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Personal Differences and Social Networking: A Comparison of Two Countries

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Abstract

This study examines the relationship between personal differences and use of Facebook by pre-service teachers and compares the results from Turkey and the U.S. In addition to the "big five" personality traits, attitude, motivation, and specific motives are also examined among personal differences. The sample consisted of 762 pre-service teachers who use Facebook. Regression analyses conducted on the data collected from the two countries revealed, firstly, that personal differences are associated with Facebook use. Secondly, however, the associations differed remarkably between the two countries. Even individuals with the same personal characteristics used Facebook differently between the countries. On the other hand, in both countries a strong privacy concern and a perceived 'unrealness' emerged as negative factors. Individuals who consider social networking services as a place to pass time are avid users in both countries, as well. Furthermore, agreeableness and friendship related to Facebook use were not factors in either country.

Keywords: Social networking service; Facebook; Personality; NEO-FFI; Motive; Motivation.

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Introduction

New forms of computer-mediated-communication (CMC) are becoming central to contemporary life and are worthy of analysis to understand their significance for their individual users. Social networking services (SNS) such as Facebook, Instagram, and YouTube provide some of the most sophisticated tools for CMC. Facebook is the most popular SNS with 2.41 billion monthly active users worldwide (Facebook, 2019). Users of Facebook are "predominantly students" (Aydin, 2012, p. 1094) and it is especially appealing "to new generations of learners" (Manca & Ranieri, 2016, p. 511). However, it is popular not only among the young but also among teachers, professors and other educational professionals (Bugeja, 2006; Rutherford, 2010). Manca and Ranieri (2016) state that SNSs like Facebook are "engaging students and instructors with new teaching and learning practices" (p. 510), and provide them with many tools for communication, discussion, feedback, collaboration, and learning through social interaction. Hence, SNSs are emerging as new online learning environments and are new avenues for educational researchers (Greenhow & Robelia, 2009).

Facebook may provide new opportunities for learners, pre-service teachers, and teachers. However, individuals use Facebook differently for different reasons and with different motives. Orchard, Fullwood, Galbraith, and Morris (2014) argue that individual differences "may interact differently with [SNSs]" and "[t]hese differences appear to stem from dispositional differences that appear to affect motivational reasons behind SNS usage" (p. 399). They report that motivation to use SNSs, motives to use SNSs, and individual differences all correlate with SNS usage. Internet users are not a homogeneous entity but comprise different personality types. Stressing the importance of exploring the relationship between personality and SNS usage Orchard et al. (2014) draw attention to "minimal research on factors affecting individual use" and argue that "research has rarely explored the impact of personality on SNS usage" (p. 389). Moreover, culture seems to play a role in the ways SNSs are being used. According to Vasalou, Joinson, and Courvoisier (2010, p. 727), "culture is a key behavioral determinant" regarding the use of Facebook. Even how Facebook profiles are composed and made available to others is documented as being associated with "distinct cultural preferences" (Lewis, Kaufman, & Christakis, 2008, p .95).

Facebook is a freely available and ubiquitous CMC tool for learners and teachers from various cultures, and is already being used for educational purposes. However, as indicated in the relevant literature, there is much to understand regarding the relationship between personal differences and uses of Facebook. A deeper understanding of the relationship between personal differences and Facebook usage may result in better tailored instructional designs and learning environments that include the use of Facebook. This study aims to shed light on the impact of individual personality, motivation, motives, and attitudes on pre-service teachers' Facebook usage. The research was

conducted in Turkey and the United States of America (U.S.) and results are compared to explore the cultural differences regarding the impact of personal differences on the use of Facebook.

Background

An SNS is a website on which individuals create password-protected accounts and personal profiles attached to them. The SNS hosts the profiles of the users as an interactive webpage until they remove their accounts (boyd & Ellison, 2007). Users can browse other users' profiles and establish connections with the ones they like through the facilities of the website. SNSs provide privacy settings to let users determine who will have access to certain parts of their profile information (boyd & Ellison, 2007).

There is considerable research conducted on the educational value of Facebook, the most-used SNS. Facebook may be a useful tool not only for learners and teachers but also for pre-service teachers. The value of SNSs for pre-service teachers is especially interesting on the grounds that they are both young learners and future teachers (Arpaci, Kilicer, & Bardakci, 2015; Baltaci-Goktalay & Ozdilek, 2010; Ozkan & McKenzie, 2008). Çevik, Çelik, and Haşlaman (2014, p. 724) report that "teaching on Facebook contributed to the prospective teachers' overall professional development". Keles (2018) reports that Facebook supported a teaching presence for both instructors and students, contributed to the social presence and to increased social sensitivity. Moreover, Mazman, and Usluel (2010, p. 447), describing Facebook as a "favorable educational tool owing to its structure and various utilities" argue that Facebook is good for teachers to support each other regarding "their work in progress by using online and offline functions, sharing projects, materials, resources, homework or ideas". Finally, Hew (2011) reported that teachers' use of Facebook has an effect on perceived teacher trustworthiness, teacher caring qualities, and overall teacher credibility that students tend to attribute to their teachers.

