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Social media and hidden curriculum: What do teacher-student interactions teach students?[1]

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Abstract. The aim of this study is to examine the views of the students about the learning outcomes of teacher-student interactions on social media within the context of hidden curriculum. To this end, a quantitative associational research design was used in this study. Within the scope of the research, 2046 students attending to the middle schools in Kahramanmaraş province were selected into the sample. The data of the study were collected using "*Hidden curriculum on social media scale*" which has a four-factor structure consisting of 16 items developed by the researchers. The results of the analysis from the hidden curriculum perspective revealed that as a result of interactions between the teacher and the student on social media, students learn some rules and values, know better about their teachers, restrain themselves from sharing and communicating about certain topics, and gain confidence in communication. Furthermore, a statistically significant difference was found in favor of male students in terms of learning to restraint and gaining confidence in communication, whereas no significant difference was observed in terms of learning rules and values, and knowing better about teachers. With regard to grade level, the learning outcomes of especially the 5th graders through hidden curriculum on social media were found to be significantly more than those of other students in upper classes of middle schools. However, all the statistically significant differences were found to have small effect sizes. It was also found that the daily time students spend on social media and the number of teachers added as friends to their accounts were significant predictors of students' their learning outcomes within the scope of hidden curriculum.

Keywords: Hidden curriculum on social media, teacher-student interaction on social media, social media, hidden curriculum

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INTRODUCTION

Today, people spend most of their time in virtual worlds instead of the real world and cannot imagine a life without internet connection (Srivastava, 2012). The ease and availability of internet connection has increased students' possibility to interact with each other and with their teachers, which in turn led the physical school environment transform into a virtual platform on social media. Through these digital platforms, students can have different experiences and learn new things. In this regard, student can now learn not only in traditional classroom environments but also from home or other places thanks to mobile technologies and social media (Malik & Khursed, 2011; Tsai, Shen, Chiang & Tang, 2015). Before the mobile technologies became so widespread and popular, students' interaction with teachers was very limited, taking place mainly at school. However, now students can follow and interact with their teachers easily through social media platforms. As the teacher-student interaction on social media does not usually happen based on a formal curriculum, one needs to ask whether teacher-student interaction on social media can be regarded as a part of hidden curriculum or what teacher-student interactions on social-media teach students in terms of hidden

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curriculum. Thus, in the present study, it was aimed to investigate the students' opinions about their learning outcomes within the scope of the hidden curriculum as a result of teacher-student interaction on social media.

Social media and hidden curriculum

Social media is a place where people make friends from different countries and cultures. Recently, especially among young generations, social media platforms such as Facebook, Twitter and YouTube have become really popular (Shih, 2011). Facebook has been acknowledged to be technically the most successful Web 2.0 technology by web authorities and has been reported as the most popular social media platform among US educators (Özmen, Aküzüm, Sünkür and Baysal, 2011). Especially Facebook allows people to discuss and share information at the same time by creating an online discussion platform thanks to its functions to share posts and comments (Shih, 2011). On these social networks, we meet new people and cultures (Srivastava, 2012), get new friends and share our personal information (Roy and Chakraborty, 2015). Our behaviors, thoughts and attitudes are shaped by the culture, the family structure, and the lifestyle we have experienced (Ornstein and Hunkins, 2014). Students learn a lot through social media both intentionally and unintentionally (Dron and Anderson, 2014).

As an alternative learning tool, Facebook also offers students a convenient and attractive environment for communication with teachers and other users (Suthiwartnarueput and Wasanasomsithi, 2012). In this respect, considering that students and their teachers interact on social media and admitting that students can learn from these interactions outside the scope of the formal curriculum, it is possible to talk about the existence and impact of a hidden curriculum on social media (Duek and Tourn, 2016). The hidden curriculum is a means of both personal and social learning through planned or unplanned activities that are implicitly transferred to students by teachers as a result of students' experiences including extracurricular activities (Çobanoğlu and Engin Demir, 2014; Çubukçu, 2012; Demirel, 2010; Tezcan, 2003).

