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|Araştırma Makalesi / Research Article|

Investigation of the Relationship Between Secondary School Teachers' Purposes of Using Social Media and Their Levels of Informal Learning with Smartphones [1]

Ortaokul Öğretmenlerinin Sosyal Medya Kulanım Amaçları ile Akıllı Telefonla İnformal Öğrenme Düzeyleri Arasındaki İlişkinin İncelenmesi

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Keywords
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Abstract

Purpose: This study has two main purposes, which are to reveal teachers 'views on social media use and their levels of informal learning with smartphones, and to determine the relationship between teachers' social media usage purposes and their levels of informal learning with smartphones.

Design/Methodology/Approach: Explanatory mixed design was used in the survey made using a survey model and mixed methods. The study's population consists of 1,198 teachers working in secondary schools in Kars Province, whereas the study's sample group consists of 303 secondary school teachers selected using the multi-stage stratified purposeful sampling method. “Purpose of Using Social Media Scale,” “Informal Learning Activities with Smartphones Scale,” and the “Semi-Structured Interview Form for Opinions of Teachers on Social Media and Informal Learning” were used as data collection tools in the study. One-Way Variance Analysis, Mann-Whitney U test, Kruskal Wallis H test as well as t test for frequency, percentage, relative coefficient of variable, and arithmetic mean independent samples were used to analyze the study's quantitative data. The study's qualitative data were resolved using descriptive and content analysis.

Findings: The results of the study showed that teachers' use of social media for content-sharing purposes and the level of informal learning with smartphones decreased as their age increased and that their use of social media for communication and content-sharing purposes and the level of informal learning with smartphones decreased as their seniority increased. It was determined that the use of social media for research, to share content, and to initiate communication decreased as the time spent using social media decreased. It was also seen that all the teachers who participated in the study transferred and used the videos, information, and documents they saw on social media in their lessons, that they learned informal information from social media, and that they used their smartphones in informal learning.

Highlights: In the light of the results of this study, it can be suggested to create a social media platform that enables all stakeholders of education to take part in every stage of the formation, and that makes it possible to work educationally with more advanced features. According to EBA and to evaluate the work done in a reliable and valid way.

Öz

Çalışmanın amacı: Çalışmanın öğretmenlerin sosyal medya kullanımı ile akıllı telefonla informal öğrenme düzeyleri hakkındaki görüşlerini ortaya koymak ve öğretmenlerin sosyal medya kullanım amaçları ile akıllı telefonla informal öğrenme düzeyleri arasındaki ilişkiyi tespit etmek üzere iki temel amacı vardır.

Materyal ve Yöntem: Tarama modelinde ve karma yöntem ile yapılan araştırmada açıklayıcı karma desen kullanılmıştır. Araştırmanın evrenini Kars il genelindeki ortaokullarda görev yapan 1198 öğretmen; çalışmanın örneklemini ise çok aşamalı tabakalı amaçsal örnekleme yöntemi ile belirlenen 303 ortaokul öğretmeni oluşturmaktadır. Araştırmada veri toplama aracı olarak, “Sosyal Medya Kullanım Amaçları Ölçeği”, “Akıllı Telefonla İnformal Öğrenme Aktiviteleri Ölçeği” ve “Öğretmenlerin Sosyal Medya ve İnformal Öğrenme Hakkındaki Görüşleri Yarı Yapılandırılmış Görüşme Formu” kullanılmıştır. Araştırmanın nicel verilerinin analizi için frekans, yüzde, bağıl değişkenlik katsayısı, aritmetik ortalama bağımsız örneklemler için t testi; Tek Yönlü Varyans Analizi, Mann Whitney U testi, Kruskal Wallis H testi kullanılmıştır. Araştırmanın nitel verileri ise betimsel ve içerik analizi ile çözümlenmiştir.

Bulgular: Araştırmanın sonucunda öğretmenlerin yaşları arttıkça sosyal medyayı içerik paylaşma amacıyla kullanım ve akıllı telefonla informal öğrenme düzeylerinin; kıdemleri arttıkça iletişim kurma ve içerik paylaşma amacıyla kullanım ve akıllı telefonla informal öğrenme düzeylerinin azaldığı saptanmıştır. Sosyal medya kulanım süresinin azalması ile araştırma, içerik paylaşma ve iletişimi başlatma amacıyla sosyal medyanın kullanımının azaldığı saptanmıştır. Görüşmeye katılan öğretmenlerin tamamının sosyal medyadan izledikleri video, bilgi ve belgeleri derslerinde aktarıp kullandıkları, sosyal medyadan informal öğrenmeler edindikleri ve akıllı telefonlarını informal öğrenmelerde kullanmakta oldukları görülmüştür.

Önemli Vurgular: Bu çalışma sonuçları ışığında EBA'dan daha gelişmiş özelliklere sahip eğitsel anlamda çalışma yapmayı ve yapılan çalışmaları güvenilir ve geçerli bir şekilde değerlendirmeyi mümkün kılan eğitimin tüm paydaşlarının oluşumun her aşamasında yer aldığı sosyal medya platformunun oluşturulması önerilebilir.

[1] Article created from the post-graduate thesis entitled " Investigation of the Relationship Between Secondary School Teachers' Purposes of Using Social Media and Their Levels of Informal Learning With Smartphones " Advisor: Prof. Dr. Murat TAŞDAN

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INTRODUCTION

Communication is always present in life because humans are social, versatile beings with needs. With advances in science and technology reaching the highest levels in the 21st century, social media has come to the fore with such applications as social networking, blogging, microblogging, and picture- and video-sharing as one of the most important parts of the media. Social media includes platforms that enable interaction, communication, sharing, and mobilizing users and communities (Manavcıoğlu, 2011, p.23).