Personality

One of the key differences of Facebook compared to other educational technologies is that it processes highly personal information. Users not only create profiles that are reflections of their personalities but also continuously publish personal information about themselves. Even though all users are provided with a standard interface, the structure of the site dictates that what is posted for other users to view on Facebook is determined, for the most part, by the personality of the user. According to Ewen (2003, p. 4) personality may be defined as "important and relatively stable characteristics within a person that account for consistent patterns of behavior". Five Factor Model (FFM) is a factor framework for personality which hierarchically organizes personality traits in terms of five basic dimensions: Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness (McCrae & John, 1992). Traits are constructs that are "dimensions of the periphery in personality theories, to be contrasted with dimensions of the core, which address fundamental issues

of human nature and personality organization" (McAdams, 1992, p. 336). Therefore, personality traits are not core characteristics of human nature which are shared by all humans, such as id, ego, superego, or unconscious motivation. Rather, they are outer-edge characteristics that nonetheless create vital individual differences among humans. FFM is very popular among scholars and "becoming an established dominant framework in the field of personality psychology" (McAdams, 1992, p. 332). FFM is a highly tested, perennially developed, and widely accepted model. It has even been argued by many researchers that the structure of the FFM is a "biologically based human universal that transcends language and other cultural differences" (Gurven, von Rueden, Massenkoff, Kaplan, & Vie, 2013, p. 355).

In his review of the research on interaction between personality characteristics and classroom environments, Haskell (1971), reports that "the academic performance of learners who possess similar personality characteristics will be significantly affected by the instructional method utilized" (pp. 288, 289). He argues that the best method for some may not be the best for all and states that "the answer to effective instruction may be found in the interaction between learners and instructional method rather than in the method per se" (p. 288). Hence, adapting educational environment to personal differences may contribute to effective instruction. Moreover, Song, Hannafin, and Hill (2007) state that personality traits may influence learners' engagement in social and academic activities. Referring to research on pre-service teachers, they report that personality traits influence students' and teachers' willingness to reconcile their beliefs and expectations with their learning and teaching practices, respectively. According to Keller and Burkman (1993, p. 4), since "courseware designers have little control over the personalities of their audience […] their best chance to motivate learners is simply to select carefully what they teach, and to teach it well". Personality is of prime importance not only because it is a determinant factor of Facebook usage per se but also knowledge of how individuals with different personalities use Facebook enables teachers to better decide what to teach and how to teach.

Motivation

In addition to personality, motivation is also another measure of personal differences which may influence learners' and teachers' use of Facebook, considering that "theories of personality are in large part theories of motivation" (Ewen, 2003, p. 5). Motivation is even more prominent when it comes to the dynamics among learning, personality and a communication tool, since "motivation to learn depends largely on the learner's personality" (Keller & Burkman, 1993, p. 4), and "it is necessary to take into consideration a person's motivation for communication" (Spitzberg, 2006, p. 580). According to Keller and Burkman (1993) motivation determines the magnitude and direction of behavior and motivated individuals become deeply involved in their learning activity and devote much time and energy to learning (Wigfield, Guthrie, Tonks, & Perencevich, 2004).

If an instructional design is to benefit from Facebook, then being motivated to use it should be taken into account. Keller and Burkman (1993, p. 3) argue that "the design of the instructional message is not complete without considering its motivational appeal", and using CMC tools effectively contributes to increasing motivation to learn. It seems that being motivated to use a CMC tool is influential not only on effective use of the tool itself but also on learning gains to be made by its use. A promising quality of motivation is that it is subject to teacher intervention. Wigfield et al. (2004) state that "instructional programs can affect children's motivation as well as their achievement" (p. 306). Moreover, a better understanding of motivation to use Facebook may lead to better implementation of it by stakeholders as an educational tool, which in turn may result in increased educational achievements.

Motives

Individuals seem to have varying motives to use SNSs such as accumulating social capital, maintaining previous relationships, or connecting with friends and family members. According to Haridakis and Rubin (2003) different motives to mediated communication are "linked to different media preferences, leading to different patterns of media exposure and use and to different outcomes" (pp. 32, 33). Moreover, Mazman and Usluel (2010) report that "educational use of Facebook is explained directly by purposes of Facebook usage" (p. 450) and "users' purposes in using Facebook have a significant positive relationship with Facebook adoption" (p. 451). Gaining a better understanding of the relationship between motives to use and actual use of Facebook may allow more useful Facebook content tailored in such a way as to allow it to match motives of learners with learning outcomes expected from the design.

Uses and gratifications theory (UGT) explains how individuals use the same media messages for different purposes to satisfy their needs and achieve their goals (Sheldon, 2008). UGT focuses on motives to use media and factors that influence those motives. According to Raacke and Bonds-Raacke (2008) UGT is "concerned with how individuals use the media […] and therefore it emphasizes the importance of the individual" (p. 170). UGT is therefore well-suited for exploring the motives of individuals to use Facebook in this research project, in particular when considering the centrality of personal differences.

Attitude

Attitude is a "psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor" (Eagly & Chaiken, 1993, p. 1). It is a non-overt disposition that influences behavior (Allport, 1935). Fishbein and Ajzen define attitude as the "degree of evaluative affect towards the target behavior" (1975, p. 216). Behavioral intention, which is the immediate causal determinant of his or her overt performance of that behavior (Fishbein & Ajzen, 1975), is determined

by attitude towards that behavior (Dishaw, Strong, & Bandy, 2002). Ryan and Deci (2000, p. 54) state that people are "not only in level of motivation …, but also in the orientation of that motivation." They argue that orientation of motivation concerns underlying attitudes that give rise to action. Therefore, in addition to behavioral intention, attitude is an important aspect of motivation, as well. In addition, Gangadharbatla (2008) argued that, attitude towards SNSs contributes to students' willingness to join those SNSs and plays a part in actual SNS membership. Hew (2011) reported that attitude towards Facebook is a major topic of research on the pedagogical aspect of Facebook. Previous research indicate that students generally have positive attitudes towards educational use of SNSs (Çevik, Çelik, & Haşlaman, 2014; Fewkes & McCabe, 2012; Kirschner & Karpinski, 2010). However, attitudes of prospective teachers regarding the educational potential of SNSs such as Facebook tend to be neglected (Çevik, Çelik, & Haşlaman, 2014). Moreover, attitude towards using technology is considered a barrier to technology integration for the teachers (Beri & Sharma, 2019; Hew & Brush, 2007; Ünal, Yamaç, & Uzun, 2017). Hence, insight into attitudes of per-service teachers towards using SNSs such as Facebook may contribute to successful integration of SNS technologies into education especially considering the relationship of attitude with behavioral intention and orientation of motivation.

