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Teamwork efficiency of students: does the university environment contribute to the development of this competence?

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Abstract

Social skills are as important as basic technical skills in the academic system. Thus, the competence of working in a team helps the student to integrate not only into the student group but also in the insertion on the labor market. However, not much is known about the effectiveness of teamwork among students. In this study, we aimed to investigate the differences between students in terms of their demographic characteristics (age category, education level) depending on the perceived efficiency of their work within a team. Also, the current study aims to investigate the relationship between the efficiency of teamwork, the number of courses in which the development of these skills is encouraged and the general average of the last semester of teaching activity. The results showed statistically significant differences between the demographic characteristics of students and the level of effectiveness in teamwork, but also statistically significant relationships between academic performance and efficiency in teamwork of students. These results can be used in training programs for teaching staff in higher education to be able to develop students' social skills.

Keywords: academic performance, age category, efficiency in teamwork, level of education, students

Introduction

Social skills are as important as basic technical skills in the academic system (Lincă, 2019a, 2019b; Lincă, 2016, 2018; Linca et al., 2022; Matei & Lincă, 2019). Thus, the competence of working in a team helps the student to integrate not only into the student group but also in the insertion on the labor market (Bonavia et al., 2015; Kvetenska & Myska, 2017; F. I. Lincă, 2016).

Universities are aware of the importance of knowing some information related to a certain program but also of the way in which students interact with others, making their competencies known. In this context, teamwork skills, more precisely teamwork efficiency, gain special attention, because they are considered essential skills in an increasingly complex, dynamic world. New employees are asked during the interviews if they have a good level of teamwork efficiency if they can quickly solve specific work problems or if they have the necessary skills to face the new challenges raised by today's society (Bañeres Besora & Conesa Caralt, 2017).

Universities do not ignore society's needs, especially companies' demand that students and future workers be trained to be effective in the workplace (De Prada et al., 2022, Matei, 2022). Many studies (Beigi & Shirmohammadi, 2012; Clares et al., 2019; Ilias et al., 2012; Park et al., 2015; Solomon et al., 2014) establish the relationships between teamwork skills and educational level, gender or academic performance.

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Methodology of research

Material and methods

The participants filled out a questionnaire that measures the efficiency of teamwork based on specialized literature (The Teamwork Skills Questionaire) (University of South Australia, 2016 apud De Prada et al., 2022). Also, the questionnaire was first applied in a pilot study in which 50 students participated and the Cronbach's internal consistency index was 0.75. The Cronbach's internal consistency index for our sample was 0.80. The questionnaire contains 15 items with predefined answers from 0 - never to 3 - Very frequently. A global score can be calculated.

2.2. Objectives

In this study, we aimed to investigate the differences between students in terms of their demographic characteristics (age category, education level) depending on the perceived efficiency of their work within a team. Also, the current study aims to investigate the relationship between the efficiency of teamwork, the number of courses in which the development of these skills is encouraged and the general average of the last semester of teaching activity.

2.2. Hypothesis

H1. There are statistically significant differences between undergraduate and master's students depending on work efficiency within a team.

H2. There are statistically significant differences between students regarding age category in terms of work efficiency within a team.

H3. There is statistically significant relationship between the efficiency of teamwork, the number of courses in which the development of these skills is encouraged and the general average of the last semester of teaching activity.

2.3. Sample

195 female students participated in this study, with an average age M=31.5, standard deviation SD=9.2. 96 of the participants follow an undergraduate study (48 students from pedagogy and 48 students from special psychopedagogy) program and 99 a master's program in the field of pedagogy and special psychopedagogy (50, respectively 49) (Table 2).

101 of the participants are between 18 and 25 years old (50 students from pedagogy and 51 students from special psychopedagogy), 44 of the participants are between 26 and 35 years old (22 students from pedagogy and 22 students from special psychopedagogy), 27 are between 36 and 45 years old (16 students from pedagogy and 11 students from special psychopedagogy) and 23 are between 46 and 55 years old (13 students from pedagogy and 10 students from special psychopedagogy) (Table 4).

The groups of participants contain an approximately equal number of students from both fields of pedagogy and special psychopedagogy for their homogeneity.

Results

First, we tested the first hypothesis according to which there are statistically significant differences between undergraduate and master's students depending on work efficiency within a team. This hypothesis is supported by statistical data, $t(193) = 4.1$, $p<0.01$. (Tables 1). In Table

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2 we can see that the students from the master's program have a higher average of teamwork effectiveness than those from the bachelor's program, 70.3 and 65.2.

Table 1. *Independent Samples T-Test*

	t	df	p
Efficiency of teamwork	4.105	193	< .001

Note. Student's t-test.

