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Teamwork skills in the Romanian academic environment

Florentina Ionela, **LINCĂ**[1],
Gabriela Alina, **ANGHEL**[2]
Florentina Lavinia, **MATEI**[3]

Abstract

Teamwork skills are considered essential for personal, academic and professional achievement, so universities are increasingly integrating them into their syllabuses. Within this context, teamwork skills have been gaining close attention, as they are considered essential competencies in an increasingly more globalised, dynamic and complex world. New employees are asked if they have teamwork skills, can resolve specific work issues or have the required skills to handle the new challenges posed by today's society. In this study, we aimed to investigate the differences between students regarding their demographic characteristics (age category, education level) according to the level of development of their teamwork skills. The results revealed statistically significant differences between the different categories of students and the level of development of teamwork skills. It is important that teamwork skills are developed from the years of undergraduate studies. Both in our sample, but also in other studies from the literature, these students obtain low scores for this competence.These results can be used to create training programs for teachers and students in the development of teamwork skills.

Keywords: *teamwork skills, integration in team, level of education, academic performance, academic environmet*

[1] PhD, University of Bucharest, Romania, florentina-ionela.linca@fpse.unibuc.ro.
[2] PhD, Valahia University of Targoviste, Romania, alina.anghel@valahia.ro.
[3] PhD, Valahia University of Targoviste, Romania, lavinia.matei@valahia.ro.
The authors' contribution to the elaboration of the work is equal.

Introduction

Social skills are as important as basic technical skills in the academic system (Lincă, 2019a, 2019b; Lincă, 2016; Lincă 2018; Linca et al., 2022). Thus, the competence of working in a team helps the student to integrate in the student group and in the insertion on the labor market (Bonavia et al., 2015; Kvetenska & Myska, 2017; Matei, 2021).

In nowadays 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 competences known. Thus, both employees and academic institutions are becoming aware of the need to equip individuals with the skills, abilities and knowledge that will not only facilitate their incorporation into the labor market after studies, but also support their professional development throughout their careers, thus so that they can successfully adapt to changes in the labor market (Clares et al., 2019; Ellemers, 2018; Matei, 2022). The most studied teamwork skills for students are: participation in team work, search and distribution of information, communication with teammates, critical and creative thinking, team integration (Strom & Strom, 2011).

Participation in team work and search and distribution of information are competences through which group cohesion is formed. Bonavia et al. (2015) credits that young adults often prefer working in teams. The cooperative learning experience they have at academic environment can be a great asset. They are familiar with benefits of sharing recommendations with others in social networks about Web sites to visit, checking with friends on homework, providing encouragement when others feel down, and sharing obligations to perform tasks while providing feedback and tutorial support for one another. This readiness to collaborate can increase with awareness of how business and industry are impacted by teamwork.

Communication with teammates, critical and creative thinking, team integration can be sumarized in ‘‘None of us is as smart as all of us’’ is the message communicated by Warren Bennis and Patricia

Biederman (1998) in Organizing Genius: The Secrets of Creative Collaboration. They describe how networks of talented people have changed the world and methods they relied on to transform themselves from independent achievers to collaborative and productive teams (Strom & Strom, 2011).

Cooperative learning has been the focus of many investigations to determine how social relationships impact student behavior and achievement. A meta-analysis of 148 studies compared the relative effectiveness of cooperative, competitive, and individualistic goal structures. These studies involved 17,000 adolescent students, ages 12–15, from 11 nations. As predicted by Social Interdependence Theory, students from classrooms with cooperative learning goals where teams worked together were more accurate on test outcomes and earned higher problem-solving scores for reasoning and critical thinking tasks compared to classes where the focus was on competitive or individualistic learning. In cooperative settings, students felt a greater sense of support from and connection with peers. The implications are that when teachers structure class in a cooperative manner, academic achievement and social development goals can be promoted simultaneously while student goals for interaction are also met (Mendo-Lázaro et al., 2022).

Research methodology

Materials and methods

The participants filled out a questionnaire that measures the teamwork skills based on specialized literature (The Teamwork Skills Inventory – TSI) (Strom and Strom, 2011). Also, the questionnaire was first applied in a pilot study in which 50 students participated and the Cronbach's internal consistency index was 0.81. The Cronbach's internal consistency index for our sample was 0.83. The inventory contains 25 items with predefined answers from 1 - never to 5 - always. Also, a global score can be calculated and one for each dimension such as: participation in team work (items 1-5), search and distribution of information (items 6-10), communication with teammates (items 11 -15), critical and creative thinking (16-20), team integration (items 21-25).