Current Study

This study aims to explore whether personal differences can predict use of Facebook by pre-service teachers. Personality, motivation, motives to use and attitude towards using Facebook are considered as categories in which personal differences reside. Shedding light on the impact of personal differences on Facebook use by pre-service teachers may enable educational professionals to gain a better understanding of how Facebook can be utilized for educational purposes. Finally, cultural differences which may complicate the dynamics among aforementioned psychological constructs and use of SNSs are investigated by comparing Turkey and the U.S.

Method

Participants and Procedure

The study was carried out in two teacher training institutions, consecutively. First, the Faculty of Education of Middle East Technical University (FEMETU) in Ankara, Turkey; then, the College of Education of the University of Houston (COEUH) in Houston, Texas, U.S. 1281 students in FEMETU and 1744 students in COEUH were sent an invitation e-mail including a concise description of the study, ethical information and a URL link to the survey. The survey was hosted on LimeSurvey (limesurvey.org). Students without a Facebook account could not participate in the study. A total of 641 students (n_{TR}) completed the survey in Turkey, yielding a 50.03% response rate. In the U.S., 121 students (n_{US}) completed the survey, yielding a 6.93% response rate. Conclusively, 762 pre-service

teachers who have a Facebook account in Turkey and the U.S. participated in the study (N=762). Table 1 depicts sample demographics.

All procedures performed in this study involving human participants were in accordance with the ethical standards of the Research Center for Applied Ethics of Middle East Technical University. The study instrument comprised five questionnaires and demographic questions. Demographic information included age, gender, year of study, and whether respondents have a Facebook account or not. The first questionnaire concerned Facebook use. Facebook usage measures served as dependent variables (DV). Psychological constructs which served as independent variables (IV) were measured by four other questionnaires: NEO Five Factor Inventory (NEO-FFI); CMC Motivation Scale; Facebook Motives Scale; and Facebook Attitude Scale.

Table 1. Sample demographics (N=762)

		Mean or %(N)	
Group	Variable	Country Sample	Total Sample
Turkey			
	Gender		
	Male	19.19% (123)	16.14% (123)
	Female	80.81% (518)	67.98% (518)
	Age	21.29	-
	Year of study	2.62	-
U.S.			
	Gender		
	Male	8.26% (10)	1.31% (10)
	Female	91.74% (111)	14.57% (111)
	Age	23.83	-
	Year of study	2.33	-
Total			
	Gender		
	Male	-	17.45% (133)
	Female	-	82.55% (629)
	Age	-	21.69
	Year of study	-	2.59

After collecting data, factor analyses were conducted on the scales to construct the latent variables. Principal component analysis with varimax rotation was used to get the factors. Regression coefficient method was used to extract factors in order to maximize the validity of the instrument. After this, a confirmatory factor analysis with maximum likelihood technique was conducted to test the structure and relations between the variables. Overall, ten factors were extracted from four questionnaires: Attitude, Motivation, Passing Time, Relationship, Friendship, Conscientiousness, Extraversion, Neuroticism, Agreeableness, and Openness to Experience. Table 2 depicts the factors extracted from questionnaires.

Table 2. Factors extracted from the questionnaires

Country	Factor	Number of Items	Loading Range	Eigenvalue	% of (Total) Variance	Cronbach's α
Turkey						
	Attitude	6	0.849 - 0.564	3.440	(57.330)	0.849
	Motivation	4	0.829 - 0.650	2.278	(56.957)	0.745
	Facebook motives				(69.393)	
	Passing Time	5	0.837 - 0.560	3.732	33.928	0.785
	Relationship	3	0.916 - 0.847	2.234	20.307	0.882
	Friendship	3	0.925 - 0.855	1.667	15.158	0.872
	NEO-FFI				(42.808)	
	Neuroticism	13	0.659 - 0.489	7.289	16.198	0.857
	Extraversion	8	0.767 - 0.527	3.247	7.216	0.808
	Openness.	6	0.700 - 0.569	2.435	5.411	0.734
	Agreeableness	8	0.596 - 0.442	2.452	5.449	0.708
	Cons.	10	0.748 - 0.530	3.841	8.535	0.827
U.S.						
	Attitude	5	0.846 - 0.756	3.743	(62.390)	0.877
	Motivation	4	0.854 - 0.679	2.415	(60.382)	0.778
	Facebook motives				(72.634)	
	Passing Time	5	0.870 - 0.668	5.596	43.044	0.877
	Relationship	3	0.895 - 0.855	2.364	18.188	0.929
	Friendship	5	0.845 - 0.694	1.482	11.402	0.846
	NEO-FFI				(50.001)	
	Neuroticism	9	0.616 - 0.409	2.545	7.272	0.799
	Extraversion	9	0.667 - 0.472	3.942	11.264	0.783
	Openness.	5	0.790 - 0.499	1.711	4.888	0.745
	Agreeableness	5	0.637 - 0.403	2.103	6.007	0.646
	Cons.	7	0.801 - 0.533	7.199	20.568	0.869

Note: "Openness." refers to Openness to Experience and "Cons." refers to Conscientiousness.