Table 2. *Group Descriptives – level of education*

	Group	N	Mean	SD	SE	Coefficient of variation
Efficiency of teamwork	undergraduate studies	96	65.240	10.787	1.101	0.165
	masters	99	70.343	5.968	0.600	0.085

In the specialized literature, there is a positive relationship between the level of teamwork skills development and the academic level, emphasizing the fact that final year students are more likely to possess the skills needed for teamwork (Park et al., 2015). Rodríguez-Gómez et al. (2018) in their study pointed out significant differences in teamwork for the academic level variable, using academic year as an indicator, observing a substantial increase in teamwork competence starting from the second year. Final year students reported the highest degree of teamwork competence development. In this way, the students perceived that they had improved this competence at the end of their university training (Gómez et al., 2018).

Secondly, we tested the hypothesis according to which there are statistically significant differences between students in terms of age category depending on work efficiency within a team. This hypothesis is supported by the statistical data, $F(3, 78.8)=15.5$, $p< 0.001$ (Table 3). The highest averages were reported for the 26-35 years and 46-55 years categories, 71.1 and 72.2 (Table 4).

Table 3. *One-Way ANOVA*

	F	df1	df2	p
Efficiency of team work	15.5	3	78.8	< .001

Table 4. *Group Descriptives – age category*

	Age category	N	Mean	SD	SE
Efficiency of team work	18-25 years	101	66.1	11.22	1.117
	26-35 years	44	71.1	4.85	0.731
	36-45 years	27	65.4	4.46	0.858
	46-55 years	23	72.2	3.88	0.809

Payne & Monk-Turner (2006) in their study demonstrated that older students considered contributing to the learning of other group members, when they assumed leadership roles. Additionally, regarding favorable or unfavorable attitudes toward teamwork, Beigi and

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Shirmohammadi (2012) concluded that age was not relevant in an Iranian context. Regarding this cultural context, it is essential to consider that the authors point out that Iranian organizational culture focuses on individual work rather than teamwork and report that Iranians, compared to other nationalities, are considered less effective in teamwork activities (Beigi & Shirmohammadi, 2012).

On the other hand, in Table 5 we notice that there are statistically significant differences between the first age category and the second and last age category, but also between the third age category and the last age category, $p < 0.05$.

Table 5. *Tukey Post-Hoc Test – efficiency of team work*

		18-25 years	26-35 years	36-45 years	46-55 years
18-25 years	Mean difference	—	-4.99	0.672	-6.09
	p-value	—	0.009	0.984	0.015
26-35 years	Mean difference		—	5.661	-1.11
	p-value		—	0.042	0.960
36-45 years	Mean difference			—	-6.77
	p-value			—	0.034
46-55 years	Mean difference				—
	p-value				—

In the table below we can see that there are statistically significant correlations between work efficiency and the number of courses in which the development of this competence ($r=0.78, p < .001$) and work efficiency within a team is encouraged and the general average of the last semester of teaching activity ($r=0.80$, $p < .001$).Therefore, hypothesis 3 is supported by the collected data.

Regarding the academic performance and efficiency of teamwork, the organizational culture of the university from which the students come must be taken into account. It is possible for students to see teamwork as ineffective, as an element that could lower their average academic grades(Beigi & Shirmohammadi, 2012), or, on the contrary, to see teamwork as a means of personal development ((Clares et al., 2019)).

Table 6. *Correlation Matrix*

		Over all average of the last semester	Efficiency of team work	courses
Overallaverageofthelast.semester	r	—		
	p	—		
Efficiencyofteamwork	r	0.800	—	
	p	< .001	—	
Courses	r	0.568	0.788	—
	p	0.019	0.008	—

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Conclusions

In conclusion, we can state that Romanian academic education encourages the development of teamwork skills, a proof of this is represented by the strong correlations between the academic performance of the students in our sample and the perceived level of efficiency of teamwork.

As exemplified in our study, teamwork is not only an essential transferable skill highly valued by employers, but also a strategic means of achieving better academic performance. Students frequently underestimate this connection because they typically do not get graded on teamwork skills (Strom & Strom, 2011). The presented results are highly relevant as they show that teamwork may presume not only team skills but also academic performance.

Universities provide ideal environments for the development of teamwork skills, as these skills can be fostered from formal training, curriculum design and non-formal perspectives. From a formal perspective, educational institutions can promote the organization and implementation of team training programs. Specifically, teachers can include these skills in their subject design. Some research has emphasized the role of specific innovative teaching techniques in the classroom, such as the micro flip teaching model (Fidalgo-Blanco et al., 2019).

Therefore, given the importance of teamwork skills for students' academic performance and future employability, higher education institutions should make efforts to support and develop teamwork skills training from the first year of university (Burdett & Hastie, 2009; Clares et al., 2019) to guarantee the educational, social and professional success of students.

A limitation of this study could be the relatively equal number in each age category.

In the future, we propose to expand the study to a larger sample of participants, and we also want to carry out longitudinal studies that could show the evolution in the development of teamwork skills.

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