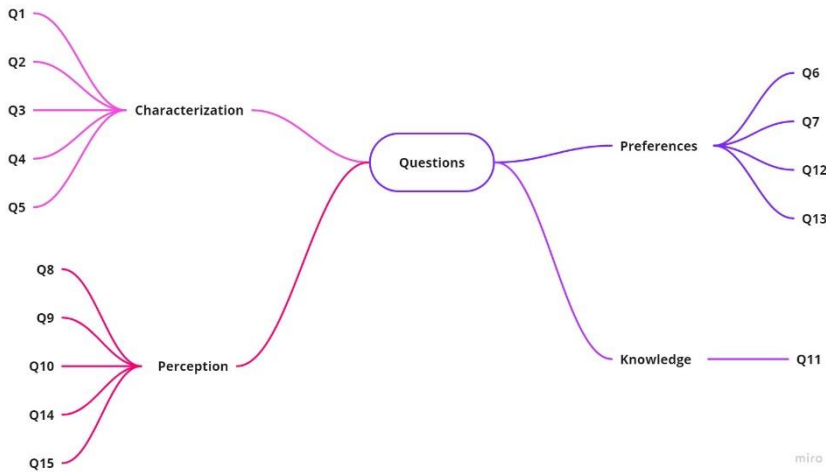


Figure 2 – Distribution of the questions

The first part of the questionnaire, consisting of 5 questions, refers to the characterization of students. The second section asked students about their preferences. The third part of the survey asked them about their proper perceptions and the fourth and last, their knowledge regarding the theme. The disclosure of the survey took place between September 21 to October 15, 2020, and took place through the university's institutional email.

2.4 Data Collection and Analysis

The information was collected randomly and analyzed using descriptive statistics techniques (averages and frequency count). In order to fulfill its objective, only parts 1 (Characterization) and 3 (Perceptions) were investigated (Figure 2). That said, the questions used for this purpose are presented in Table 1.

Table 1 – Frequency distribution of students by demographics.

Variable	Frequency	Percent	
Q3 - Academic Year			
Year 1	70	25,5%	
Year 2	73	26,6%	
Year 3	131	47,8%	
Q4 - Age Group			
17-21	239	86,9%	
22 -25	17	6,1%	
>25	19	6,9%	
Q5 - Work Experience	40,7% (n=112)	59,3% (n=163)	
Q8 - Regardless of your choice in relation to the options of curricular units (UCs) available, what is the degree of importance that you attach to each one for the work context?	Moderate		
Q10 - Is Occupational Safety important to you?	8,78 (1 to 10)		
	Yes	No	
Q14 - In view of the current COVID-19 pandemic, do you consider that workers' safety issues should be more guarded by companies?	98,9% (n=272)	1,09% (n=3)	
	Most Important	Equal Important	Least Important
Q15 - For you, since the emergence of the current Pandemic, do you attribute more, less or equal importance to Safety and Health at Work?	83,6% (n=230)	16% (n=44)	0,3% (n=1)

3 Results and Discussion

The analysis of demographic data showed that 40.7% of the young people interviewed have experience in the labour market (Table). Most students are between 17-21 years old (86.9%) and were enrolled in the third cycle

(47.8%). In question 8, the students were questioned about the degree of importance given to Health and Work Safety (Table 2). As question 8 was composed of different amounts of subjects (which varied due to the cluster, that is, different courses had different options for course units), data normalization was necessary. For this, a six-point scale was created (Highest importance, High importance, Moderate importance, Low importance, Very low importance and Absolute no important) and from then on, the respective intervals were defined.

Table 2 – Grade of importance by cluster

Cluster	Grade of importance
C1	Low importance
C2	Moderate importance
C3	Moderate importance
C4	Moderate importance
C5	Moderate importance
C6	Moderate importance
C7	Very low importance
C8	Highest importance
C9	Moderate importance
C10	Highest importance

Question 10 asked the students about the importance given to Work Safety. In this question, a scale from 0 to 10 was used, where 0 means “Not important” and 10 means “Extremely important”. The overall average was 8.78 (Table 1), where most students attach moderate importance to the topic (Figure 3).