Hidden curriculum covers many factors including teachers' behaviors, attitudes and beliefs, approaches, value judgments, school atmosphere, patterns of interaction provided by the school, and the school rules (Tezcan, 2003). The hidden curriculum comprises the norms and values that are implicitly conveyed to the students at the school which the students are not aware of (Başar and Çetin, 2013). In this respect, it can be said that the hidden curriculum is highly effective on individuals' learning outcomes (Ornstein and Hunkins, 2014). These learning outcomes include variety of knowledge, skills, attitudes, opinions and values other than the learning outcomes specified in the formal curriculum (Massialas, 1996; Yüksel, 2004). Throughout the time students spend on social media, they interact not only with their friends but also their teachers. As a result of these interactions with their teachers, students are likely to learn new information, attitudes, opinions, values etc. as a part of the hidden curriculum either intentionally or unintentionally.

When the literature is examined, it is seen that there were many studies investigating either the effects of the hidden curriculum on students (Adıay, 2011; Akbulut, 2011; Balboni et al., 2015; Bayanfar, 2013; Başar and Çetin, 2013; Çobanoğlu and Engin Demir, 2014; Kuş, 2009; Ornstein and Hunkins, 2014) or the teacher-student interactions on social media (Özmen et al., 2011; Roy and Chakraborty, 2015; Shih, 2011; Suthiwartnarueput and Wasanasomsithi, 2012; Tsai et al., 2015), however, no research has been found about the possible learning outcomes of these interactions between students and teachers on social media within the context of hidden curriculum. Considering the recent increase in the teacher-student interaction on social media independent of time and space as opposed to the school environment, it is seen that teacher-student interaction on social media is an important subject which is worth researching in terms of hidden curriculum. In this respect, it was thought that the findings of this research will contribute to the relevant literature on curriculum in general and hidden curriculum in particular.

Aim of the Study

In this study, it was aimed to investigate the students' views about their learning outcomes as a result of teacher-student interaction on social media in terms of various variables. For this purpose, the following research questions were asked:

1) What is the distribution of students' views on their learning outcomes as a result of teacher-student interactions on social media?
2) Do the students' views on their learning outcomes as a result of teacher-student interactions on social media differ significantly according to their gender and grade levels?
3) Do the daily time students use social media and the number of teachers they follow on their accounts significantly predict students' level of learning outcomes as a result of teacher-student interactions via social media?

METHOD

Design

This study was designed as a quantitative associational research. Associational research designs are used to examine the relationships between variables using casual-comparison or correlational approach. While in the causal-comparison, the factors that may cause the differences observed in the dependent variable are examined comparatively, in correlation studies the focus is on the interaction of two or more variables with each other (Büyüköztürk, Kılıç Çakmak, Akgün, Karadeniz and Demirel, 2011). In this context, in order to find out whether students' perceived level of learning outcomes within hidden curriculum context as a result of teacher-student interactions on social media differs significantly according to their gender and grade levels, the causal-comparison design was used. In addition, the correlational research design was used to determine whether the effect of students' daily social media use and the number of teachers followed on their accounts were significant predictors of the students' level of learning outcomes as a result of teacher-student interaction on social media.

Sample

The population of the research consisted of 31523 students studying at classes 5–8 of 39 secondary schools located in the central district of Kahramanmaraş (Kahramanmaraş Provincial Directorate of National Education [KPDNE], 2017). In this context, it was decided to use both cluster, stratified, and criterion sampling methods. Using the sample size formula for continuous variables (Büyüköztürk et al., 2011), the sample size was calculated 2034 students at minimum considering the confidence level at 95% and estimating the population's standard deviation as 1,19, at precision level of 0,05. In order to determine the students to be included in the sample, first the secondary schools were selected randomly as clusters, and next only the students who follow their teachers on Facebook were included in the sample according to the strata of gender, grade and school region. As a result of the data collection procedure, data were collected from a total of 2046 students. Descriptive statistics about the students in the sample of the research are given in Table 1.