Measures

Facebook Use Scale was adapted from the Facebook Questionnaire of Ross et al. (2009). It consists of three multiple choice questions and one open-ended numerical-entry question. This scale was designed to measure (1) the number of friends on Facebook, (2) duration of Facebook membership, (3) time spent on Facebook during a day, and (4) the level of privacy of Facebook profile. These four measures which served as DVs were named, respectively, FriendCount, Duration, Intensity, and ProfileSee. Table 3 depicts questions from the Facebook use scale.

Table 3. Questions and variables from Facebook use scale

Question	Variable	Type
Approximately how many friends are there on your Facebook Friends List?	FriendCount	Continuous
Approximately how long have you had your Facebook account?	Duration	Ordinal
On average, approximately how many minutes per day do you spend on Facebook?	Intensity	Ordinal
Who can see your Facebook profile?	ProfileSee	Categorical

NEO-FFI is a measure of FFM developed by Robert R. McCrae and Paul T. Costa in 1985. It consists of sixty items. NEO-FFI is designed to assess the "big five" personality traits: Neuroticism (N), Extraversion (E), Openness to Experience (O), Agreeableness (A), and Conscientiousness (C). Items are answered on a 5-point Likert scale, ranging from "strongly disagree" (1) to "strongly agree" (5). Factor analyses extracted all factors both in Turkey and the U.S. Cronbach's α values for N, E, O, A, and C in the Turkish sample were 0.857, 0.808, 0.734, 0.708, and 0.827, respectively. In the U.S., Cronbach's α values were 0.799, 0.783, 0.745, 0.646, and 0.869, respectively.

CMC Competence Measure was developed by Brian Spitzberg (Spitzberg, 2006). Three factors from Spitzberg's scale (Motivation, Knowledge and Efficacy) were included at the outset of the present study. According to the results of factor analysis, four of the eighteen items were used for *CMC Motivation Scale* in both countries. Cronbach's α value was 0.745 in Turkey and 0.778 in the U.S. Items are answered on a 5-point Likert scale, ranging from "strongly disagree" (1) to "strongly agree" (5).

Facebook Motives Scale was developed by Pavica Sheldon (2008). She used thirty eight items and extracted six factors: Relationship Maintenance, Passing Time, Virtual Community, Entertainment, Coolness, and Companionship. The items are being answered on a 5-point Likert scale, ranging from "never" (1) to "always" (5). According to the results of factor analysis, only Passing Time matched with Sheldon's factors in both countries. The other two factors were named Relationship and Friendship. In the Turkish sample, Cronbach's α values for Passing Time, Relationship, and Friendship were 0.785, 0.882, and 0.872, respectively. In the U.S., Cronbach's α values were 0.877, 0.929, and 0.846, respectively.

Facebook Attitude Scale was extracted from the Facebook Questionnaire of Ross et al. (2009). Seven of their twenty-eight items were answered on a 5-point Likert scale, ranging from "strongly disagree" (1) to "strongly agree" (5). Factor analyses resulted with an Attitude factor of six items in Turkey and five items in the U.S. Cronbach's α values were 0.849 and 0.877, respectively.

Findings

Four regression procedures were conducted on fourteen variables in each country. Attitude, Motivation, Passing Time, Relationship, Friendship, Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness served as IVs. FriendCount, Duration, Intensity, and ProfileSee were the DVs scaling the use of Facebook. As a standardized global effect size value, Cohen's f^2 was calculated for effect sizes of multiple linear regression analyses (Selya, Rose, Dierker, Hedeker, & Mermelstein, 2012). In addition to odds ratio and Nagelkerke's R^2, Cox and Snell's pseudo R^2 values are provided as effect size measures for logistic regression analyses (Fairchild, MacKinnon, Taborga, & Taylor, 2009). In order to contrast the results of analyses from two countries

and put the associations in a comparative perspective in one visual data arrangement, Table 4 is provided as a depiction of the summary of all associations between IVs and DVs.

Table 4. A summary of the associations between IVs and DVs

IV	DV							
	FriendCount		Duration		Intensity		ProfileSee	
	TR	U.S.	TR	U.S.	TR	U.S.	TR	U.S.
Attitude	0.82*		0.28**		0.86*	1.01*		-
Motivation			0.21***		0.26**			-
Facebook motives								
Passing Time	0.41***	2.78**	0.28**	1.18*	0.70*	0.94*	0.33***	-
Relationship	0.43***							-
Friendship							**–0.34****	-
NEO-FFI								
Neuroticism	**–0.41****		**–0.15*****		**–0.18*****			-
Extraversion	0.93*	1.35***			0.18***			-
Openness.	0.44**		0.21**		**–0.23****			-
Agreeableness								-
Conscientiousness						**–0.39*****		-

Note: *p < 0.001, **p < 0.01, ***p < 0.05. "Openness." refers to Openness to Experience and TR refers to Turkey. Cells in Friendship columns represent B coefficients. Cells in other columns represent parameter estimates. Regression on ProfileSee could not be conducted in the American sample. Negative associations are in bold.

