



Examination of Secondary School Students' Attitudes towards Communication and Collaboration Skills in Terms of Some Variables

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Abstract

This study aims to examine the communication and collaboration attitudes of secondary school students according to some variables and to determine if there is a relationship between students' communication and collaboration attitudes. The survey model was used in the study, and the sample consists of 405 secondary school students studying in Salihli, Manisa. "Secondary school students' communication attitude scale (SSSCAS)" and "Scale for Self-Evaluation of Collaboration Skills (SSCS)" were used to collect data. According to analysis results of the data obtained, it was found out that the communication and collaboration attitudes of the secondary school students were at a high level and did not show statistically significant differences in terms of gender and educational status of the parents. On the other hand, there was a significant difference according to owning tablet/PC variable. Besides, there is a positive relationship between secondary school students' communication skills attitude and collaboration attitudes.

Keywords: Secondary school students, Collaboration, Communication, Attitude, 21st century skills, Correlation.

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Contribution of this paper to the literature

This research will contribute to the literature by determining the level of cooperation and communication skills that are among the 21st century skills of secondary school students and whether there is a relationship between them. These results will guide whether learning environments contribute to the training of individuals in accordance with the information society.

1. Introduction & Literature Review

Education that focuses on learning skills including critical thinking and problem solving, communication and collaboration, and creativity and invention skills, which are accepted as 21st century skills has a strategic role to prepare the young generations with appropriate qualifications (Trilling & Fadel, 2009). People who want to achieve success in the 21st century should have critical thinking and problem-solving skills, be able to lead in business life, work in collaboration and harmony with other people, renew themselves, be successful in communication and never lose their curiosity and imagination (Wagner, 2008; cited in Er (2016)). Having these skills enables individuals to perform at a high level both in their social lives, in their academic careers and in their professional lives, and as a result, they realize themselves (North Central Regional Educational Laboratory (NCREL), 2003).

Collaboration, which stands out as one of the most necessary elements of our age in both education and business fields, is defined as individuals working together for a certain period in order to complete a task (Johnson & Johnson, 1999). When we look at the collaborative skill, it can be explained as showing “the ability to work effectively and respectfully with different groups, being willing to make compromises when a common goal is to be reached and being able to evaluate the personal contributions made by each member of a team by taking responsibility for collaborative work” (Partnership for 21st Century Learning, 2015; Trilling & Fadel, 2009).

The term communication is the process of “the information coming out of a unit, its reaching the other unit, and its return to the source after having an effect on the receiving unit” (Koknel, 2005). Communication skill can be explained as “expressing thoughts and ideas by using verbal, written and non-verbal communication skills effectively in various forms and contexts, being an active listener and communicating effectively in different contexts (including different languages)” (Partnership for 21st Century Learning, 2015; Trilling & Fadel, 2009). Since human beings are social beings, they try to make sense of the world through their communication with other people because the contexts they are in are made up of people and the relationships between them. People who establish relations with each other both give information about themselves and gather information from the other party. For this reason, the need for self-expression and understanding others, which are in the nature of human beings, arose (Cüceloğlu, 2016).

How and in what ways individuals can convey communication, which is one of their most important needs, depends on their communication skills that include “the ability to convey one's feelings, thoughts, beliefs and attitudes in an understandable and purposeful way.” Reflecting the words and feelings of the narrator appropriately, asking questions, summarizing, and reacting with other words are the skills that ensure effective communication (Korkut, 1996). Education is basically a communication activity, and healthy education in schools depends on effective communication (Bolat, 1996) while communication skills can be learned and developed (Dalkilic, 2011).

The collaboration process provides important benefits in terms of socialization of individuals and the development of their academic skills, experiencing the feeling of getting help and helping others, and gaining new ideas (Bay & Cetin, 2012). Individuals have the experience of acting together for a common purpose in the collaboration process, and this experience also allows the development of interpersonal communication. When students work in collaborative groups, they learn to exchange information, develop new understandings and perspectives, and communicate effectively (Mercer, 1996). Then, it can be concluded that there is a relationship between these two critical skills.