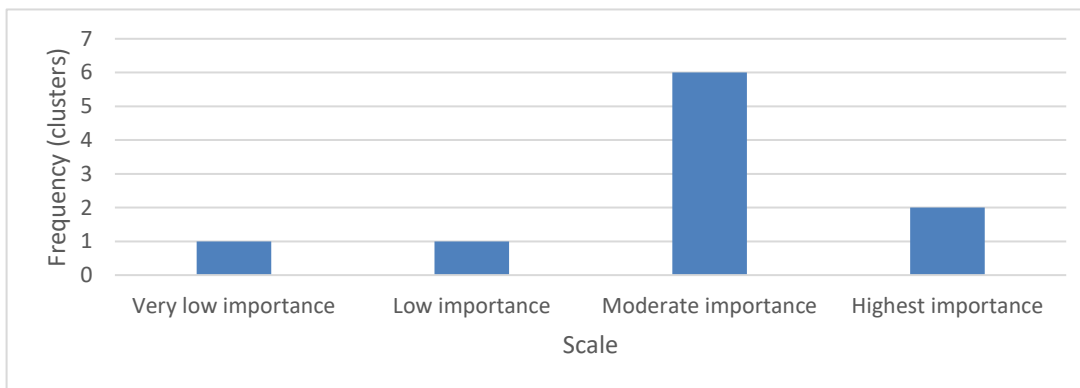


Figure 3 – Histogram of the importance given to Work Safety.

When asked whether worker safety issues should be more rigid due to the COVID 19 pandemic (Q14), 98.9% of students stated that safety measures should be firmer (Table 3).

Table 3 - Safety issues more rigid during a pandemic

Cluster	Yes	No
1	n=43 (100%)	n=0 %
2	n=32 (100%)	n=0 %
3	n=21 (100%)	n=0 %
4	n=68 (97,1%)	n=2 (2,9%)
5	n=5 (100%)	n=0 %
6	n=12 (100%)	n=0 %
7	n=25 (100%)	n=0 %
8	n=4 (100%)	n=0 %
9	n=31 (100%)	n=0 %
10	n=31 (96,9%)	n=1 (3,1%)

Question 15 asked the students if, since the emergence of the current pandemic, they attributed more, less, or equal importance to the theme of Safety and Health at Work (Table 4). 83.6% of students attach more importance to Safety and Health at Work in times of pandemic. Most students attach "Most Important" to the topic (Figure 4).

Table 4 - Level of importance attached to safety in the context of the pandemic.

Cluster	Most Important	Equal Important	Least Important
1	n=36 (83,7 %)	n=7 (16,3 %)	n=0 (0 %)
2	n=31 (96,9 %)	n=1 (3,1 %)	n=0 (0 %)
3	n=16 (76,2 %)	n=5 (23,8 %)	n=0 (0 %)
4	n=56 (80 %)	n=13 (18,6 %)	n=1 (1,4 %)
5	n=5 (100 %)	n=0 (0 %)	n=0 (0 %)
6	n=10 (83,3 %)	n=2 (16,7 %)	n=0 (0 %)
7	n=22 (88 %)	n=3 (12 %)	n=0 (0 %)
8	n=3 (75 %)	n=1 (25 %)	n=0 (0 %)
9	n=26 (83,9 %)	n=5 (16,1 %)	n=0 (0 %)
10	n=25 (78,1 %)	n=7 (21,9 %)	n=0 (0 %)