Education is one of the institutions where the intense and rapid effects of social media on societies through channels and different tools are observed (Kurt & Kürüm, 2010). The way social media tools are used affects education. According to Ekici and Kiyici (2012), social media today is an important force in terms of education with its interaction and communication features and its widespread use. Social media affects not only individuals but also individuals' education processes. This is because students today obtain a lot of information from social networks (Kıncal & Kartal, 2009).

Advances in technology have forced education institutions to keep up with the times and these technological developments have been effective in meeting the educational needs of individuals. These technological developments have changed the structure of the education system and learning and teaching activities, and have focused on social, collaborative, lifelong, and informal learning rather than the classroom environment. Social and interactive environments based on cooperation with social media have emerged, and learning experiences are taking place in a fast, instantaneous, and cost-effective manner (Atıcı & Yıldırım, 2010). Social media is a type of informal learning tool. Social media shapes people's perspective of the world they live in, educates people in their own way, and gives people informal learning (Bilici, 2014). Competing with the school and family as an informal teacher, social media has become the principal teacher and storyteller. Toğay, Akdur, Yetişken, and Bilici (2013) conducted a study on social media-based education with 60 students studying at Gazi University Ankara Vocational School for one semester. According to the results of a survey undertaken by students at the end of the term, most of the students stated they noticed they were learning topics with the relevant social media tool without getting bored and often without realizing it and that their learning processes became easier.

With so much use of social media, we are bound to learn things via social media about topics we know nothing about. In today's information societies where information is constantly changing and being refreshed and updated, social media plays a key role in teachers keeping themselves up to date. This is because we encounter unlimited messages on social media every day. These messages contribute to our learning, albeit without realizing it. Öztürk and Özen (2016) concluded in their qualitative study that with respect to lifelong learning, teachers believe that social media is important for their self-development. Although social media is mostly used informally, it is also important in supporting learning and learning activities. For example, with the WhatsApp app, not only is there an increase in student-student and teacher-student communication, but it also allows for activities, homework, and resources to be shared between educators and learners. Similarly, Facebook is suitable for use as an education tool in terms of peer feedback, active participation, and cooperation (Mazman, 2009).

Although learning is defined as instruction that takes place in an educational institution, today's technological developments are changing learning for learners and the concept of informal learning is emerging as an effective form of learning (Yaşar, 2013). Informal learning is all the learning that emerges in a natural environment in an individual’s life and that occurs as a result of experience (Çavuş, Topsakal, & Kaplan, 2012). Attwell. (2007 Cited in. Yaşar, 2013) concluded that 80% of students' learning occurs through informal learning. In the study by İnce (2017) conducted with secondary school students, it was found that informal learning was effective in learning new concepts. In Tekinalp's (2012) study with parents, it was concluded that the Internet and television are the most effective informal learning resources for parents.

Advances in telephone technologies also play a role in informal learning through social media. Smartphones make it easy to access mobile internet and social media apps. The fact that university students in the study by Santo and Ali (2012) said that they use their smartphones for informal learning may be cited as an example of this. Rahim et al. (2012; cited in Yaşar, 2013) concluded in their study that Facebook, Twitter, and SMS (short message) are the phone apps used the most for informal learning. All of this shows that social media is effective in informal learning and that smartphones are devices that support informal learning.

A review of the literatures shows studies on social media made by Oğuz and Sözcü (2016), Solmaz, Tekin, Herzem and Demir (2013), Toğay, Akdur, Yetişken, and Bilici (2013), Öztürk and Özen (2016), Tekinalp (2012), Derya (2017), Vural and Bat (2010), Bostancı (2010), Öztunç (2015), Yengin (2015), Akgündüz (2013), Deperlioğlu and Köse (2010), Sarsar, Başbay, and Başbay (2015), Kıcı and Dilmen (2014), Öztürk and Tetik (2015), Güler, Şahinkayası, and Şahinkayası (2017), Gülbahar, Kalelioğlu and Madran (2010); and on smartphones by Baykut (2014), Kumcağız and Gündüz (2016), Minaz and Bozkurt (2017), Ağca and Bağcı (2013). There is an insufficient number of joint studies on social media and smartphone use. A review of the literature shows studies by Yaşar (2013), Işık and Kaptangil (2018), Altundağ and Bulut (2017), Yusufoğlu (2017) and Ataman Yengin (2016) on the use of social media and smartphones.

The Purpose of the Study

This study has two main purposes, which are to reveal teachers' views on social media use and their levels of informal learning with smartphones, and to determine the relationship between teachers' social media usage purposes and their levels of informal learning with smartphones. To achieve the stated goals, answers to the following questions were sought:

1. Social media usage purposes of secondary school teachers working in Kars -- Does it differ significantly depending on the teachers' age, gender, seniority, and time spent every day using social media?

2. Levels of informal learning with smartphones of secondary school teachers working in Kars -- Does it differ significantly according to the teachers' age, gender, seniority, and time spent every day using social media?

3. What are the opinions of the teachers working in Kars on the use of social media, smartphones, and informal learning?

Research Problem

The research problem of this study is to reveal secondary school teachers' purposes of using social media and their levels of informal learning with smartphones and their views on their use.