Modern education mainly intends to enable individuals to learn how to learn, and thus to raise lifelong learners independent of school life. Raising life-long learners entails developing individuals who can adapt to the fast-paced creation and consumption of knowledge, as well as changes, innovations, and varied perspectives of the age we live in. In line with this purpose, the skills that persons should have in order to adapt to the age are referred to as “21st century learning skills”. These skills are “active learning, learning to learn, problem solving, collaboration and communication”. Having these skills makes it possible for individuals to achieve success both in their educational life and in their social and work lives (Yalcin, 2018). As a result, this research is important to present whether there is a relationship between communication skill attitude and collaboration attitude, which are among the skills that secondary school students should acquire from an early age.

1.1. Aim of the Research

In this study, secondary school students' attitudes towards communication and collaboration and the relationship between these two attitudes were examined. In the study, the questions given below were formed and the research was organized in a way to answer them:

1. What are the levels of participants' attitudes towards communication and collaboration?
2. Do participants' attitudes towards communication and collaboration show a significant difference in terms of gender?
3. Do participants' attitudes towards communication and collaboration differ in terms of their parents' education level?
4. Do participants' attitudes towards communication and collaboration differ significantly depending on having a tablet computer or pc?
5. Is there a relationship between participants' attitudes towards communication and collaboration?

2. Method

The research that examines the communication and collaboration attitudes of the secondary school students employs the quantitative design and survey model which aims to represent situation in the past or present in its natural conditions (Karasar, 2008). The sample of the study includes 405 secondary school students living in Salihli province of Manisa in Turkey. This sampling was made according to the convenience sampling method. The convenient sampling method is realized by selecting the samples that the researcher can easily and conveniently reach (Yin, 2011).

2.1. Data Collection Tools

The scales, which are among the data collection tools, were chosen because they were specially prepared for the purpose and validity and reliability studies were carried out, and detailed information about them is given below. In addition, the information related to the variables was collected through a personal information form.

Personal information form: A form containing three questions about gender, educational status of parents and the type of computer owned (tablet or pc) was used, which was prepared by the researcher.

Secondary school students' communication attitude scale (SSSCAS): The scale was developed by Boyraz (2022) and includes 29 items in the form of a 5-point Likert scale. The lowest score is 29 and the highest score is 145. A high score from the scale means a high attitude towards communication. The scale consists of 4 sub-dimensions: "openness to communication, body language and preferences, self-confidence and obstacles". The Cronbach's Alpha reliability coefficient of the scale was calculated as 0.81 by Boyraz while it is ,85 in this research.

Scale for Self-Evaluation of Collaboration Skills (SSCS): This scale was developed by Boyraz (2021). The scale consists of 29 items 3 of which are negative and all in the 5-point Likert item form. The lowest possible score is 29 and the highest score is 145. The Cronbach's Alpha reliability coefficient of the scale, which consists of a total of 3 sub-dimensions with the names of "affective considerations, collaboration process and roles and responsibilities", was reported as 0.88. The Cronbach's Alpha reliability coefficient value reached in this research is 0.91.

2.2. Data Analysis

SPSS 24 program was used for the operations to be performed in this section. Descriptive analysis was conducted to determine secondary school students' attitudes towards communication and collaboration skills. The weighted average technique was adopted in descriptive data analysis. In order to interpret these weighted averages, interval criteria have been developed. In the study, the interval coefficient was found as $\alpha = 5-1 \div 5 = 0.80$ (Batur, Gulveren, & Bek, 2010). Accordingly, 1-1,80 is considered as low level, 1,81-2,60 as above low level, 2,61-3,40 as medium level, 3,41-4,20 as above medium level, and 4,21-5 as high level.

In order to determine the tests to be used in the data analysis, the Kolmogorov-Smirnov test was performed to find out if the data was normally distributed. As the result of the test was $p < 0.05$, it can be said that the scores of the participants in the two scales do not show a normal distribution.

For this, Mann Whitney U Test was applied to examine the effect of gender on middle school students' attitudes towards communication and collaboration. The Kruskal Wallis test was used to determine whether secondary school students' attitudes towards communication and collaboration change in terms of parental education status. The Mann Whitney U Test was applied to determine whether secondary school students' attitudes towards communication and collaboration change depending on their having tablet or PC. Spearman Correlation Analysis was used to examine the correlation between secondary school students' attitudes towards communication and collaboration skills.