Number of friends on Facebook

Multiple linear regression analyses produced significant models in Turkey: R^2=0.183, F(10, 622) =13.91, p ≤0.001; and for the U.S.: R^2=0.284, F(10, 109)=4.333, p ≤ 0.001. Cohen's effect size values suggested a low to medium (f^2=0.224) and medium (f^2=0.397) practical significance, respectively for Turkey and the U.S. In the U.S., only Passing Time (2.78) and Extraversion (1.35) predicted FriendCount. Those more extraverted or who use Facebook for Passing Time had more friends. In Turkey, Passing Time (0.41), Extraversion (0.93), Attitude (0.82), Relationship (0.43), Neuroticism (–0.41), and Openness to Experience (0.44) predicted FriendCount. It seems that, in both countries, those who use Facebook for Friendship tend to stick with their offline network rather than finding new friends online. Individuals who are more open to experience may have already "experienced" Facebook for a longer period of time in the U.S. since it was developed and first came into service there. In Turkey –compared to the U.S.- using Facebook for Relationship or having a positive Attitude towards Facebook results in accruing more friends while being more neurotic conduces to having *fewer* friends.

Duration of Facebook membership

Ordinal logistic regression analyses resulted in significant models both in Turkey: R^2=0.122 (Nagelkerke), 0.116 (Cox and Snell), $\chi^2(10)$=78.68, p<0,001; and in the U.S.: R^2=0.263 (Nagelkerke), 0.229 (Cox and Snell), $\chi^2(10)$=30.731, p<0,001. In the U.S., only Passing Time ($e^{1.18}$=3.25) made a significant contribution to prediction. In Turkey, Passing Time ($e^{0.28}$=1.32), Attitude ($e^{0.28}$=1.32),

Motivation ($e^{0.21}$=1.24), Neuroticism ($e^{-0.15}$=1.16), and Openness to Experience ($e^{0.21}$=1.24) made significant contributions to prediction. Those who use Facebook for Passing Time may be looking for online places to pass time and so they discover websites like Facebook earlier than others. Hence, having a motive of Passing Time increases the odds of having longer membership times by 3.25 in the U.S and 1.32 in Turkey. Those who have a more positive Attitude towards Facebook or who are more motivated to use it are also (respectively 1.32 times and 1.24 times) more likely to have an older account in Turkey. This may stem from the fact that, since Facebook first came into service in the U.S., Turkish individuals had the time to develop a positive attitude towards Facebook or to increase motivation to use it due to its fame. These individuals seem to be among early account creators. Only in Turkey, Neuroticism had an association with Duration, and it was negative.

Time spent on Facebook during a day

Ordinal logistic regression analyses resulted in significant models both in Turkey: R^2=0.429 (Nagelkerke), 0.49 (Cox and Snell), $\chi^2(10)$=336.115, p<0,001; and in the U.S.: R^2=0.514 (Nagelkerke), 0.493 (Cox and Snell), $\chi^2(10)$=82.100, p<0,001. In the U.S., only Attitude ($e^{1.01}$=2.74), Passing Time ($e^{0.94}$=2.57), and Conscientiousness ($e^{-0.39}$=0.68) made significant contributions to prediction. In Turkey, in contrast, Attitude ($e^{0.86}$=2.37), Passing Time ($e^{0.70}$=2.02), Motivation ($e^{0.26}$=1.3), Neuroticism ($e^{-0.18}$=0.84), Extraversion ($e^{0.18}$=1.2), and Openness to Experience ($e^{-0.23}$=0.79) made significant contributions to prediction. Both in Turkey and the U.S., those who have a more positive Attitude towards Facebook are more likely to spend more time using Facebook (2.74 times and 2.37 times, respectively). In the U.S., Conscientiousness negatively associated with the time spent on Facebook. A one unit increase in Conscientiousness causes a 0.68 unit *decrease* in the odds of spending more time. Extraverted and motivated users seem to be spending more time in Turkey but not in the U.S. due to the fact that they had more time to "experience" this "once new" platform. Moreover, similarly to number of friends and duration of membership, an increase in Neuroticism decreases the odds of spending time on Facebook in Turkey only.

Level of privacy of Facebook profile

The overwhelming majority of participants in both Turkey and the U.S. (respectively 85.5% and 90.9%) responded that "only [their] friends" were allowed to see their Facebook profiles. Failing to satisfy the sample size assumption because of the marginal response rates of the other three categories, therefore, a regression analysis could not be performed on the data of either country. This indicates that privacy is the major concern regarding the use of Facebook. As a factor influencing the use of Facebook, privacy concern, remarkably, surpasses personality, motives, motivation, and attitude.

However, since the Turkish sample (n_{TR}=641) was larger than the American one (n_{US}= 121), merging the three remaining categories other than "*Only my friends*" into a new "*Not limited with my*

friends" category resulted in a 14.56% response rate (frequency=93) in the Turkish data. Thus, sample size assumption was satisfied and a binomial logistic regression analysis was conducted on the new Intensity variable, which had only two categories with cell sizes of 548 and 93, respectively. The model was statistically significant: R^2=0.063 (Nagelkerke), 0.035 (Cox and Snell), $\chi^2(10)=22.995$, $p<0.5$. Passing Time ($e^{0.33}=1.4$) and Friendship ($e^{-0.34}=0.7$) made a significant contribution to the prediction. The results indicate that privacy concern is the most influential factor predicting the use of Facebook. It forces individuals to adjust profile settings which determine who can see a user's profile to the "*Only my friends*" option. Even though concern was remarkably high in both countries, concentrating the great majorities in the same option, in Turkey a minority group significantly was not limiting access privileges to their friends only. With a weak to moderate relationship (R^2=0.063), a one unit increase in the motive of Passing Time causes a 1.4 unit increase in the odds of letting users other than friends access a user's profile. Interestingly, those who use Facebook with a motive of Friendship are *less* likely to let non-friends access their profile. A one unit increase in the motive of Friendship causes a 0.7 unit *decrease* in the odds of letting users other than friends access a user's profile. In both countries, even the ones seeking relationships are not significantly more likely to compromise their privacy.