METHOD / MATERİALS

The study was carried out using a correlational survey model and a mixed method in which qualitative and quantitative data were used together. Survey studies are studies in which the opinions of the participants on a topic or event or their interest, skills, attitudes, talents, and other characteristics are identified (Büyüköztürk et al., 2012, p.177). Accordingly, the quantitative aspect of the study is a correlational survey used to examine the relationship between secondary school teachers' purposes of using social media and their levels of informal learning. Explanatory design, a form of mixed-method research, was used in the study. In explanatory design, quantitative data are collected and analyzed first after which qualitative data are collected (Karasar, 2015; Büyüköztürk et al., 2012).

Working Group

The study's population consists of 1,198 teachers working in secondary schools in Kars in the 2017-2018 academic year, whereas the study's sample group consists of 303 secondary school teachers. The study's sample group was created in three stages. Multi-stage stratified purposeful sampling was used in the study. In this way, it was ensured that each teaching branch in the population was sampled according to its proportion of the population. Later, Kars central district and all districts were accepted as strata and it was ensured that all districts were represented in the sample to the same degree they are represented in the population. The simple random sampling method was used to determine which teachers in which districts the scale was to be applied. When the distribution of teachers included in the sample by gender is examined, 170 (56.1%) of the secondary school teachers who participated in the study are women and 103 (43.9%) are men. Among the secondary school teachers participating in the study, 52 (17.2%) are aged 22-25, 157 are aged 26-30 (51.8%), 87 are aged 31-40. (28.7%), and finally, seven are aged 41-50 (2.3%). Examining by seniority, it is seen that 205 (67.7%) of the participating secondary school teachers have 1-5 years seniority, 56 (18.5%) have 6-10 years, 29 (9.6%) have 11-15 years, 8 (2.6) have 16-20 years, and five (1.7%) have 21-25 years. Of the teachers in the sample, 46 (15.2%) were Turkish teachers, 42 (13.9%) were Religious Culture and Morals teachers, 47 (15.5%) were Mathematics teachers, nine (3.0 %) were Visual Arts teachers, seven (2.3%) were Music teachers, 37 (12.2%) were English teachers, 35 (11.6%) were Social Sciences teachers, 12 (4.0%) were Information Technologies teacher, 38 (12.5%) were Natural Sciences teachers, 19 (6.3%) were Physical Education teachers, and 11 (3.6%) were Technology and Design teachers. When the location of the place where teachers work is examined, it is seen that 83 (27.4%) of the secondary school teachers participating in the study are in the city center, 143 (47.2%) are in the district center, and 77 (25.4%) are in towns and villages. Of the secondary school teachers participating in the study, 131 (43.2%) are married and 172 (56.8%) are single.

Data Collection Tools

"Purpose of Using Social Media Scale," "Informal Learning Activities With Smartphones Scale," and the "Semi-Structured Interview Form for Opinions of Teachers on Social Media and Informal Learning" were used as data collection tools in the study.

Purpose of Using Social Networks Scale

In the study, the "Purpose of Using Social Networks Scale" developed by Koçak-Usluel, Demir, and Çınar (2014) was used to determine the teachers' purposes of using social media. Each item in the "Purpose of Using Social Networks Scale" takes the form of a 7-point Likert-type grade ranging between "Strongly agree" (7) and "Strongly disagree" (1). The Scale consists of six factors: research, collaboration, initiating communication, establishing communication, maintaining communication, and sharing content. The scale explains 68.32% of the total variance. Item factor loads are between .57 and .85. According to the results of the reliability analysis, the reliability coefficient of the 21 items in the scale calculated with Cronbach alpha is .92. Cronbach alpha reliability coefficients of the factors range from .67 to .87. When looking at the sub-dimensions of the scale, the research dimension is .78; cooperation is .86; initiating communication is .67; establishing communication is .87; maintaining communication is .82, and sharing content is .87. This shows that the scale is reliable. Item-total correlations of the items on the scale range from .331 to .717. All these results show that the scale is a valid and reliable measurement tool.

Informal Learning Activities With Smartphones Scale

The study used the "Informal Learning Activities With Smartphone Scale" developed by Yaşar (2013) to determine secondary school teachers' levels of informal learning with smartphones. A 5-point Likert-type scale is used in the study. The points are

"Never," "Rarely," "Occasionally," "Often," and "Always." Cronbach alpha test was applied to the data obtained to make an internal reliability analysis of the items on the scale. The Cronbach Alpha test yielded a very high value of .83.

Semi-Structured Interview Form

For the qualitative aspect of the study, a semi-structured interview form was used to reveal the secondary school teachers' views on social media and informal learning, and the extent to which they use smartphones for social media and informal learning. Semi-structured interviews provide not only fixed answers but also in-depth knowledge of the subject area (Büyüköztürk et al., 2012). The draft interview form was first examined by experts in the field. The opinion of a linguist was sought to give the final touches to the interview formed created using corrections and feedback provided by experts in the field. For the validity of the semi-structured interview form, the different data collection tools and analysis methods were reviewed first. Expert opinion was sought throughout the development of the form from creating the draft to making corrections and at every stage of the implementation process. The corrections needed were all done following expert opinion. The study's assumptions and limitations are stated. All participants in the study were volunteers. However, in ensuring its validity, the theoretical framework was adhered to and the purpose of the study and the rationale of the method used were explained to the participants in detail. All interviews were recorded to ensure the reliability of the interview form. Consistency was ensured through checks by different experts and their opinions, and the presentation of the obtained data was made clearly and was checked by the expert. At the same time, the reliability formula proposed by Miles and Huberman (1994) was used to calculate the reliability of the study [Reliability=Number of Agreements / (Number of Agreements + Disagreements)]. The result obtained was accepted as reliable for the study.