3. Findings

3.1. Students' Attitudes Towards Collaboration and Communication

The descriptive analysis related to SSSCAS and SSCS are given below.

Table 1. Secondary school students attitudes towards communication.

Sub-dimension	N	Min	Max	X	Sd
Openness to communication	405	2.83	5	4.345	0.457
Body language and preferences	405	2.29	5	4.270	0.634
Self-confidence	405	2	5	4.241	0.630
Obstacles	405	2	5	4.263	0.742
SSSCAS	405	3.24	5	4.294	0.384

According to Table 1, the average scores of the participants in the first ($X = 4.34$), the second ($X = 4.27$), the third ($X = 4.24$) and the fourth sub-dimension ($X = 4.26$) and the overall score ($X = 4.29$) are all at high level.

Table 2. Secondary school students attitudes towards collaboration.

Sub-dimension	N	Min	Max	X	Ss
Affective considerations	405	3	5	4.471	0.501
Collaboration process	405	2.5	5	3.4172	0.578
Roles and responsibilities	405	2	3	4.398	0.674
SSCS	405	3.24	2.5	4.431	0.462

According to Table 2, secondary school students' average in the first sub-dimension of the SSSCAS scale is above the upper level ($X = 4.47$); the second sub-dimension is moderate ($X = 3.41$) and the third sub-dimension is at high level ($X = 4.39$). It is seen that the average score for the collaboration attitude are at the high level ($X = 4.43$).

3.2. Gender Effect on Communication and Collaboration Attitudes

The results of the Mann Whitney U test, which examined the effect of the gender variable on the communication skill attitude, are given below.

Table 3. Gender effect on secondary school students' attitudes towards communication skills.

Sub-dimension	Gender	N	Mean Rank	Sum of Rank	U	p
Openness to communication	Female	229	208.51	47748.50	18890.500	0.279
	Male	176	195.83	34466.50		
Body language and preferences	Female	229	205.36	47027.50	19611.500	0.642
	Male	176	199.93	35187.50		
Self-confidence	Female	229	207.60	47540.00	19099.000	0.364
	Male	176	197.02	34675.00		
Obstacles	Female	229	200.04	45810.00	19475.000	0.554
	Male	176	206.85	36405.00		
SSSCAS	Female	229	208.44	47733.00	18906.000	0.286
	Male	176	195.92	34482.00		

According to Table 3, it is seen that the difference in the mean ranks of the two genders is not statistically significant in any sub-dimension of and the whole scale ($p > 0.05$).

Table 4. Gender effect on collaboration attitude.

Sub-dimension	Gender	N	Mean Rank	Sum of Rank	U	p
Affective considerations	Female	229	213.39	48867.00	17772	0.040
	Male	176	201.62	33348.00		
Roles and responsibilities	Female	229	207.17	47442.00	19197.000	0.411
	Male	176	197.57	34773.00		
Collaboration process	Female	229	208.08	47649.50	18989.500	0.315
	Male	176	196.39	34565.50		
SSCS	Female	229	210.19	48134.50	18504.500	0.158
	Male	176	193.64	34080.50		

As can be seen in Table 4, there is not a significant difference according to gender for SSCS ($p > 0.05$; $p = 0.158$). On the other hand, there is a significant difference in terms of gender in the affective considerations sub-dimension of the scale ($p < 0.05$; $p = 0.40$).

3.3. The Effect of Parent Educational Status on Communication and Collaboration Attitudes

The results of the Kruskal Wallis H test, which was conducted to examine the effect of father's education status on the attitude of communication skills, are given below.

Table 5. Father's education status effect on the attitude towards communication.