Discussion

The purpose of the present study is to investigate the influence of personal differences on the use of Facebook by pre-service teachers and to further examine how cultural differences shape that influence by comparing the findings from Turkey and the U.S. The findings of the study endorse those found in relevant literature (Carpenter, Green, and LaFlam, 2011; Hughes, Rowe, Batey, & Lee, 2012; Orchard et al., 2014; Ross et al., 2009; Seidman, 2013): they indicate that personal differences are associated with Facebook use and they associate differently in two countries. Consistent with prior research (Manca & Ranieri, 2016; Nadkarni & Hofmann, 2012; Vasalou, Joinson, & Courvoisier, 2010), this study's results suggest that individuals from Turkey and the U.S., even those grouped into the same personality category by the same instrument, seem to have different patterns of usage. Thus we must consider the weight of cultural differences. Triandis (2001) reports that individualism-collectivism dimension seems to be the most significant cultural difference among populations. He argues that culture "can be one of the bases of individual differences in personality" and changes in culture result in changes in personality. Based on Hofstede's model of cultural dimensions (Hofstede, 2011), U.S. is significantly more individualistic compared to Turkey. While U.S. scores 91 on individualism dimension, Turkey –indicating her relatively more collectivistic culture- is only 37 according to the country comparison tool of Hofstede Insights (2018).

On the other hand, great percentages of respondents in both Turkey (85.5%) and the U.S (90.9%) only let their friends see their personal profiles on Facebook. This indicates that concern with

privacy is one of the greatest factors across countries influencing the use of SNSs like Facebook. It may also suggest that, as Carpenter and colleagues (2011) concluded, individuals might be using Facebook both to embrace their existing friends and to keep others at a distance.

Attitude

In parallel with previous research (Kim, Sohn, & Choi, 2011; Nadkarni & Hofmann, 2012), results of this study highlight the cultural differences in attitude towards and use of Facebook between two countries. In both countries, attitude was associated with daily time spent on Facebook. However, only in Turkey did it predict number of friends and duration of Facebook membership. Association of attitude and number of friends in Turkey may stem from the fact that in collectivistic societies (Turkey) SNS use is determined by a social need to belong, whereas in individualistic countries (U.S.) it is determined by a need for self-presentation (Nadkarni & Hofmann, 2012). Moreover, in collectivistic, high-context cultures (e.g. Turkey) users have a positive attitude toward SNSs in seeking social support (Kim, Sohn, & Choi, 2011). Therefore, in relatively more collectivist societies and/or high-context cultures, a more positive attitude leads to a bigger network of friends, which in turn may conduce toward increased social interaction. On the other hand, users with a positive attitude are more likely to have an older account in Turkey but not in the U.S. Gangadharbatla (2008) argues that attitude toward SNSs contributes to students' willingness to join those SNSs and plays a part in actual SNS membership. Compared to the U.S., Turkish individuals had the time to assess Facebook before it became widely available and the ones who developed a positive attitude became early adopters. What is promising is that attitude towards an SNS is subject to change over time. Hence, considering the ability of designers, developers, and teachers to influence students toward developing positive attitudes by manipulating and/or controlling the context and software features, attitude is a useful factor to consider regarding the successful implementation of SNSs for educational purposes. Finally, it should be noted that before an implementation takes place, individuals may develop a negative attitude towards the platform as well. Thus, a successful implementation requires its designers to listen to students and teachers when preparing it.

Motivation

In Turkey, motivation predicted duration of Facebook membership (i.e., early adoption). This was consistent with Spitzberg's (2006) observation that motivation represents the initial energizing process of knowledge search and application, and that it is necessary to stimulate actual utilization of CMC. Individuals who were more motivated to use or had more positive attitudes towards Facebook created their accounts earlier than others. According to Spitzberg (2006), CMC motivation is positively related to CMC knowledge and CMC competence may be conceptualized as a function of both. Hence, individuals with higher levels of online media literacy were already familiar with the concept; their CMC knowledge and competence facilitated the development of positive attitudes

towards and motivation to use Facebook, resulting in early adoption. Moreover, consistent with the findings of Ross et al. (2009), motivation predicted the daily time spent on Facebook, indicating satisfaction of users with the service regarding motivational factors (motives). CMC-competent early adopters might have found using Facebook convenient and comfortable –compared with other existing CMC tools- especially considering its sophistication and higher level usability. On the other hand, in the U.S., motivation predicted neither duration of Facebook membership nor time spent on it. As mentioned above, Facebook was put into service first in the U.S. and expanded to other countries after almost three years. Therefore, compared to Turkish individuals, Americans had enough time to learn and adopt the service so that most of them had accounts of three or more years old. These results indicate that CMC competent individuals with higher online media literacy levels adopt the tools earlier and use them more often than others. In time, SNSs seem to fall out of favor with CMC competent individuals, while the less experienced become as able using the platform. Song and Keller (2001) state that the motivation resulting from *novelty effects* of computers tends to disappear. They argue that "with experience, students will no longer be as excited by these novel features, and it then will become more of a challenge to stimulate and sustain their motivation during computer-mediated instruction". Results suggest that a successful implementation of an SNS such as Facebook requires acquainting teachers and students with the related learning environment before the actual utilization commences, in order to let them enhance their knowledge and skills for increasing their motivation. Finally, it should be noted that motivation seems to decrease as the account ages. Designers, developers, and teachers should therefore also find ways to keep the environment "new" and "fresh" for the users.