Data Analysis

Data were analyzed using SPSS software. Frequency, percentage, relative coefficient of variation, and arithmetic mean statistics were used for descriptive analysis. The first check carried out in the study was to check the normality of the data using the Kolmogorov-Smirnov test. Parametric tests were applied to groups with normal distribution and non-parametric tests were applied to groups that did not show normal distribution. T test was applied to groups of two with normal distribution and One-Way Analysis of Variance (ANOVA) was applied to groups of more than two. Mann-Whitney U test was applied to groups of two that did not show normal distribution and Kruskal Wallis H test was applied to groups of more than two. Semi-structured interview was used to obtain the study's qualitative data. Analyses of the research data were carried out using the descriptive and content analysis qualitative research approaches. After the themes and codes were determined, interviews were held and recorded. The recorded interviews were transcribed verbatim. The study involved 20 participants, each of whom was coded "F1, F2, M1, M2..." and so on. Here F and M are gender and the number represents the order. After the interviews were written down, the counting/quantification process took place. For this, the frequency of the responses given by the participants was determined according to the previously determined themes and codes. Here, each unit was counted each time. This revealed the frequency of the answers given within the same theme. Briefly, in the analysis of qualitative data, the following processes were carried out in this order: data collection, data analysis, coding of the data, creating categories from the obtained codes, checking the suitability of the categories, and presenting the data.

FINDINGS

Table 1. T test results of teachers' purposes of using social media by gender.

Dimensions	Gender	N	X	SS	Sd	T	P
PUSM scale	Female	170	4.31	1.02	301	.37	.70
	Male	133	4.35	.98			
Research	Female	170	5.27	1.31	301	2.68	.00
	Male	133	4.82	1.63			
Collaboration	Female	170	4.51	1.40	301	.35	.72
	Male	133	4.56	1.32			
Initiating communication	Female	170	2.25	1.50	301	4.20	.00
	Male	133	3.02	1.67			
Communicating	Female	170	5.21	1.65	301	1.88	.06
	Male	133	4.85	1.66			
Maintaining communication	Female	170	4.39	1.60	301	1.28	.20
	Male	133	4.63	1.52			
Sharing content	Female	170	4.29	1.68	301	1.01	.31
	Male	133	4.10	1.46			

The scale's *"Research"* dimension shows a significant difference under the teacher gender variable [t (301)=2.68, p <.05]. Accordingly, it was determined that female teachers (X=5.27) use social media for research purposes more than male teachers

(X=4.82) do at a level that shows a significant difference. The scale's *"Initiating communication"* dimension shows a significant difference under the teacher gender variable [t (301)=4.20, p <, 05]. Accordingly, it was determined that male teachers (X=3.02) use social media to initiate communication far more than female teachers (X=2.25) at a level that shows a significant difference.

Table 2. Kruskal Wallis H test results of teachers' purposes of using social media by age.

Dimension	Age	N	Mean Rank	Sd	x^2	p*	Significant difference
PUSM Scale	(1) 22-25 years old	52	166.55	3	4.20	0.24	
	(2) 26-30 years old	157	152.61				
	(3) 31-40 years old	87	146.32				
	(4) 41-50 years	7	100.79				
Research	(1) 22-25 years old	52	160.86	3	5.14	16	
	(2) 26-30 years old	157	156.54				
	(3) 31-40 years old	87	143.37				
	(4) 41-50 years	7	91.71				
Collaboration	(1) 22-25 years old	52	159.69	3	.51	.91	
	(2) 26-30 years old	157	149.68				
	(3) 31-40 years old	87	151.78				
	(4) 41-50 years	7	149.71				
Initiating communication	(1) 22-25 years old	52	162.17	3	3.20	.36	
	(2) 26-30 years old	157	149.50				
	(3) 31-40 years old	87	154.41				
	(4) 41-50 years	7	102.43				
Communicating -	(1) 22-25 years old	52	165.64	3	5.76	.12	
	(2) 26-30 years old	157	157.32				
	(3) 31-40 years old	87	137.41				
	(4) 41-50 years	7	112.71				
Maintaining communication	(1) 22-25 years old	52	155.36	3	1.19	75	
	(2) 26-30 years old	157	152.72				
	(3) 31-40 years old	87	151.50				
	(4) 41-50 years	7	117.21				
Sharing content	(1) 22-25 years old	52	158.82	3	12.09	.00	1-4
	(2) 26-30 years old	157	157.79				2-4
	(3) 31-40 years old	87	146.18				3-4
	(4) 41-50 years	7	43.86				

A significant difference is seen in the teachers' scores on the *"Sharing content"* sub-dimension of the scale under the age variable (x^2=12.09 p>.05). According to the results of the Mann-Whitney U test conducted to determine which groups the difference is between, the scores of the teachers in the 41-50 age group (M.R.=43.86) are lower than the scores in the 22-25 age group (M.R.=158.82), the 26-30 age group (M.R.=157.79), and the 31-40 age group (M.R.=146.18).

Table 3. Kruskal Wallis H test results of teachers' purposes of using social media by professional service time.