Sub-dimension	Graduation	N	Mean Rank	Df	χ^2	p
Openness to communication	Primary s.	11	178.00	3	2.131	0.546
	Secondary s.	88	196.05			
	High s.	185	200.16			
	University	121	214.67			
Body language and preferences	Primary s.	11	217.50	3	2.562	0.464
	Secondary s.	88	191.77			
	High s.	185	199.33			
	University	121	215.46			
Self-confidence	Primary s.	11	155.86	3	2.412	0.491
	Secondary s.	88	210.18			
	High s.	185	205.42			
	University	121	198.36			
Obstacles	Primary s.	11	178.86	3	0.643	0.887
	Secondary s.	88	201.43			
	High s.	185	202.66			
	University	121	206.85			
SSSCAS	Primary s.	22	173.8	3	1.585	0.663
	Secondary s.	95	196.94			
	High s.	168	199.61			
	University	117	213.12			

In Table 5, it was seen that the sub-dimensions of the scale of attitude towards communication skills did not differ significantly according to the educational status of the father ($p = 0.546$; $p = 0.464$; $p = 0.491$; $p = 0.887$). It can be said that the communication skill attitude does not differ significantly according to the education level of the father ($p = 0.663$).

In Table 6, it is seen that the sub-dimensions of the scale of attitude towards communication skills did not differ significantly according to the educational status of the mother ($p = 0.453$; $p = 0.174$; $p = 0.084$; $p = 0.725$; $p > 0.05$). It can be said that the communication skill attitude does not differ significantly according to the education level of the mother ($p > 0.05$; $p = 0.216$).

Table 6. Mother's education status effect on the attitude towards communication.

Sub-dimension	Graduation	N	Mean Rank	Df	χ^2	p
Openness to communication	Primary s.	19	224.74	3	2.623	0.453
	Secondary s.	102	192.12			
	High s.	197	209.96			
	University	87	195.26			
Body language and preferences	Primary s.	19	246.82	3	4.972	0.174
	Secondary s.	102	188.83			
	High s.	197	208.91			
	University	87	196.65			
Self-confidence	Primary s.	19	209.82	3	6.638	0.084
	Secondary s.	102	220.09			
	High s.	197	204.94			
	University	87	177.08			
Obstacles	Primary s.	19	190.39	3	1.317	0.725
	Secondary s.	102	211.94			
	High s.	197	203.28			
	University	87	194.63			
SSSCAS	Primary s.	19	230.97	3	4.456	0.216
	Secondary s.	102	198.59			
	High s.	197	210.99			
	University	87	183.95			

Table 7. Father's educational status effect on the collaboration attitudes.

Sub-dimension	Graduation	N	Mean Rank	Df	χ^2	p
Affective considerations	Primary s.	11	139.18	3	4.158	0.315
	Secondary s.	88	180.87			
	High s.	185	199.41			
	University	121	232.97			
Roles and responsibilities	Primary s.	11	174.18	3	3.710	0.295
	Secondary s.	88	197.06			
	High s.	185	196.87			
	University	121	216.89			
Collaboration process	Primary s.	11	163.70	3	6.577	0.327
	Secondary s.	88	205.43			
	High s.	185	197.67			
	University	121	210.91			
SSCS	Primary s.	11	152.27	3	4.637	0.322
	Secondary s.	88	198.43			
	High s.	185	193.35			
	University	121	224.96			

Table 7 shows that the sub-dimensions of attitudes towards affective considerations ($p = 0.315$), the collaboration process ($p = 0.295$) and roles and responsibilities ($p = 0.327$) of the scale do not significantly change according to the educational status of the father. It is seen that the total scores obtained from the scale do not show a significant difference according to the educational status of the father ($p = 0.322$; $p > 0.05$).

Table 8. Mother's educational status effect on the collaboration attitudes.

Sub-dimension	Graduation	N	Mean Rank	Df	χ^2	p
Affective consideration	Primary s.	19	156.13	3	6.634	0.085
	Secondary s.	102	182.26			
	High s.	197	207.15			
	University	87	222.64			
Roles and responsibilities	Primary s.	19	175.45	3	1.452	0.693
	Secondary s.	102	203.59			
	High s.	197	202.60			
	University	87	202.56			
Collaboration process	Primary s.	19	168.03	3	1.149	0.765
	Secondary s.	102	208.72			
	High s.	197	204.22			
	University	87	194.64			
SSCS	Primary s.	19	156.38	3	.250	0.969
	Secondary s.	102	203.57			
	High s.	197	201.17			
	University	87	209.99			

In Table 8, it was seen that affective considerations ($p = 0.085$), roles and responsibilities ($p = 0.693$) and collaboration process ($p = 0.765$) sub-dimensions of the SSCS did not differ significantly according to the educational status of the mother. It is seen that the total scores obtained from the scale do not show a significant difference according to the education level of the mother ($p = 0.969$; $p > 0.05$).