Table 1. *Descriptive statistics of students included in the research*

Variable	Group	N	%
Grade	5th Grade	293	14,3
	6th Grade	522	25,5
	7th Grade	495	24,2
	8th Grade	736	36
	Total	2046	100

Table 1. ***(Continued)***

Gender	Female	855	41,8
	Male	1191	58,2
	Total	2046	100
	$\bar{x}$	**S**	**Min.-Max.**
Perceived daily use of Facebook (minutes)	44,95	49,94	1–420
Number of teachers followed on Facebook Account	2,68	1,98	1–16

Data Collection

In order to collect data, first of all, necessary permissions were obtained from Kahramanmaraş Provincial Directorate of National Education (13.03.2018/No: 35776031-605.01-E.5299655). In addition, the students were informed that the data obtained from them would be kept confidential and would not be shared with anyone, and the "*Hidden Curriculum on Social Media Scale*" (HCSMS), which was developed by the researchers for the purpose of collecting the data, was administered to the students. As a result, data were collected from 2046 secondary school students during the second semester of 2017-2018 school year. Information about the development process of the scale is given below.

Studies on the Validity and Reliability of HCSMS

In order to develop the scale items, first we revived the relevant literature and used the also the results of the analysis of the interviews conducted with teachers and students during the qualitative phase of the dissertation, from which this paper was produced (Demir, 2018). In order to ensure the content and face validity, the expert opinions of scholars who studied and published about hidden curriculum were gathered. As a result of the preliminary studies, a draft form consisting of 31 items was produced. Then, this draft scale form was administered to 301 students attending to secondary schools and construct validity and reliability analyzes were performed on the obtained data set. The results are presented in Table 2 below:

Table 2. *The validity and reliability analysis results of HCSMS*

Items	Communalities	Learning Rules and Values	Learning about Teacher	Learning to Restrain Self Gaining Confidence in Communication	Corrected item total correlation
Item 20	,687	,808			,492
Item 21	,650	,790			,485
Item 17	,492	,637			,492
Item 22	,441	,573			,462
Item 26	,447	,552			,531
Item 1	,625		,786		,377
Item 3	,583		,720		,479
Item 2	,525		,653		,429
Item 5	,467		,558		,494
Item 8	,532			,686	,459
Item 9	,465			,646	,352
Item 12	,475			,646	,374
Item 6	,547			,642	,437

Table 2. ***(Continued)***

Items	Communalities	Learning Rules and Values	Learning about Teacher	Learning to Restrain Self	Gaining Confidence in Communication	Corrected item total correlation
Item 13	,736				,847	,344
Item 15	,609				,729	,439
Item 14	,430				,505	,478
KMO= .834						
Bartlett's Test of Sphericity= 1193,891; p= ,000						
Eigen value=		4,669	1,482	1,330	1,230	
Variance Explained (%)= 54,439 (whole scale)		16,614	13,813	12,783	11,229	
Cronbach Alpha = 0,832 (whole scale)		0,764	0,702	0,638	0,653	

As a result of the exploratory factor analysis, a four-factor structure consisting of a total of 16 items and factor loads ranging from 0.505 to 0.847 was obtained. The first factor of the scale "*Learning Rules and Values (LRV)*" consisted of five items, the second factor *"Learning about Teacher (LaT)"* consisted of four items, the third factor *"Learning to Restrain Self (LRS)"* consisted of four items and the fourth factor *"Gaining Confidence in Communication (GCC)"* consisted of three items. All items in the scale explain 54.44% of the total variance. The total variance explanation level above 40% is accepted as one of the important indicators for construct validity (Kline, 2011). In addition, as a result of the reliability analyzes for the scores obtained from 16 items, it was seen that the corrected item-total correlation coefficients ranged between 0.344 and 0.531, and the Cronbach Alpha reliability coefficient was 0.832 ($\alpha = 0.764$; $\alpha = 0.702$; $\alpha = 0.638$ and $\alpha = 0.653$ for LRV, LaT, LRS and GCC factors, respectively). The obtained values indicate that the reliability of the scores obtained from the scale in terms of internal consistency is acceptable (Alpar, 2006; Özdamar, 1999; Kline, 2011; Pallant, 2007).