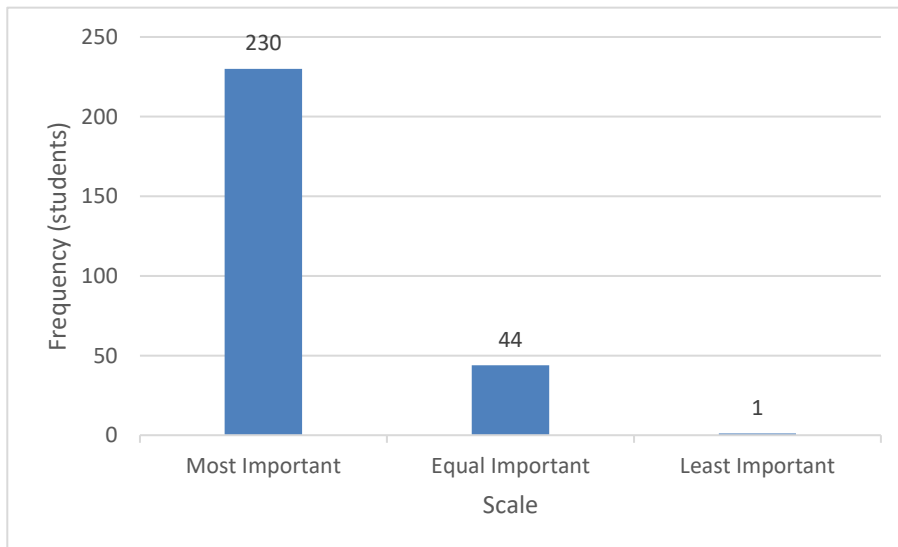


Figure 4 - The importance attached to Safety and Health at Work in times of pandemic.

4 Conclusion

This work made it possible to perceive most students have a good perception of Health and Safety at Work, which is evidenced by the responses obtained (Table). Assuming that the Portuguese educational system has a series of policies that aim to ensure the learning of skills and behaviours related to Health, Safety and Environment, which must be worked on during basic and secondary education (Anacleto, 2020), the results collected here may - in a way - be a reflection of this effort. Thus, since the study of the organizational climate is used to identify what are the behaviours supported by the organization/institution (Zohar, 2010), it is

concluded that in the case of UM, the students participating in this work have a positive safety climate. This conclusion is in line with the results obtained in Anacleto (2020), which assessed the safety culture of students at that university. However, even as a positive result, there is always room for improvement. The disparities between courses must be reduced to level the perception concerning Occupational Health and Safety.

The limitations of this work include (A) the desired sample size that has not been reached (N = 343) and (B) the study focused only on the students' perception of Health and Safety at Work, leaving aside the Preferences and Knowledge categories.

5 References

- Anacleto, P. (2020). A avaliação da cultura de Segurança dos alunos do 1º ano das licenciaturas e do 1º ano dos mestrados integrados de uma universidade pública portuguesa. University of Minho.
- Chin, P., DeLuca, C., Poth, C., Chadwick, I., Hutchinson, N., & Munby, H. (2010). Enabling youth to advocate for workplace safety. *Safety Science*, 48(5), 570–579. <https://doi.org/10.1016/j.ssci.2010.01.009>
- Delp, L., Runyan, C. W., Brown, M., Bowling, J. M., & Jahan, S. A. (2002). Role of work permits in teen workers' experiences. *American Journal of Industrial Medicine*, 41(6), 477–482. <https://doi.org/10.1002/ajim.10070>
- Instituto Nacional de Estatística (2018a). Acidentes de trabalho (N.º) por Sexo e Grupo etário; Anual. https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_indicadores&contecto=pi&indOcorrCod=0006893&selTab=tab0
- Instituto Nacional de Estatística (2018b). Acidentes de trabalho mortais (N.º) por Sexo e Grupo etário; Anual. https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_indicadores&contecto=pi&indOcorrCod=0006893&selTab=tab0
- Instituto Nacional de Estatística (2019). População empregada com idade entre 15 e 74 anos (N.º) por Grupo etário; Mensal. https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_indicadores&contecto=pi&indOcorrCod=0007970&selTab=tab0
- Pisaniello, D. L., Stewart, S. K., Jahan, N., Pisaniello, S. L., Winefield, H., & Braunack-Mayer, A. (2013). The role of high schools in introductory occupational safety education - Teacher perspectives on effectiveness. *Safety Science*, 55, 53–61. <https://doi.org/10.1016/j.ssci.2012.12.011>
- Salminen, S. (2004). Have young workers more injuries than older ones? An international literature review. *Journal of Safety Research*, 35(5), 513–521. <https://doi.org/10.1016/j.jsr.2004.08.005>
- Zohar, D. (2010). Thirty years of safety climate research: Reflections and future directions. *Accident Analysis and Prevention*, 42(5), 1517–1522. <https://doi.org/10.1016/j.aap.2009.12.019>