3.4. The Effect of Owning a Tablet/PC Variable on Communication and Collaboration Attitudes

The results of the Mann Whitney U test, which examined the effect of owning a tablet/PC variable on the communication skill attitude, are given below.

Table 9. The Effect of Owning Tablet/PC on communication attitude

Sub-dimension	Tablet/PC	N	Mean Rank	Sum of Rank	U	p
Openness to communication	Yes	333	209.53	69772.00	9815.000	0.016
	No	72	172.82	12443.00		
Body language and preferences	Yes	333	207.48	69092.50	10494.500	0.095
	No	72	182.26	13122.50		
Self-confidence	Yes	333	207.44	69078.50	10508.500	0.098
	No	72	182.45	13136.50		
Obstacles	Yes	333	207.50	69097.50	10489.500	0.089
	No	72	182.19	13117.50		
SSSCAS	Yes	333	214.98	71587.50	7999.500	0.000
	No	72	147.60	10627.50		

According to Table 9, it can be said that the openness to communication sub-dimension of the communication attitudes differ significantly according to owning tablet/PC variable ($p = 0.016$; $p < 0.05$). It is seen that this difference is in favor of the students who have a tablet / PC when the average rank scores are examined. It is seen that there is no significant difference in the sub-dimension of body language and preferences, self-confidence and obstacles according to the status of having a tablet/PC. There is a significant difference in the attitude of communication skills in secondary school students according to the status of having a tablet/PC. When the average rank scores are examined, it can be said that the communication skill attitude of the students who have a tablet/PC is higher.

Table 10. The Effect of owning tablet/PC on collaboration attitude.

Sub-dimension	Tablet/PC	N	Mean Rank	Sum of Rank	U	p
Affective considerations	Yes	333	214.03	71272.00	8315.000	0.000
	No	72	151.99	10943.00		
Collaboration process	Yes	333	213.71	71165.50	8421.500	0.000
	No	72	153.47	11049.50		
Roles and responsibilities	Yes	333	211.49	70425.50	9161.500	0.002
	No	72	163.74	11789.50		
SSCS	Yes	333	207.50	69097.50	10489.500	0.089
	No	72	182.19	13117.50		

According to Table 10, it is seen that there is a significant difference in affective considerations ($p = 0.000$; $p < 0.05$), collaboration process ($p = 0.000$; $p < 0.05$), roles and responsibilities ($p = 0.000$; $p < 0.05$) sub-dimensions according to owning a tablet/PC variable. This difference appears to be in favor of the students who have a tablet/PC when the mean rank scores are considered. It is seen that difference in the mean rank of SSCS in the two groups with and without a tablet/PC is not statistically significant ($p = 0.089$; $p > 0.05$).

3.5. The Relationship Between Communication and Collaboration Attitudes

The Spearman Correlation Technique analysis below was conducted to reveal the relationship between secondary school students' communication skills attitudes and their perceptions of collaboration.

Table 11. The relationship between communication and collaboration attitudes.

Scale	r	p
SSSCAS	0.862	0.000
SSCS		

When Table 11 is examined, it is seen that there is a strong positive relationship between communication and collaboration perceptions ($r = 0.868$, $p < 0.01$). Accordingly, it can be said that as the attitudes towards communication skills increase, the perceptions of collaboration self-evaluation also increase.

4. Results and Discussion

In this study, it was tried to reveal the relationship between the attitudes of secondary school students towards communication and collaboration. It has been concluded that secondary school students' communication and collaboration attitudes are generally at a high level. A similar result was obtained by Önr and Kozikoğlu (2019) that concluded middle school students use their collaboration and communication skills at a high level in their study. Considering the sub-dimensions of the scale, the average score taken from the "openness to communication" sub-dimension is higher than the "body languages and preferences", "self-confidence" and "obstacles" sub-dimensions.