Objective

In this study, we aimed to investigate the differences between students regarding their demographic characteristics (age category, education level) according to the level of development of their teamwork skills.

Hypotheses

H1. There is a statistically significant difference between students regarding the level of education depending on the level of development of their teamwork skills.

H2. There is a statistically significant difference between students regarding age category depending on the level of development of their teamwork skills.

Sample

195 female students participated in this study, with the average age M=31.5, standard deviation SD=9.2. 96 of the participants follow an undergraduate study program and 99 a master's program in the field of pedagogy and special psychopedagogy (Table 1).

101 of the participants are between 18 and 25 years old, 44 of the participants are between 26 and 35 years old, 27 are between 36 and 45 years old and 23 are between 46 and 55 years old (Table 3).

Results

First, we tested the first hypothesis according to which there are statistically significant differences between undergraduate and master's students depending on the level of development of teamwork skills. This hypothesis is supported by statistical data, $p<0.01$ (Tables 2).

In Table 1 we can see that regardless of whether we are talking about the global score of the level of development of team work skills or if we are talking about each team work skill, the master's students have significantly higher averages than those from the undergraduate program (for exaple 123.66 respectively 111.84). This leads us to say that as the level of education increases, the level of development of teamwork skills increases.

Table 1. *Group Descriptives – level of study*

	Group	N	Mean	SD	SE	Coefficient of variation
team work skills	undergraduate studies	96	111.844	14.332	1.463	0.128
	masters	99	123.667	7.355	0.739	0.059
participation	undergraduate studies	96	22.740	2.704	0.276	0.119
	masters	99	24.131	1.275	0.128	0.053
search and distribution of information	undergraduate studies	96	20.885	3.286	0.335	0.157
	masters	99	23.747	1.976	0.199	0.083
communication	undergraduate studies	96	21.094	2.991	0.305	0.142
	masters	99	24.121	1.809	0.182	0.075
critical and creative thinking	undergraduate studies	96	21.469	3.353	0.342	0.156
	masters	99	23.879	1.897	0.191	0.079
integration into the team	undergraduate studies	96	25.656	3.533	0.361	0.138
	masters	99	27.788	1.831	0.184	0.066

Table 2. *Independent Samples T-Test*

	t	df	P
team work skills	7.279	193	< .001
participation	4.620	193	< .001
search and distribution of information	7.396	193	< .001
communication	8.582	193	< .001
critical and creative thinking	6.202	193	< .001
integration into the team	5.313	193	< .001

Note. Student's t-test.

Secondly, we tested the hypothesis according to which there are statistically significant differences between students in terms of age category depending on the level of development of teamwork skills. This hypothesis is supported by the statistical data, $p < 0.001$ for the variables global teamwork skills, participation in team work, search and distribution of information, critical and creative thinking,

communication with teammates and $p < 0.05$ for integration in the team (Tables 4).

In Table 5 it can be observed that there are significant differences only between the first age category and the other age categories, $p < 0.001$, and the average differences of these groups are -8.48, -10.42 and -9.944, the average of the first group being lower than all the others.

Table 3. *Group Descriptives – age category*

	age category	**N**	**Mean**	**SD**	**SE**
team work skills	18-25 years	101	113.3	14.63	1.455
	26-35 years	44	121.8	8.97	1.353
	36-45 years	27	123.7	7.69	1.480
	46-55 years	23	123.3	6.28	1.309
participation	18-25 years	101	22.8	2.62	0.261
	26-35 years	44	23.7	1.53	0.231
	36-45 years	27	24.6	1.11	0.214
	46-55 years	23	24.4	1.08	0.224
search and distribution of information	18-25 years	101	21.1	3.46	0.344
	26-35 years	44	23.7	1.64	0.247
	36-45 years	27	23.3	1.66	0.319

Table 3. *Group Descriptives – age category*

	age category	**N**	**Mean**	**SD**	**SE**
communication	46-55 years	23	23.9	2.36	0.492
	18-25 years	101	21.4	3.17	0.316
	26-35 years	44	23.7	2.10	0.317
	36-45 years	27	24.0	1.65	0.318
	46-55 years	23	24.3	1.42	0.296
critical and creative thinking	18-25 years	101	21.6	3.44	0.342
	26-35 years	44	23.5	1.93	0.292
	36-45 years	27	24.3	1.43	0.275
	46-55 years	23	24.3	1.29	0.268
integration into the team	18-25 years	101	26.3	3.35	0.333
	26-35 years	44	28.3	2.77	0.417
	36-45 years	27	25.5	2.56	0.493
	46-55 years	23	24.5	1.73	0.360