Dimension	Age	N	Mean Rank	Sd	x^2	p*	Significant difference
PUSM Scale	(1) 1-5 years	205	154.15	3	10.69	.03	1-4
	(2) 6-10 Years	56	160.73				2-4
	(3) 11-15 Years	29	150.95				3-4
	(4) 16-20 years	8	56.31				
	(5) 21-25 years	5	125.30				
Research	(1) 1-5 years	205	156.01	4	7.49	.11	
	(2) 6-10 Years	56	159.11				
	(3) 11-15 Years	29	135.83				
	(4) 16-20 years	8	92.38				
	(5) 21-25 years	5	97.30				
Collaboration	(1) 1-5 years	205	150.15	4	3.21	.52	
	(2) 6-10 Years	56	158.85				
	(3) 11-15 Years	29	153.95				
	(4) 16-20 years	8	115.69				
	(5) 21-25 years	5	198.10				
Initiating communication	(1) 1-5 years	205	153.49	4	5.14	.27	
	(2) 6-10 Years	56	153.95				
	(3) 11-15 Years	29	160.50				
	(4) 16-20 years	8	90.63				
	(5) 21-25 years	5	118.10				

Dimension	Age	N	Mean Rank	Sd	x^2	p*	Significant difference
Communicating -	(1) 1-5 years	205	158.09	4	12.01	.01	1-4
	(2) 6-10 Years	56	137.22				2-4
	(3) 11-15 Years	29	167.57				3-4
	(4) 16-20 years	8	69.19				
	(5) 21-25 years	5	109.90				
Maintaining Communication	(1) 1-5 years	205	149.23	4	10.05	.04	1-4
	(2) 6-10 Years	56	167.33				2-4
	(3) 11-15 Years	29	166.17				3-4
	(4) 16-20 years	8	68.50				
	(5) 21-25 years	5	145.20				
Sharing Content	(1) 1-5 years	205	157.26	4	15.52	.00	1-4
	(2) 6-10 Years	56	160.95				1-5
	(3) 11-15 Years	29	136.86				2-4
	(4) 16-20 years	8	73.38				2-5
	(5) 21-25 years	5	49.60				3-4
							3-5

The teachers' scores across the total PUSM scale (x^2=10.69, p <.05) show a significant difference under the time in professional service variable. It was determined that teachers with a professional service time of 16-20 years are at a lower level than teachers with a professional service time of 1-5 years, 6-10 years, and 11-15 years across the entire scale. The teachers' views with respect to the "*Communicating*" sub-dimension (x^2=12.01, p <.05) show a significant difference under the time in professional service variable. It was determined that teachers with a professional service time of 16-20 years use social media to communicate less than teachers with a professional service time of 1-5 years, 6-10 years, and 11-15 years. Teachers' views with respect to the *"Maintaining communication"* sub-dimension (x^2=10.05, p <.05) show a significant difference under the time in professional service variable. It was determined that teachers with a professional service time of 16-20 years use social media to maintain communication less than teachers with a professional service time of 1-5 years, 6-10 years, and 11-15 years. Teachers' views with respect to the *"Sharing content"* sub-dimension (x^2=15.52, p <.05) differ significantly under the time in professional service variable. It was determined that teachers with a professional service time of 16-20 years and 21-25 years use social media for content sharing less than teachers with a professional service time of 1-5 years, 6-10 years, and 11-15 years.

Table 4. Kruskal Wallis H test results of teachers' purposes of using social media by daily social media usage time.

Dimension	DSMUT	N	Mean Rank	Sd	x^2	p*	Significant difference**
PUSM scale	(1) 0-1 hours	119	141.38	3	7.71	.05	
	(2) 1-3 hours	137	150.57				
	(3) 3-5 hours	34	181.93				
	(4) 5 - over	13	186.00				
Research	(1) 0-1 hours	119	136.33	3	8.65	.03	1-3
	(2) 1-3 hours	137	156.43				
	(3) 3-5 hours	34	176.81				
	(4) 5 - over	13	183.81				
Collaboration	(1) 0-1 hours	119	153.94	3	.56	.90	
	(2) 1-3 hours	137	148.18				
	(3) 3-5 hours	34	157.49				
	(4) 5 - over	13	160.23				
Initiating communication	(1) 0-1 hours	119	142.79	3	9.24	.02	1-3
	(2) 1-3 hours	137	150.31				2-3
	(3) 3-5 hours	34	193.47				
	(4) 5 - over	13	145.62				
Communicating	(1) 0-1 hours	119	139.09	3	7.55	.05	
	(2) 1-3 hours	137	157.13				
	(3) 3-5 hours	34	157.40				
	(4) 5 - over	13	202.00				
Maintaining communication	(1) 0-1 hours	119	146.26	3	2.95	.39	
	(2) 1-3 hours	137	150.24				
	(3) 3-5 hours	34	172.63				
	(4) 5 - over	13	169.04				
Sharing content	(1) 0-1 hours	119	136.80	3	10.49	.015	1-3
	(2) 1-3 hours	137	154.03				1-4
	(3) 3-5 hours	34	180.19				
	(4) 5 - over	13	196.00				

A significant difference is seen under the daily social media usage time variable of the PUSM scale's *"Research"* sub-dimension (p <.05). Mann-Whitney U test was conducted to determine between which groups this significant difference exists. Accordingly, there is a difference between those who use social media for 0-1 hour a day and those who use it for 3-5 hours. Considering the arithmetic means, it was determined that those who use social media for 3-5 hours (B = 136.33) use it for research purposes more than those who use social media for 0-1 hour (B = 183.31). A significant difference is seen under the daily social media usage time variable of the PUSM scale's *"Initiating communication"* sub-dimension (p <.05). There is a difference between those who use social media for 0-1 hours, those who use 1-3 hours, and those who use it for 3-5 hours. Considering the arithmetic means, it was determined that for the purpose of initiating communication, those who use social media for 3-5 hours a day (B = 193.47) use social media for this purpose more than those who use social media for 0-1 a day (B = 142.79) and 1-3 hours a day (B = 150.31). A significant difference is seen under the daily social media usage time variable of the PUSM scale's *"Sharing content"* sub-dimension (p <.05). There is a significant difference between those who use social media for between 0-1 hour a day (B = 136.80) and those who use it for 3-5 hours a day (B = 180.19) and 5 hours or over (B = 196.00). Considering the arithmetic means, it was determined that those who use social media 3-5 hours a day and 5 hours or more use it for sharing content more than those who use it between 0-1 hour a day.

