The Effect of Social Studies and Science Teachers' Interactions with their Students in Social Media and Anxiety in Social Environments on Various Variables

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Abstract
The aim of this research is to examine the effects of secondary school Social Studies and Science teachers' interactions with their students in social media and the effects of anxiety in social environments on various variables. The sample of the study, which was conducted using the survey model, consisted of 216 Social Studies and Science teachers. Data were collected according to the gender, age, branch, professional seniority, education level and social media usage time of the sample. The Social Media Teacher Student Interaction Scale developed by Korucu and Usta (2017) and the Liebowitz Social Anxiety Scale developed by Dilbaz (2001) were used as data collection tools. Since the teachers' responses to the items in the scale showed normal distribution, the data were analysed using parametric tests. Some of the results obtained from the research are as follows: it was determined that there was no significant difference in the opinions of teachers in terms of gender, branch, professional seniority, education level and duration of social media use. However, it was concluded that there was a significant difference in terms of age variable in terms of teachers' use of social media in student interaction. According to this result, it was determined that teachers between the ages of 21-30 use social media more for student-teacher interaction

Keywords: Education, Secondary School, Teacher, Student, Interaction, Anxiety

Introduction

Social media can be defined as the use of web-based services and connecting with other people by creating a profile that is used by almost everyone today (Boyd & Ellison, 2007). Social media has emerged depending on the internet and has become a network that enables information sharing in virtual environments in all areas of life. Today, nearly half of the world's population widely uses digital platforms (Aktaş, 2017).

Adolescents try to express themselves on the internet in order to overcome the negative situations that happen to them when they cannot get enough support from their social environment. For this reason, internet networks can be expressed as platforms used by individuals who experience anxiety in their interactions with others as well as providing social support to individuals (Şahin Baltacı, İşleyen, & Özdemir, 2012).

When the studies conducted in the literature are examined, Zorbaz and Tuzgöl Dost (2014) stated that there are various reasons why people use the internet environment; for example, the fear of negative evaluation, which is a sub-dimension of social anxiety, they will not be evaluated in virtual environments, they can act freely, and they hide their identities when necessary.

Diba (2017) stated that individuals' social anxiety levels increased as a result of the increase in internet usage time. He stated that individuals who use the internet for an average of 6-8 hours a day have high social anxiety. Kılıç and Durat (2017) found a positive relationship between problematic internet use and social phobias of individuals. Sheeks and Birchmeier (2007) stated that individuals who are shy and less social in social environments express themselves better in virtual environments. Chen and Peng (2008) concluded that the academic achievement of university students who use the internet intensively is lower than those who do not use it. Haşıloğlu, Çalhan, and Ustaoğlu (2020) found that secondary school science teachers' communication with their students on social media helps students in sharing course materials (animations, pictures, videos, etc.), solving questions and sharing questions, and is beneficial in communicating quickly and easily.

In their study, Haşıloğlu, Çalhan, and Ustaoğlu (2020) found that teachers' communication with their students on social media helps students in sharing course materials (animations, pictures, videos, etc.), solving questions and sharing questions, and is beneficial in communicating quickly and easily. It was determined that sharing social and scientific issues has a positive contribution to students in education and training and increases the curiosity and interest of students. However, it was determined that teachers were reluctant to communicate with their students via social media. The reasons for this were determined as; students' having gauchely conversations with their teachers, interfering with their teachers' private areas, students' grade expectations, causing discrimination among students and misunderstanding of correspondence on social media.

As it can be understood from here, it can be concluded that social media, which develops in terms of education and training, contributes to the development of students in a positive way. However, due to the unconscious behaviours of the students, teachers did not want to communicate with their students on social media. Considering the similar studies in the literature and the anxiety caused by social media on individuals, it was decided to determine the existence of a relationship between the effect of social media on teacher-student interaction and anxiety in social environments.

Purpose of the Study

The aim of this study is to examine the effects of secondary school Social Studies and Science teachers' interactions with their students in social media and the effects of anxiety in social environments on various variables. The sub-problems of the research are as follows;

- Do Social Studies and Science teachers' interactions with their students in social media and their anxiety in social environments differ according to gender, age, branch, professional seniority, education level and duration of social media use?
- Is there a relationship between Social Studies and Science teachers' interactions with their students in social media and their anxiety in social environments?

Method

The survey model was used in the study. Survey research is a study that aims to collect data to determine the characteristics of a group (Büyüköztürk et al., 2009). According to Karasar (1999), the survey model is a research approach that aims to describe a past or current situation as it exists.

Sample

Convenient sampling method was used to determine the sample of the research. Convenient sampling method is the sampling method preferred to speed up the research by saving time and money (Yıldırım & Şimşek, 2011). The sample consisted of 216 Social Studies and Science teachers. In the study conducted with 162 female and 54 male teachers, data were collected according to the age, branch, professional seniority, education level and social media usage time of the sample. Demographic data of the sample are presented in Table 1.