Motives

In parallel with Sheldon's (2008) study, individuals using Facebook with the motive of *passing time* seem to adopt the platform earlier, have more friends, and use it more often during a day compared to others in both countries. A considerable number of young individuals seem to seek online places to pass time. They learn about new places before others; they acquaint themselves with the features and settings of the "new" website before others, giving way to more intensive use of the platform. Early comers have more friends due to their "nativeness" and the confidence that they gain as they learn the platform. Familiarity with the service positively influences attitude and motivation. Then, familiarity, motivation, and attitude seem to collectively result in larger networks of friends and more intensive use of the SNS.

In the U.S., using Facebook with a motive of founding new *relationships* didn't associate with any of the variables. On the other hand, in Turkey, individuals using Facebook for relationships were likely to have more friends. Results from the U.S. are in parallel with Sheldon's (2008) observation that Facebook members use it mostly to maintain existing offline relationships –relationships with

people they know. Current SNSs are structured both to articulate existing connections and to enable the creation of new ones. However, online to offline orientation appears to not apply to them. It seems that, concerning privacy, individuals in the U.S. are uneasy about founding new relationships on Facebook with people they don't know. Even those using Facebook with the motive of founding new relationships seem to have no more friends than any others: the motive of relationship does not change the way the website is used by them.

In both countries *friendship* failed to predict the number of friends, time spent on Facebook or duration of membership. The only association was with ProfileSee in Turkey (who can see your Facebook profile). Raacke and Bonds-Raacke (2008) report that the overwhelming majority of individuals use SNSs to interact with old (96.0%) and current (91.1%) friends. In parallel with their observations, findings of this study suggest that individuals tend to carry their offline social network to SNSs to form connections based on previously established friendship groups. Even the ones who use Facebook with motives of relationship or friendship seem to primarily embrace their existing friends while, as Carpenter and colleagues (2011) stated, keeping others at a distance.

Personality

Remarkably, in neither of the countries did any personality traits have a positive association with level of privacy. As mentioned earlier, the overwhelming majority of individuals in both Turkey (85.5%) and the U.S. (90.9%) only let their friends see their personal profiles, indicating a strong privacy concern which shows no variation across personality traits. Another reason for letting only friends access personal profile information seems to be that, as Amichai-Hamburger and Vinitzky (2010) reported, and as we have seen already, people transfer their offline interaction with existing friends to online environments and keep others at a distance. Stakeholders should notice the privacy needs of individuals while designing and implementing SNSs. This means that facilitating interaction among friends and non-friends in a broader social network in order to foster increased social interaction is a central part of the challenge for educators who need to utilize SNSs as online learning environments.

Consistent with previous research (Amichai-Hamburger & Vinitzky, 2010; Ross et al., 2009), *Neuroticism* did not predict U.S individuals' number of friends, time spent on Facebook or duration of membership. However, in Turkey, neuroticism had significant negative associations with all three Facebook usage variables. Ryan and Xenos (2011) reported significant positive correlations between neuroticism and time spent on Facebook. In contrast to their report, a non-significant correlation in the U.S. and a significant negative one in Turkey were found in the current study. Results indicate that neurotic individuals use SNSs like Facebook differently in the U.S. than in Turkey, but neither group demonstrates a positive usage pattern. Neurotics perceive SNSs as less anxiety-provoking than everyday interactions (Orchard et al., 2014). They use SNSs as a tool to decrease feelings of

loneliness, primarily for seeking social contact (Hughes et al., 2012), to meet their need for belongingness (Seidman, 2013) and self-assurance (Amichai-Hamburger & Vinitzky, 2010) which are not sufficiently met offline. These platforms let neurotic individuals engage with people socially while still controlling what information is shared (Ross et al., 2009) and that the "people" with whom they interact remain just "profiles" (Carpenter, Green, & LaFlam, 2011). Consistent with previous research, the findings of this study indicate that neurotics seem to be having a uni-directional Facebook experience as a safe place for self-presentation (Seidman, 2013). In order to benefit from increased social interaction among learners to contribute to their learning, teachers should keep an eye open for uni-directional SNS usage. Developers may provide teachers with tools for detecting such unhealthy use so that students showing high neuroticism may get timely help while the implementation is still in progress.

Extroversion, in parallel with previous research (Amichai-Hamburger & Vinitzky, 2010; Hughes et al., 2012; Orchard et al., 2014), positively correlated with number of friends both in Turkey and the U.S. Findings confirm the observation of Orchard et al. (2014) that extraverts have "a high social need and aim to extend their social network". In neither of the countries did extraversion significantly correlate with duration of membership, indicating a preference among such individuals for real world activities over online ones. Remarkably, extraversion correlated with daily time spent on Facebook only in Turkey. In the U.S. the correlation was not significant, which is consistent with previous research (Ross et al., 2009; Ryan & Xenos, 2011). The difference in time spent on Facebook during a day between Turkey and the U.S. seems to stem from the previously-noted individualism-collectivism dimension of cultural difference. Nadkarni and Hofmann (2012) argue that "members from collectivistic cultures are more likely to have more frequent interactions and form a close circle of [Facebook] friends as compared to those from individualistic cultures". In line with them, Kim, Sohn, and Choi (2011) report that in individualistic and low context cultures like the U.S., individuals are more inclusive while building their network due to the more casual and instrumental nature of relationships among each other, whereas in Korea (and Turkey in this case) people are more exclusive in their network building, since collectivistic and high context culture forces individuals into "being deeply involved with each other with high levels of social bonds and commitment". Korea scores 18 on individualism dimension –below both Turkey and the U.S.- according to the country comparison tool of Hofstede Insights (2018) indicating an even stronger collectivist culture. Kim, Sohn, and Choi (2011) report a significant difference between the U.S. and Korea regarding the proportion of "socially close others" such as family members in individuals' social networks in the SNSs. While the proportion is only 23.7% in the U.S. it is 70.4% in Korea. Collectivist-oriented extraverts may be spending extra time on SNSs to fulfill their commitments to socially-close others.