Table 5. Kruskal Wallis H test results of levels of informal learning with smartphones by age.

Dimension	Age	N	Mean Rank	Sd	x^2	p*	SignificantDifference
Informal Learning With Smartphones Scale	(1) 22-25 years	52	171.56	3	19.67	.00	1-3
	(2) 26-30 years	157	161.09				1-4
	(3) 31-40 years	87	132.84				2-3
	(4) 41-50 years	7	41.07				2-4
							3-4

The informal learning levels of the teachers differ significantly by age (x^2=19.67, p <.05). It was determined that teachers in the age group 22-25 (M.R.=171.56) and 26-30 (M.R.=161.09) do more informal learning with smartphones than those in the 31-40 age (M.R.=132.84) and 41-50 years (M.R.=41.07) groups; and that teachers in the 31-40 age group (M.R.=132.84) do more informal learning with smartphones than teachers in the 41-50 age group (M.R.=41.07) at a level that makes a significant difference.

Table 6. Kruskal Wallis H test results of levels of informal learning with smartphones by time in professional service.

Dimension	Age	N	Mean Rank	Sd	x^2	p*	Significant difference
Informal Learning With Smartphones Scale	(1) 1-5 years	205	163.21	3	18.30	.00	1-4
	(2) 6-10 Years	56	140.32				1-5
	(3) 11-15 Years	29	131.02				2-5
	(4) 16-20 years	8	95.81				3-5
	(5) 21-25 years	5	34.60				

Teachers' informal learning levels differ by time in professional service (x^2=18.30, p <.05). At the end of the multiple comparisons, it was determined that this difference was between teachers with 1-5 years of professional service and those with 16-20 years, and between teachers with 21-25 years of professional service and those with 1-5 years, 6-10 years, and 11-15 years. It was determined that teachers with 16- 20 years of professional service do less informal learning than teachers with 1 to 5 years of professional service and that teachers with 21-25 years of professional service do less informal learning than teachers with 1-5, 6-10, and 11-15 years of professional service.

Table 7. Kruskal Wallis H test results of levels of informal learning with smartphones by daily social media usage time.

Dimension	DSMUT	N	Mean Rank	Sd	x^2	p*	Significant difference**
Informal Learning With Smartphones Scale	(1) 0-1 hours	119	128.71	3	18.36	.00	1-2
	(2) 1-3 hours	137	159.90				1-3
	(3) 3-5 hours	34	195.49				2-3
	(4) 5 - over	13	168.27				

Teachers' informal learning levels differ by daily social media usage time (x^2=18.36, p <.05). According to the results of the Mann-Whitney U test conducted to determine which groups this significant difference is between, it was determined that those who use social media for 3-5 hours a day (M.R.=195.49) have higher levels of informal learning with smartphones than those who use social media for 0-1 hour a day (M.R.=128.71) and 1-3 hours a day (M.R.=159.90) and that those who use social media for 1-3 hours a day (M.R.=159.90) have higher levels of informal learning with smartphones than those who use it for 0-1 hour a day (M.R.=128.71).

Table 8. Teachers' views on informal learning.

Themes	Codes	*f* *(n=20)*
Environmental and cultural factors	Outside of school.	2
	Circle of friends and family.	3
	Customs-traditions.	1
Lifelong learning	Daily life practices.	2
Observation	Modeling, imitation.	5
Natural environment	Irregular and unplanned.	9
	Occurs accidentally/randomly.	4
Media	Takes place on the Internet.	1

The majority of teachers taking part in the study stated that informal learning is learning that is *irregular and unplanned*. Aside from that, the teachers stated that informal learning is learning *through modeling and imitation*, *by accident/at random*, *and learning from family and friends*. Examples of the teachers' comments follow: F4 - "*Informal learning is spontaneous learning in a natural environment."* M7 -*"Informal learning is learning that is not part of a specific plan; the kind of learning done while doing daily life activities such as sports, traveling, chatting, etc."*

Table 9. Teachers' views on social media.

Themes	Codes	*f* *(n=20)*
Virtuality/virtual environment	Contains virtuality.	1
	The Internet	1
Communicating	Lets people communicate	1
	Lets people interact	3
	Acculturation properties	2
Social media platforms and apps	Facebook, WhatsApp, Twitter, Instagram, and similar apps.	13
	Lets people share.	3
	Entails the concepts of follower, like	1

Most of the teachers who took part in the study stated that *social media platforms and apps* such as Facebook, WhatsApp, Twitter, and Instagram come to mind. Aside from that, teachers stated that *sharing, interaction,* and *acculturation* are concepts that come to mind when social media is mentioned. Some examples of teachers' comments follow: M2 - *"When I think of social media, the first thing that comes to mind is the Internet, Facebook, Instagram, Twitter, etc."*M5 - "*When I think of social media, Twitter, Instagram, Facebook, and blogs come to mind."*

Table 10. The types of information teachers get from social media.