Data Analysis

To answer the first research question (e.g. "What is the distribution of students' views on their learning outcomes as a result of teacher-student interactions on social media?"), the data were analyzed using arithmetic mean ($\bar{x}$) and standard deviation (s). To answer the second research question (e.g. "Do the students' views on their learning outcomes as a result of teacher-student interactions on social media differ significantly according to their gender and grade levels?"), first of all, the normality assumption was tested for all sub-groups of the variables and independent samples t-test and one-way ANOVA were performed, respectively, since the data met the normal distribution assumptions. Bonferroni or Dunnett's C tests were used for post-hoc analysis following ANOVA test according to the assumption of equality of group variances. To answer the last research question (e.g. "Do the daily time students use social media and the number of teachers they follow on their accounts significantly predict students' level of learning outcomes as a result of teacher-student interactions via social media?"), multiple linear regression analysis was used.

Before the analysis the data set was checked to meet the univariate and multivariate normal distribution assumption. Also, the correlation coefficients, tolerance values, VIF (Variance Inflation Factor) and condition index values were examined and it was understood that there was no multicollinearity problem among independent variables. Finally adequate level of linearity between each independent variable and dependent variable was checked using plots of standardized residuals against standardized predicted values.

RESULTS

The findings obtained in this research are presented in tables and interpreted in accordance with the research questions.

1) Students' views on their learning outcomes as a result of teacher-student interactions on social media

Students' answers to the scale was analyzed in line with the first research question "What is the distribution of students' views on their learning outcomes as a result of teacher-student interactions on social media?", and the results obtained are presented in Table 3.

Table 3. *The results of the descriptive analysis regarding student's learning outcomes from teacher-student interaction on social media in terms of hidden curriculum (n=2046)*

Factor	*Items*	$\bar{X}$	*S*	*Interpretation*
Learning Rules and Values (LRV)	1. I learn about the universal and moral values (to be good, respectful, honest, etc.) from my teachers' posts on Facebook.	3,73	1,19	*I agree*
	2. I learn about social values from my teachers' posts on Facebook.	3,65	1,12	*I agree*
	3. I get messages about how I should behave in and out of the classroom from my teachers' posts on Facebook about good or bad student characteristics.	3,38	1,26	*I partially agree*
	4. My teachers' posts on Facebook increase my awareness about spiritual values.	3,37	1,21	*I partially agree*
	5. I learn about the rules that I should obey in the classroom from my teachers' likes, comments and posts on Facebook.	3,53	1,21	*I agree*
	Factor Mean	*3,53*	*,84*	*I agree*
Learning about Teacher (LaT)	6. I learn about my teachers from their Facebook posts on their personal characteristics, family and daily life.	3,30	1,31	*I partially agree*
	7. I learn about my teachers' reactions to students who share abusive, slang and inappropriate conversations and posts, based on my teachers' interactions on Facebook.	3,41	1,35	*I agree*
	8. I learn about my teachers' opinions about different issues (Political, spiritual, moral, universal, etc.) from their likes, posts or interactions on Facebook.	3,39	1,25	*I partially agree*
	9. I learn about my teachers' expectations on how I should behave both at school and on social media based on their posts and interactions with students on Facebook.	3,62	1,17	*I agree*
	Factor Mean	*3,43*	*,89*	*I agree*
Learning to Restrain Self (LRS)	10. Since I am friend with my teacher(s) on Facebook, I do not feel free to like, make comments on or post contents, and I act more carefully while doing so.	3,74	1,27	*I agree*
	11. In my interactions with my teachers on Facebook, I accept what my teachers say without any objection.	3,16	1,28	*I partially agree*
	12. I think that my posts on Facebook against my teachers' thoughts, beliefs and political views will disturb my teachers.	3,31	1,29	*I partially agree*
	13. I understand from my teachers' posts and reactions to the students who share political posts that I should not share posts about political issues.	3,47	1,26	*I agree*
	Factor Mean	*3,42*	*,88*	*I agree*