As another finding of the study, it was determined that the communication attitude of secondary school students did not differ significantly in terms of the gender variable. This result is in parallel with the studies of Önr and Kozikoğlu (2019). It was seen that the collaboration attitude of secondary school students did not differ significantly according to gender either. However, the difference in the affective considerations sub-dimension of the collaboration attitude scale was a significant in terms of the gender. This difference is in favor of female students. According to the results of the Programme for International Student Assessment (PISA) (2015) research examining the collaboration skills of 15-year-old individuals, it was concluded that the collaboration skills of female students were higher than those of male students which is consistent with the findings of this research. Kocaman (2006) found a positive correlation between communication skills and emotional intelligence in the study with secondary school students on increasing communication skills in children. So, it is advised to support emotional intelligence of especially male students to develop their communication skills.

The results also revealed that participants' attitudes towards communication and collaboration did not show a significant difference in terms of the mother/father education level variable. In the study conducted by Kan'an (2018) it was found out that the 21st century skills of students, including communication and collaboration, did not differ significantly in terms of the education level of their parents. Considering the results of the studies, it is seen that the education level of the parents does not have a significant contribution on the communication and collaboration attitude of the students. This might be caused by alternative communication and collaboration opportunities with peers in face-to-face and especially online environments.

It has been concluded that there is a significant difference in the communication skills attitude of secondary school students depending on if they have a tablet/PC. It is seen that this difference is in favor of the students who have a tablet / PC when the average rank scores are examined. There is not a significant difference in the sub-dimension of "body language and preferences, self-confidence and obstacles" according to the status of having a tablet/PC. It can be said that the reason for this is that students do not need to use body language in front of the screen. In a study similar to this, it was concluded that secondary school students who have technological tools such as computers, smart phones and tablet computers use 21st century learning skills, which include collaboration and communication skills, at a higher level compared to students who do not have these technological tools (Önür & Kozikoğlu, 2019). The fact that online games provide wider interaction and communication opportunities compared to other games brought people together in the virtual world and they concluded that since most of these games are played in teams, they improve interpersonal communication and collaboration (İnal & Doğusoy, 2006; Tüzün, 2006). This finding of the study is supported by the fact that most of the students who have technological devices such as tablets/PCs can play online games. In various studies in the literature, it has been emphasized that technological elements such as tablet / PC have a very important effect on individuals' gaining 21st century learning skills including communication and collaboration skills, and at the same time, the ability to use technology is one of the 21st century learning skills (Bozkurt & Cakır, 2016; Incoming, 2017; Miller, 2009). Therefore, it is possible to say that it is an important factor for individuals to acquire 21st century skills and to have technological tools such as tablets/PCs to acquire and use these skills effectively.

As a result of the research, it was concluded that the communication and collaboration attitude of the secondary school students were at a high level. In the study, it was concluded that students who have technological facilities such as tablets and PCs at home have higher communication and collaboration attitudes. In this case, it could be argued that the use of technological instruments, which are among the most important factors in acquiring 21st-century skills, should not be limited to schools in urban areas, and that necessary opportunities for students in rural areas to benefit from the same technological opportunities should be provided. In the study, it was revealed that the level of parent education did not have an effect on communication and collaboration skills attitude. In this case, parent trainings or seminars can be organized to raise awareness of parents, especially those with low education levels, on family involvement in their education processes.

In the study, it was found out that the relation between communication and collaboration attitudes is significant and in the positive direction and the literature provides similar findings (Gillies, 2004; Paristiowati, Slamet, & Sebastian, 2015; Sari, Prasetyo, & Wibowo, 2017; Slavin, 2014; Topping et al., 2011). It is recommended that students be trained to use their communication skills at an early age to facilitate what students want to express in collaborative learning. It can be suggested to create student-centered teaching-learning environments that can improve communication and collaboration skills that are among the 21st century skills. The reason for this is that students continue to work together to achieve good communication.

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