Openness to experience, in line with the findings of Ross et al. (2009) and Ryan and Xenos (2011), didn't predict any of the Facebook usage variables in the U.S. On the other hand, in Turkey, it

had positive associations with number of friends and duration of membership, consistent with Carpenter, Green and LaFlam (2011). However, the association was significant but negative for daily time spent on Facebook, contradicting previous research (Carpenter, Green, & LaFlam, 2011; Ross et al., 2009; Ryan & Xenos, 2011). The results reveal contrasting patterns between Turkey and the U.S. Open-to-experience individuals are described as imaginative, original, and curious and they do not favor the conventional, conservative, and familiar (McCrae & John, 1992). Since the U.S. is the source country for most computer technologies around the world, Americans are comparatively more digitally literate regarding those technologies, including SNSs such as Facebook. Therefore, unlike Turkey, it seems that Facebook is not a "novel" enough CMC tool for open-to-experience individuals in the U.S so that they weren't among early adopters. Comparing non-significant and negative association with time spent on Facebook respectively in U.S. and Turkey confirms the conclusion of Ross et al. (2009) that open-to-experience individuals have greater difficulty in trying to communicate through CMC. As with neurotics perceiving people as "profiles" and extraverts choosing real world activities over a CMC tool, open-to-experience individuals' interest in the online environment is inclined to fade away. Thus, "perceived realness" emerges as a major factor influencing the use of CMC tools like Facebook.

As with previous studies (Amichai-Hamburger & Vinitzky, 2010; Ross et al., 2009; Ryan & Xenos, 2011), *Agreeableness* was unrelated to Facebook use in both countries. Landers and Lounsbury (2006) conclude that students who are low on agreeableness do not get along well with others and choose to spend more time on the internet rather than in interpersonal face-to-face communications; or they may be less frequently sought out for group activities by others, giving way to having more time available for internet use compared to agreeable ones. They argue that, compared to interpersonal face-to-face communication, "there are relatively few demands for agreeable behavior on the internet, even in e-mail exchanges and chat rooms", eventually making online environments more fitting for less agreeable ones.

Conscientiousness, confirming the findings of Ross et al. (2009), didn't predict any of the Facebook usage variables in Turkey. In the U.S., associations were still non-significant for number of friends and duration of membership. However, there was a significant but negative correlation with daily time spent on Facebook, confirming the findings of Hughes et al. (2012) and Ryan and Xenos (2011). Conscientious individuals are reported to be cautious in their online self-presentation (Seidman, 2013) and tend to avoid SNSs as they promote procrastination and serve as a distraction (Hughes et al., 2012).

Limitations

Participants in the current study were students from single schools both in Turkey and the U.S. Norms of those cohesive groups might have influenced the study. Further studies may investigate

differences between groups within a single country. Another limitation was that the current study collected its data in a relatively short period of time. Longitudinal studies may be needed to see how individuals use SNSs over longer periods of time. Moreover, there are individuals who don't use SNSs at all and there are also heavy users. Comparing and contrasting the influence of individual differences on their approach to SNSs may deepen our understanding about how those CMC tools relate to individuals and to broader society.

Conclusion

The present study has investigated whether attitude, motivation, motives, and personality traits influenced the use of Facebook and how this influence varied across two countries. Results revealed that those individual differences not only influence the use of Facebook but also shape the use of Facebook differently between Turkey and the U.S. Being exposed to a CMC tool earlier, or being more digitally literate regarding online environments –as a consequence of living in one country or other- influences how individuals begin and continue to use SNSs. Developing attitudes towards an SNS, increasing motivation to use an SNS, or acquiring a new motive to use one takes different tracks between cultures or countries. More digitally literate individuals seem to approach SNSs more deliberately and use them in a more restrained manner. As differences among countries are evident, there is also some common ground. Individuals who consider SNSs as a place to pass time are avid users in both countries. Designers, developers, and teachers who are considering implementing SNSs such as Facebook for educational purposes should pay attention to the entertainment factor that keeps users motivated.

Another remarkable similarity was that privacy concern is the single most influential factor grouping individuals in the same category of friends-only privacy preference. Moreover, agreeable individuals who are described as kind, warm and getting along well with others, and conscientious ones who are considered to be competent, self-disciplined and dutiful both seem to be outnumbered by disagreeable and less conscientious individuals in online environments. This may explain the strong need for keeping non-friends at a distance and indicates that cyber safety is another important concern complementing privacy.

Finally, neurotic, extraverted, and open-to-experience individuals seem to be particularly sensitive to the "unrealness" inherent in SNSs. Not only the website itself but also other users may be perceived as mere unreal profiles. Perceived unrealness leads to reduced social interaction between users which should be avoided, especially in an educational setting. The results reveal that personality traits strongly influence the way Facebook is used but no personality trait precludes its beneficial use completely. A design which takes individual differences, privacy concerns and cyber safety into consideration is more likely to result in successful implementation.

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