Table 1 Demographic Data of the Sample

		N	%
Teachers' Gender	Male	54	25
	Female	162	75
Teachers' Ages	21-30	144	66,6
	31-40	65	39,09
	41-50	4	1,8
	51 and over	3	1,3
Teachers' Branches	Social Studies	103	47,6
	Science	113	52,3
Professional Seniority	0-5 years	140	64,8
	6- 10 years	47	21,7
	11-15 years	19	8,7
	16 years and over	10	4,6
Education Level	Bachelor's Degree	176	81,4
	Master's Degree	37	17,1
	Doctoral Degree	3	1,3
Social Media Usage Time	0-5 years	49	22,6
	6- 10 years	96	44,4
	11-15 years	69	31,9
	16 years and over	2	0,9
	Total	216	100,0

According to Table 1, more than half of the teachers participating in the study were women, and almost all of the teachers were only bachelor's degree graduates. The majority of the teachers in Social Studies and Science branches are between the ages of 21-30 and have 0-5 years of professional seniority. The majority of teachers have been using social media for 6-10 years.

Data Collection Tools

The Social Media Teacher Student Interaction Scale developed by Korucu and Usta (2017) and the Liebowitz Social Anxiety Scale developed by Dilbaz (2001) were used as data collection tools.

The Social Media Teacher-Student Interaction Scale consists of 34 items with 6 sub-dimensions of "virtual leader", "traditional teacher", "following teacher", "virtual activism", "social sharing" and "academic sharing". The Social Anxiety Scale consists of 23 items and "anxiety" sub-dimension including one-dimensional expressions. The validity and reliability of the scales were ensured.

Data Analysis

The data obtained with the Social Media Teacher Student Interaction Scale and Social Anxiety Scale were analysed with the statistical software. Since the teachers' responses to the items in the scale showed normal distribution, parametric tests were used and the results were presented in tables.

Results and Comments

Table 2 Distribution of Teachers' Use of Social Media for Student Interaction According to Gender

Group	N	Mean	Standard Deviation	t	sd	p
Male	54	2.881	0.393	1.073	214	0.285
Female	162	2.822	0.333			

*p<.05

As seen in Table 2, it was concluded that there was no significant difference in the comparison of teachers' social media use according to gender (t0,05:214=1.073). Accordingly, it can be said that there is no difference between male and female teachers' levels of social media use. The distribution of teachers' experiencing anxiety in social environments according to gender is presented in Table 3.

Table 3 Distribution of Teachers' Experiencing Anxiety in Social Environments According to Gender

Group	N	Mean	Standard Deviation	t	sd	p
Male	54	2.190	0.582	-0.573	214	0.567
Female	162	2.245	0.617			

*p<.05

As seen in Table 3, it was concluded that there was no significant difference when comparing the anxiety levels of teachers in social environments by gender (t0.05:214=-0.573). Accordingly, it can be said that there is no difference between male and female teachers' levels of experiencing anxiety in social environments. The distribution of teachers' use of social media in terms of student interaction according to age is presented in Table 4.

Table 4 Distribution of Teachers' Use of Social Media for Student Interaction According to Age

Social Media	Squares Total	Degrees of Freedom	Squares Mean	f	p
Between-groups variance	1.354	3	0.451	3.856	0.010
Between-groups variance	24.819	212	0.117		
Total	**26.173**	**216**			

*p<.05

As seen in Table 4, one-way analysis of variance was performed to test whether there was a difference between the ages of teachers with different ages and their levels of using social media for student interactions, and as a result of the analysis, it was observed that there was a significant difference between the mean scores of the groups (F(3-212)=3.856, p<0.05). As a result of the multiple comparison test, it was concluded that the significant difference between teachers aged 21-30 (X=2.880) and teachers aged 31-40 (X=2.729) was in favour of teachers aged 21-30. This result can be interpreted as teachers in the 21-30 age range use social media more for student-teacher interaction. The effect size value, which indicates the ratio of the variance explained by the independent variable of the dependent variable, was found to be 0.052. The distribution of teachers' experiencing anxiety in social environments according to age is presented in Table 5.

Table 5 Distribution of Teachers' Experiencing Anxiety in Social Environments According to Age

Social Anxiety	Squares Total	Degrees of Freedom	Squares Mean	f	p
Between-groups variance	0.809	3	0.270	0.728	0.536
Between-groups variance	78.588	212	0.371		
Total	79.397	216			

*p<.05

As seen in Table 5, one-way analysis of variance was performed to test whether there was a difference between the ages of teachers with different ages and their levels of experiencing anxiety in social environments, and it was observed that there was no significant difference between the mean scores of the groups. The distribution of teachers' use of social media in terms of student interaction according to branch is presented in Table 6.