Table 3. ***(Continued)***

Factor	*Items*	$\bar{X}$	*S*	*Interpretation*
Gaining Confidence in Communication (GCC)	14. Being friends with my teachers on Facebook and our interactions make me more confident in the classroom.	3,41	1,31	*I agree*
	15. Being friends with my teachers and interacting on Facebook positively affects my ability to communicate in the classroom.	3,46	1,24	*I agree*
	16. Thanks to the interactions I have made with my teachers on Facebook, I understand that I can easily express myself both on social media and in the classroom.	3,55	1,27	*I agree*
	Factor Mean	*3,48*	*1,01*	*I agree*

The mean scores of the students from the "*Hidden Curriculum on Social Media Scale*" were found to be $\bar{x}$= 3.53 for the Learning Rules and Values (LRV) factor, $\bar{x}$ = 3.43 for the Learning about Teacher (LaT) factor, $\bar{X}$ = 3.42 for Learning to Restrain Self (LRS) factor and $\bar{x}$= 3.48 for the Gaining Confidence in Communication (GCC) factor. These statistics suggest that students responded to all the factors of the scale at the level '*I agree*'. Based on these findings, it can be said that the students learn rules and values, learn about their teachers, learn to restrict, and gain confidence in communication as a result of their interactions with their teachers on social media at a moderate degree.

When relatively the highest mean scores are examined, it is observed that students learned the most to restrain themselves while sharing comments as the teacher can see it ($\bar{x}$=3,74), that they also learned about universal and moral values from their teachers' posts on social media ($\bar{x}$=3,73) the most. On the other hand, students' learning outcomes with relatively the lowest mean scores included accepting what the teachers say without any objection on social media ($\bar{x}$=3,16) and learning about teachers from their Facebook posts on their personal characteristics, family and daily life ($\bar{x}$=3,30).

2) Students' views on their learning outcomes as a result of teacher-student interactions on social media by gender and grade variables

In order to answer the second research question "Do the students' views on their learning outcomes as a result of teacher-student interactions on social media differ significantly according to their gender and grade levels?", the data were analyzed using *t*-test for gender and one-way ANOVA for grade level. The results obtained are presented in Table 4 and 5, respectively.

Table 4. *Results of t-test regarding students' views on their learning outcomes as a result of teacher-student interaction on social media in terms of hidden curriculum by gender variable*

Factor	Gender	N	$\bar{X}$	S	df	t	p
LRV	Female	855	3,54	,79	1942,300	,632	,527
	Male	1191	3,52	,88			
LaT	Female	855	3,41	,84	1929,287	-,704	,482
	Male	1191	3,44	,92			
LRS	Female	855	3,34	,86	2044	-3,485	,001*
	Male	1191	3,48	,89			
GCC	Female	855	3,40	,98	2044	-2,873	,004*
	Male	1191	3,53	1,03			

*p< ,05

When the results of *t*-test are examined, no significant differences were found between students' scores from LRV (t = ,632; p> .05) factor according to gender variable. Thus, it can be said that both girls and boys learn universal, moral, social and spiritual values, characteristics of good and bad students, as well as the classroom rules as a result of the interactions with their teachers on social media within the scope of hidden curriculum at similar levels.

Likewise, the comparison between students' views about LaT revealed no statistically significant difference according to the gender variable (t = -,704; p> .05). Thus, it can be said that both boys and girls learn similarly about their teachers (e.g. teacher's personal characteristics, family, daily life, opinions about political, spiritual, moral and universal issues, attitudes towards improper student behaviors, and expectations from students) through interactions with their teachers on social media.