Themes	Codes	*f* *(n=20)*
Currency	I follow scientific developments.	2
	I keep up with the latest news.	9
Education/teaching/learning	I gain vocational knowledge.	6
	I get information about education.	4
Informal knowledge	Informal learning	6

It was concluded that the teachers who took part in the study mostly acquired *up-to-date news, vocational knowledge, information about education, and information based on informal learning*. Some examples of teachers' comments follow: F1 - *"When I think of social media, communication comes to mind. Social media is where information is shared and followed. Yes, I learn new things from social media. In particular, I get information about education from social media."* "M1 - *"I get mainly informal learning-based information off social media."*

Table 11.The fields where teachers say social media influences informal learning.

Themes	Codes	*f* *(n=20)*
Information	It provides access to information.	4
	I gain vocational knowledge.	2
	I get information about education and teaching.	1
Social life	I learn through imitation, observation, and modeling.	8
	It ensures social change and solidarity.	3
	I learn daily life practices.	3

All the teachers (n=20) who took part in the study stated that social media affects their informal learning. It can be seen that the informal learning areas most influenced by social media are learning by imitation/observation, access to information, social change-solidarity, and daily life practices, respectively. M1 - "I think the social media tools we use in daily life are conducive to

informal learning. I think social media makes informal learning more appealing. An example of positive informal learning is housewives benefiting from these environments for cooking.

Table 12. Teachers' purposes of using smartphones for informal learning.

Themes	Codes	*F (n=20)*
Getting Information	I find out the news from news sites.	2
	I gain vocational knowledge.	11
	I listen to subject-matter experts.	7
Personal development	I use it to learn a language.	8
	I follow fashion.	1
	I learn recipes.	6

All the teachers (n=20) in the study stated they use their smartphones for informal learning. Teachers stated that the informal learning areas where they use their smartphones the most are *professional development, language learning, listening to subject-matter experts, and learning recipes,* respectively. In addition, it was determined that the majority of participants who use smartphones for recipes *are female teachers (F2, F3, F4, F5, F8)*. Some examples of teachers' comments follow: F2 - *"I use smartphones for language learning, listening to subject-matter experts, learning recipes, and for professional development. I use Duolingo for language learning, e-books for reading books, and Instagram and Facebook for professional development. I also exchange vocational knowledge on various blogs. In general, I frequently use Pinterest and YouTube for almost everything."*

Table 13. Teachers' use of information and materials obtained from social media in lessons.

Themes	Codes	*f (n=20)*
Video/film/animation	I make them watch Videos/films/animation.	18
Vocational knowledge and sharing	I do group sharing.	6
	Creating or downloading vocational documents/papers/visuals	4
Play/entertainment	I learn educational games	3
	I use their tunes	1
News/information	I use current news or information.	2

All the teachers (n=20) in the study stated they use the information and materials they obtain from social media in their lessons. The teachers also said that the *videos they use in their lessons are mostly obtained from social media and that they also apply to their lessons the information, shares, documents, and educational games* that they get from community groups. Some examples of teachers' comments follow: F9 - *"If I ever seek an expert's opinion on something, I mean if I listened to it, I use that in my lessons. There are even social media pages that I recommend the children check out. After all, even NASA has an official page on Instagram. I want to direct the children there and have them look at the photos or learn about the astronauts' lifestyles."*M10 - *"I actively follow robotic technologies. These are of great interest to children. That's why I use the information, images, and videos I get from social media about them, especially in the part of the lesson where I get their attention.* M1 - *"Yes, I pass on to the children the different and highly motivational information I see in documentaries, particularly on social media. I also get my students to watch the videos on social media that I think are going to be beneficial. "*F2 - *"In my lessons, I use the videos, information, and documents that I have seen."*

Table 14. The reasons stated by teachers why they do not use social media tools in assessing student development.

Can social media tools be used to assess student progress?		
Yes (f) 3		*No (f) 17*
Themes	Codes	*f (n=20)*
Reliability-validity	The conditions for reliability and validity cannot be met.	8
	Not possible to make an assessment based on objective criteria.	2
Educational issues	The learning environment is inappropriate.	2
	It is far from having an educational purpose.	2
Virtuality	It is nothing like real life (virtuality).	1

Three of the teachers who took part in the study stated that social media can be used with a strong supervisory network because it allows for multiple evaluations and attaches importance to individual differences. The other 17 teachers stated that social media cannot be used in assessing student development. The reasons cited for not using social media included reliability and validity issues, it being a long way from having an educational purpose, the unsuitability of the learning environment, the lack of objective evaluation criteria, and the fact that social media is virtual. M1- "I don't think it can be used. It can't be used because of its low level of reliability and validity."F1 - "Social media can be used, in my opinion. This is because it is possible to find materials suitable for individual learning differences on social media."

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

In the study, it was seen that female teachers use social media for "research" purposes more than male teachers and that male teachers use social media "to initiate communication" more than female teachers. No difference was seen in male and female teachers' levels of informal learning with smartphones. In contrast to these findings, Tiryakioğlu and Erzurum (2011) did find a difference in the gender variable in their study on the use of social networks in education with the academic staff at Anadolu University Faculty of Communication. In the study, it was determined that teachers aged 41- 50 are the group that uses social media the least for content-sharing purposes. Furthermore, as age increases, content sharing on social media decreases. In Menteşe's (2013) study on the use of social media by school administrators and teachers, it was observed that young teachers and administrators were more active and willing to use social media, and at the same time, as age increases, the purposes of using social media and the will to use it decreases. As the time spent in professional service increases, the level of informal learning with smartphones decreases. Similar to this study, Çobanoğlu (2018) concluded that teachers with 1-5 years of professional service use social media more. Supporting these findings, the study of İşman (2002) and Menteşe (2013) reported that young teachers have a more positive attitude toward using social media. It can be said that the reason for this is that teachers with more years of seniority are more distant from technology and web-based applications, just as with the age variable. A significant difference was seen in teachers' use of social media for the purposes of "research," "initiating communication," and "sharing content" under the "daily use of social media" variable. Teachers who use social media 3-5 hours a day use it mostly for research and initiating communication while those who use social media for 3-5 hours or more than 5 hours a day use it mostly for sharing content. Solmaz, Tekin, Herzem, and Demir (2013) concluded that the participants in their study used social media mainly for 1-3 hours a day. In the study conducted by Vural and Bat (2010) on university students who are pre-service teachers, it was determined that the participants use social networks every day and that students spend mainly 1-3 hours a day on their social media accounts.