Table 6. Distribution of Teachers' Use of Social Media in Terms of Student Interaction According to Branch

Group	N	Mean	Standard Deviation	t	sd	p
Social Sciences	103	2.8606	.32472	.963	214	.672
Science	113	2.8148	.36967			

*p<.05

As seen in Table 6, teachers' use of social media in terms of student-teacher interaction was compared according to the branches and it was concluded that there was no significant difference (t0,05:214=.963). The distribution of teachers' experiencing anxiety in social environments according to branch is presented in Table 7.

Table 7 Distribution of Teachers' Experiencing Anxiety in Social Environments According to Branch

Group	N	Mean	Standard Deviation	t	sd	p
Social Studies	103	2.1791	.64081	-1.203	214	.255
Science	113	2.2786	.57459			

*p<.05

As seen in Table 7, the comparison of teachers' experiencing anxiety in social environments according to branches was made and it was concluded that there was no significant difference (t0,05:214 =-1.203). The distribution of teachers' use of social media in terms of student interaction according to professional seniority is presented in Table 8.

Table 8 The Distribution of Teachers' Use of Social Media in Terms of Student Interaction According to Professional Seniority

Social Media	Squares Total	Degrees of Freedom	Squares Mean	f	p
Between-groups variance	1.674	3	0.558	1.522	0.210
Between-groups variance	77.723	212	0.367		
Total	79.397	216			

*p<.05

As seen in Table 8, one-way analysis of variance was performed to test whether there was a difference between the professional seniority of teachers with different professional seniority and the level of use of social media for student interactions, and it was observed that there was no significant difference between the mean scores of the groups. The distribution of teachers' experiencing anxiety in social environments according to professional seniority is presented in Table 9.

Table 9 Distribution of Teachers' Experiencing Anxiety in Social Environments According to Professional Seniority

Social Phobia	Squares Total	Degrees of Freedom	Squares Mean	f	p
Between-groups variance	0.814	3	0.271	2.269	0.081
Between-groups variance	25.359	212	0.120		
Total	26.173	216			

*p<.05

As seen in Table 9, one-way analysis of variance was performed to test whether there was a difference between the professional seniority of teachers with different professional seniority and the level of experiencing anxiety in social environments, and it was observed that there was no significant difference between the mean scores of the groups. The distribution of teachers' use of social media in terms of student interaction according to their level of education is presented in Table 10.

As seen in Table 10, one-way analysis of variance was performed to test whether there was a difference between the education levels of undergraduate, graduate and doctoral graduate teachers and their use of social media for student interactions, and it was observed that there was no significant difference between the mean scores of the groups. The distribution of teachers' anxiety in social environments according to their education levels is presented in Table 11.

Table 10 Distribution of Teachers' Use of Social Media for Student Interaction According to their Level of Education

Social Media	Squares Total	Degrees of Freedom	Squares Mean	f	p
Between-groups variance	0.003	3	0.001		
Between-groups variance	26.171	212	0.123	0.010	0.990
Total	26.174	216			

*p<.05

Table 11 Distribution of Teachers' Experiencing Anxiety in Social Environments According to their Education Levels

Social Phobia	Squares Total	Degrees of Freedom	Squares Mean	f	p
Between-groups variance	0.146	3	0.073		
Between-groups variance	79.251	212	0.372	0.196	0.822
Total	79.397	216			

*p<.05

As seen in Table 11, one-way analysis of variance was performed to test whether there was a difference between the educational levels of teachers with bachelor's, master's and doctoral degrees and their anxiety in social environments, and it was observed that there was no significant difference between the mean scores of the groups. The distribution of teachers' use of social media in terms of student interaction according to the duration of their use of social media is presented in Table 12.

Table 12 Distribution of Teachers' Use of Social Media in terms of Student Interaction According to the Duration of Social Media Use

Social Media	Squares Total	Degrees of Freedom	Squares Mean	f	p
Between-groups variance	0.113	3	0.038		
Between-groups variance	26.061	212	0.123	0.305	0.821
Total	26.174	216			

*p<.05

As seen in Table 12, one-way analysis of variance was performed to test whether there was a difference between the years of social media use and the level of use of social media for student interactions of teachers who started using social media in different years, and it was observed that there was no significant difference between the mean scores of the groups. The distribution of teachers' use of social media for student interaction according to the duration of social media use is presented in Table 13.

Table 13 Distribution of Teachers' Experiencing Anxiety in Social Environments According to the Duration of Social Media Use

Social Phobia	Squares Total	Degrees of Freedom	Squares Mean	f	p
Between-groups variance	2.002	3	.667		
Between-groups variance	77.395	212	.365	1.828	.143
Total	79.397	216			

*p<.05

As seen in Table 13, one-way analysis of variance was performed to test whether there was a difference between the years of social media use and the level of anxiety in social environments of teachers who started using social media in different years, and it was observed that there was no significant difference between the mean scores of the groups. The relationship between teachers' anxiety in social environments and the status of social media use is presented in Table 14.