When boys' and girls' views about learning to restrain themselves on social media are compared, a statistically significant difference was found according to gender variable (t = -3,485; p <.05). Accordingly, it was found that the male students ($\bar{X}$ = 3.48) are more likely to learn to restrain themselves on social media compared to female students ($\bar{X}$ = 3.34). However, the small effect size (Cohen's d= 0,16) estimated for this difference suggests that the effect of gender on this factor is trivial in practice.

Finally, when boys' and girls' views about gaining confidence in communication are compared, there was a statistically significant difference according to gender variable (t = -2,873; p <.05). When the mean scores are examined, it is understood that male students ($\bar{X}$ = 3.53) gain more self-confidence in the communication than female students ($\bar{X}$ = 3.40) as a result of the interactions with their teachers on social media. However, the small Cohen's d effect (0.13) suggested that the effect size of this difference by gender is trivial in practice.

As a result of the analysis of the students' views on their learning outcomes on social media in terms of hidden curriculum according to grade level (see Table 5), a significant difference was found between Learning Rules and Values factor scores according to grade level ($F_{(3;\ 2042)}$ = 4.591, p < .05). As a result of the Scheffe post-hoc test, 5th grade students' levels of rule and value learning as a result of their interaction with their teachers ($\bar{X}$=3.70) was found significantly higher than the 7th graders ($\bar{X}$=3.49) and 8th graders ($\bar{X}$=3.50). The significance of this difference in practice was estimated using the eta-squared effect size (η^2 = 0.007). Accordingly, it was found that only 0.7% of the variance observed in the Rule and Value Learning factor is explained by grade level. Thus, it can be said that the effect of the student's grade is very trivial.

Table 5. *Results of t-test regarding students' views on their learning outcomes as a result of teacher-student interaction on social media in terms of hidden curriculum by grade level variable*

Factor	Grade	N	$\bar{X}$	Sd	Source of Variance	Sum of Squares	df	Mean Squares	F	p	Significant Difference
LRV	5th Grade	293	3,70	,80	Between Groups	9,700	3	3,233	4,591	,003	5th–7th
	6th Grade	522	3,53	,86	Within Groups	1438,190	2042	,704			5th–8th
	7th Grade	495	3,49	,88	Total	1447,890	2045				
	8th Grade	736	3,50	,81							
LaT	5th Grade	293	3,52	,90	Between Groups	9,767	3	3,256	4,150	,006	5th–6th
	6th Grade	522	3,32	,90	Within Groups	1601,944	2042	,784			
	7th Grade	495	3,47	,88	Total	1611,711	2045				
	8th Grade	736	3,44	,87							
LRS	5th Grade	293	3,63	,82	Between Groups	17,125	3	5.708	7,467	,000	5th–6th
	6th Grade	522	3,41	,86	Within Groups	1561,177	2042	,765			5th–7th
	7th Grade	495	3,34	,90	Total	1578,297	2045				5th–8th
	8th Grade	736	3,39	,89							
GCC	5th Grade	293	3,63	,93	Between Groups	8,992	3	2,997	3,016	,029	5th–7th
	6th Grade	522	3,45	1,01	Within Groups	2088,935	1809,783	1,023			
	7th Grade	495	3,42	1,02	Total	2097,926					
	8th Grade	736	3,48	1,01							

*p< ,05

Note: GCC (Levene=3.480, p=0.015)

When students' mean scores from *Learning about Teacher* factor were examined, it was found that students' learning outcomes about their teachers differ significantly according to the grade levels ($F_{(3; 2042)}$=4.150, p<.05). As a result of the Scheffe test, it was found that the 5th grade students' level of learning about their teachers ($\bar{x}$=3.52) was higher than that of the 6th grade students ($\bar{x}$=3.32). However, the very small effect size (η^2 = 0.006) estimated for this difference suggested that grade level is responsible only for 0.6% of the observed variance in students' mean scores from *LaT* factor. Therefore, it can be said that the effect of the student's grade level on this factor is very limited.