Table 4. *One-Way ANOVA (Welch's)*

	F	df1	df2	p
team work skills	11.29	3	76.8	< .001
participation	11.27	3	78.7	< .001
search and distribution of information	13.22	3	69.8	< .001
communication	16.97	3	76.7	< .001
critical and creative thinking	15.34	3	79.9	< .001
integration into the team	2.02	3	72.4	0.039

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

		18-25 years	26-35 years	36-45 years	46-55 years
18-25 years	Mean difference	—	-8.48	-10.42	-9.944
	p-value	—	< .001	< .001	0.002
26-35 years	Mean difference		—	-1.95	-1.465
	p-value		—	0.910	0.964
36-45 years	Mean difference			—	0.480
	p-value			—	0.999
46-55 years	Mean difference				—
	p-value				—

In Table 6 it can be observed that there are significant differences only between the first age category and the other age categories depending on the participation in team work, < 0.05, and the average differences of these groups are -0.903, -1.828 and -1.589, the average of the first group being smaller than all the others.

Table 6. *Tukey Post-Hoc Test – participation*

		18-25 years	**26-35 years**	**36-45 years**	**46-55 years**
18-25 years	Mean difference	—	-0.903	-1.828	-1.589
	p-value	—	0.045	< .001	0.007
26-35 years	Mean difference		—	-0.925	-0.687
	p-value		—	0.277	0.584
36-45 years	Mean difference			—	0.238
	p-value			—	0.978
46-55 years	Mean difference				—
	p-value				—

In Table 7 it can be observed that there are significant differences only between the first age category and the other age categories according to the search and distribution of information, < 0.01, and the average differences of these groups are -2.53, -2.148 and -2.721, average of the first group being smaller than all the others.There are also differences between the second age category and the third and fourth age categories $p< 0.05$, and the differences between the averages of these groups are 3.2 and 4.2.

Table 7.*Tukey Post-Hoc Test – search and distribution of information*

		18-25 years	26-35 years	36-45 years	46-55 years
18-25 years	Mean difference	—	-2.53	-2.148	-2.721
	p-value	—	< .001	0.003	< .001
26-35 years	Mean difference		—	3.22	4.208
	p-value		—	0.043	0.034
36-45 years	Mean difference			—	-0.573
	p-value			—	0.889
46-55 years	Mean difference				—
	p-value				—

In Table 8 it can be observed that there are significant differences only between the first age category and the other age categories depending on the communication with teammates, < 0.05, and the average differences of these groups are -2.22, -2.601 and -2.825, the average of the first group being smaller than all the others.

Table 8. *Tukey Post-Hoc Test – communication*

		18-25 years	26-35 years	36-45 years	46-55 years
18-25 years	Mean difference	—	-2.22	-2.601	-2.825
	p-value	—	< .001	< .001	< .001

Table 8. *Tukey Post-Hoc Test – communication*

		18-25 years	26-35 years	36-45 years	46-55 years
26-35 years	Mean difference		—	-0.378	-0.602
	p-value		—	0.935	0.809
36-45 years	Mean difference			—	-0.224
	p-value			—	0.991
46-55 years	Mean difference				—
	p-value				—

In Table 9, it can be observed that there are significant differences only between the first age category and the other age categories depending on the integration in the team, $p < 0.01$, and the average differences of these groups are -2, 1.2 and 2, average. There are also differences between the third age category and the fourth age category $p < 0.05$, and the difference between the averages of these groups is 1.01.

Table 9. *Tukey Post-Hoc Test – critical and creative thinking*

		18-25 years	26-35 years	36-45 years	46-55 years
18-25 years	Mean difference	—	-2.00	1.20	2.00
	p-value	—	0.001	< .001	< .001
26-35 years	Mean difference		—	-0.805	-0.80632

Table 9. *Tukey Post-Hoc Test – critical and creative thinking*

		18-25 years	26-35 years	36-45 years	46-55 years
	p-value		—	0.626	0.662
36-45 years	Mean difference			—	1.01
	p-value			—	0.040
46-55 years	Mean difference				—
	p-value				—

Conclusions

Thus we can conclude that all objectives were achieved.

The Romanian academic environment encourages the formation of teamwork skills through the number of courses in which students are motivated to adapt to the requirements of the group they belong to. In this study, we could see how with the increase in the level of education, but also with the increase in chronological age, the students' abilities to work in a team develop.

A limitation of this study is the relatively small number of participants in each category.

One of the future research directions would be to carry out a comparative study between third-year undergraduate students and 11th grade high school students.

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