Table 14 The Relationship Between Science Teachers' Interactions with their Students on Social Media and Experiencing Anxiety in Social Environments

Vaible	N	M	sd	Social Media	Social Phobia
Social Media	219	2,83	,358		,075
Social Phobia	219	2,19	,601	,075	

*p<.05. *p<.01.

As seen in Table 14, according to the Pearson correlation result, it was determined that there was no significant relationship between teachers' anxiety in social environments and social media use.

Discussion and Conclusion

According to the results of this study, which aims to examine the effects of secondary school Social Studies and Science teachers' interactions with their students in social media and their anxiety in social environments on various variables, it was revealed that teachers use social media effectively in their daily and professional lives as a result of their responses to the scales.

According to the results of the research, no significant difference was found when teacher-student interaction in social media was analysed according to the variables of gender, branch, professional seniority, education level and duration of social media use. It was concluded that teachers' communication with their students through social media did not have a positive or negative effect in terms of these variables. However, it was concluded that there was a significant difference in terms of age variable in terms of teachers' use of social media in student interaction. According to this result, it was determined that teachers between the ages of 21-30 used social media more in their communication with their students. The results of Elhai, Hall and Erwin (2018), who examined the effect of age variable on social media use, are similar to the results of this study.

The reason why the age variable is effective in the use of social media and the reason why teachers' communication with their students changes depending on the age variable varies according to the teachers' social media usage habits and how much they are interested in social media. Today, young adults, who are closely related to social media, use these platforms frequently to follow the agenda, exchange messages and communicate. Accessing to information and sharing information are also among the reasons for people to use social media. For this reason, the fact that young teachers are more interested in the use of social media than teachers in other age groups, and that they provide unlimited information sharing and communication with their students through social networks supports the results of these studies. According to the results obtained from the research, social media use did not show a significant difference in terms of gender variable. According to these results, the research is in line with the studies of Arslan (2019), Eroğlu (2014), Has (2015), Şahin (2014) and Tuna (2015). The reason why social media use does not change according to gender variable is that social media is preferred and frequently used by everyone today. In addition, the fact that social media meets the needs of people such as education, learning, communication and socialisation is a preferred situation for both genders.

According to the results of the research, experiencing anxiety in social environments did not differ in terms of gender variable. Acılar and Mersin (2015), Aktan (2018) and Elhai, Hall and Erwin (2018) concluded in their studies that women are more likely to experience anxiety in social environments than men. The reason for this can be thought to be related to both the physiology of women and the cultural environment they are in. In this study, there was no finding that women were

more anxious than men in social environments. It is among the expectations of the study that the social anxiety of women and men is not different depending on the characteristics of the study group and the environment they live in.

According to the results of the research, it was concluded that social media use did not cause teachers to experience anxiety in social environments. Zorbaz and Tuzgöl Dost (2014), in their research on problematic internet use and social anxiety, concluded that male students' problematic internet use is higher and this situation causes social anxiety. Caplan (2007) concluded that individuals with high fear of negative evaluation use the Internet more and take less social risks.

Yen, Yen, Chen, Wang, Chang and Ko (2012) also concluded in their study that individuals have low levels of social anxiety in online environments, while their social anxiety levels increase in non-online environments. The reason why these studies have different results with this study may be that the online behaviours of individuals in social media vary as a result of the cultural and religious beliefs of the society in which people live and the perspective of women and men in the society. Social differences also affect the parenting styles of families. Therefore, the fact that children have asocial or self-confident behaviours depending on their parents' upbringing can affect their online behaviours and anxiety about social media. Another reason why this study differs from other studies in the literature may be the average age of the sample groups in which the studies were applied.

According to the results of the research, it was concluded that there was no significant relationship between teachers' daily social media usage time, student interaction and anxiety in social environments. Bayhan (2011), Gökçearslan and Günbatar (2012), Çınar (2015) Nalwa and Anand (2003) and Özolgun Kurt (2014) concluded that individuals who use the internet more than 5 hours a day are addicted. As a result, it was stated that individuals' social communication was negatively affected. The results of this study and these studies are not similar. Because social media does not only consist of student interaction. The fields that teachers are interested in such as art, sports, education and

agenda and the communication they establish with their social environment may be more effective on the time they spend on social media.

According to the data obtained from the research results, we can conclude that the use of social media has positive and negative effects on teachers' interactions with their students and their social anxiety. These habits may differ according to cultural characteristics, age and geographical characteristics. For this reason, various researches can be conducted on social media use and social anxiety.

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