In the study, it was determined that secondary school teachers mostly think of informal learning as irregular and unplanned learning, random/accidental learning, and learning from family and friends. There are many studies in which these concepts are included in the definitions and explanations of informal learning (Maden & Dincel, 2015; Güleç, Çelik & Demirhan, 2012; Çavuş, Kaplan, & Topsakal, 2013; İnce, 2017; Sürerbiçer, 2018; Alakurt, 2015; Yaşar, 2013). For example, Maden and Dincel (2015) define informal learning as a lifelong learning style and approach. Informal learning is defined as a process involving the acquisition of wanted and undesirable behaviors in daily life, such as the ability to recognize, experience, and explore private and social environments within the context of instinct and needs.

It has been determined that the concepts that come to mind the most for teachers when it comes to informal learning are sharing, interaction, and acculturation via social media platforms and apps such as Facebook, Twitter, and Instagram. There are many studies that include these concepts in their definitions and explanations of social media (Solmaz, Tekin, Herzem, Demir, 2013; Kıcı & Dilmen, 2014; Alkan & Bardakçı, 2017; Koç and Ayık, 2017; Sarsar, Başbay and Başbay, 2015; Öztürk and Tetik, 2015; Tiryakioğlu and Erzurum, 2011; Vural and Batı, 2010). For example, Büyükşener (2009) defines social media as a form of practice that includes social networks such as Facebook, Twitter, YouTube, forums, and platforms with chat rooms.

It was concluded that teachers mostly get current information and news, vocational information, information about teaching, and knowledge based on informal learning from social media. In line with these conclusions, Tonbuloğlu & İşman (2014) reported that teachers use social media mainly to get current news, videos and photographs, and information relating to vocational topics. Gülbahar, Kalelioğlu, and Madran (2010) concluded that Facebook, which is a social media app, is used for sharing and for following daily events, news, and people. All the teachers interviewed think that social media influences informal learning. In her study on lifelong learning, Harper (2011) concluded that the best learning occurs through informal learning. Almost none of the participants find the informal learning obtained from social media to be reliable. The study by Türkoğlu and Doğan (2018) on students upholds this conclusion. According to the study, young people attach great importance to social media and acquire information even without realizing it, but despite this, 79.4% of youths stated that the information they acquired from social media had reliability problems. It was concluded that the participants transferred the videos, documents, educational games, and share from community groups that they obtained from social media to their lessons. In their study on Twitter, Özmen, Aküzüm, Şükür, and Baysal (2011) concluded that teachers shared their resources, knowledge, and experiences by establishing professional learning communities with their colleagues in the same or different institutions via social media. It was concluded that all the participants used the documents, videos, and information they saw on social media in their lessons. Participants stated that they used the videos, films, animations, documents, and pictures they saw on social media in lessons in line with learning outcomes and student levels. Baltacı, Göktalay, and Özdilek (2010) concluded in their study with their pre-service teachers that they are willing to use social networks, video sharing sites, and instant messaging apps in education. Three participants said social media can be used to evaluate student development and 17 participants said it cannot. Students who participated in Atal's (2010) study stated that social media can be used in lessons if hardware and access problems are solved, and problems originating from teachers and families are eliminated.

In parallel with all these results, it is possible to make the following recommendations:

- Social media tools and accounts that can be accessed via smartphones and used only for educational purposes can be introduced to teachers, and how they will contribute to education can be conveyed through in-service training. In this way, teachers' levels of informal learning particularly with smartphones can be increased.

- Research results show that social media are being used more and more by teachers. In this case, adult media literacy training can be given to teachers. This will enable them to use social media correctly, appropriately, and effectively in a way that contributes to their pedagogical formations and field knowledge.
- It may be possible to motivate teachers to learn informally using social media and smartphones thanks to the apps they create. Furthermore, the deliberate inclusion of teachers who are disadvantaged in terms of age and professional service time in contributing to these apps can not only motivate them, it can also ensure that use is made of their experience in education.
- Informal learning environments that take place on social media should be increased. In this sense, teachers should be given various forms of in-service training.
- An effective educational social media app could be developed to assess students' versatile academic achievement and development.
- There are hardly any studies that investigate the relationship between teachers' purposes of using social media and their levels of informal learning and that examine their informal learning on their own. When the literature was examined, it was seen that the purposes of using social media were studied using such variables as motivation and attitude. By doing more research on this subject and enriching the findings, the results of the studies can be compared allowing more robust generalizations to be made.

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Statements of publication ethics

I/We hereby declare that the study has not unethical issues and that research and publication ethics have been observed carefully.

Researchers' contribution rate

The authors formed the research idea together. The first author took part in the literature review, data collection, data analysis, data interpretation and reporting. The second author took part in the collection of data and reporting the research.

Ethics Committee Approval Information

It was decided that this study complied with the ethical rules of Education and Humanities due to the meeting dated 19.04.2018 by Kafkas University Social Educational Sciences, Social Educations Ethics Committee.

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