When the findings related to *Learning to Restraint Self* factor are examined, it is seen that students' levels of learning to restraint themselves differ significantly according to their grade levels ($F_{(3; 2042)}$ = 7.467, p <.05). The Scheffe post-hoc test suggest that 5th grade students ($\bar{x}$=3.63) learn to restrain themselves as a result of their interactions with their teachers on social media in terms of hidden curriculum more than the 6th graders ($\bar{x}$=3.41), 7th graders ($\bar{x}$=3.34) and 8th graders ($\bar{x}$=3.39) do. However, based on the effect level value (η^2 = 0.011), it was concluded that only the 1.1% of the observed variance in LRS scores was accounted for by the grade level, suggesting a small effect size of the student's grade level.

When the students' scores from *Gaining Confidence in Communication* are examined, it is found that the levels of the students to gain self-confidence in communication significantly differ according to grade levels ($F_{(3; 1809.8)}$ = 3.103, p <.05). The Scheffe post-hoc test revealed that 5th grade students ($\bar{x}$=3.63) gain self-confidence to communicate as a result of their interaction with their teachers on social media was higher than 7th grade students do ($\bar{x}$=3.42). However, the small effect size (η^2 = 0.004) calculated for the GCC factor suggested that only 0.4% of the observed variance occurred depending on the class level. Therefore, it can be said that the effect of the student's grade level on gaining self-confidence in communication is very trivial.

3) Predictors of students' learning outcomes on social media in terms of hidden curriculum

The third research question was defined as "Do the daily time students use social media and the numbers of teachers they follow on their accounts significantly predict students' level of learning outcomes as a result of teacher-student interactions via social media?" Table 6 shows the results of multiple linear regression analysis about whether students' learning outcomes for each factor of the scale are significantly predicted by the daily time students use social media and the number of teachers they follow.

Table 6. *Results of multiple linear regression analysis for the prediction of learning outcomes on social media in terms of hidden curriculum by students' daily use of Facebook and the number of teachers followed (n=2046)*

	Variable	B	Std. Error B	β	t	p	Zero-order	Partial
LRV	Constant	3.237	0.034		95.414	0.000		
	Daily use	0.001	0.000	0.06	2.791	0.005	0.082	0.062
	Number of Teachers	0.092	0.009	0.216	9.991	0.000	0.222	0.216
	R= 0.230, R^2= 0.053, $F_{(2,2043)}$= 57.142, p= 0.000							
	Variable	B	Std. Error B	β	t	p	Zero-order	Partial
LaT	Constant	3.074	0.36		86.478	0.000		
	Daily use	0.002	0.000	0.090	4.200	0.000	0.113	0.093
	Number of Teachers	0.104	0.010	0.232	10.806	0.000	0.241	0.233
	R= 0.257, R^2= 0.066, $F_{(2,2043)}$ = 72.435, p= 0.000							

Table 6. ***(Continued)***

	Variable	B	Std. Error B	β	t	p	Zero-order	Partial
LRS	Constant	3.143	0.036		88.245	0.000		
	Daily use	0.001	0.000	0.057	2.623	0.009	0.076	0.058
	Number of Teachers	0.086	0.010	0.193	8.860	0.000	0.198	0.192
	$R= 0.206, R^2= 0.043, F_{(2,2043)} = 45.447, p= 0.000$							
	Variable	B	Std. Error B	β	t	p	Zero-order	Partial
GCC	Constant	3.158	0.041		76.786	0.000		
	Daily use	0.002	0.000	0.089	4.072	0.000	0.106	0.090
	Number of Teachers	0.087	0.011	0.170	7.790	0.000	0.179	0.170
	$R= 0.199, R^2= 0.040, F_{(2,2043)} = 42.203, p= 0.000$							

$p<.05$

When the bivariate and partial correlations between the predictor and dependent variables are examined, it is found that there is a positive but very low (r=0.08) correlation between the student's daily use of Facebook and the LRV scores, which decreases to r=0.06 when the number of followed teachers is controlled. On the other hand, a significant positive but low (r=0.222) correlation was found between the number of teachers added on the student's Facebook account and LRV scores. When the other variable is controlled, this value is calculated as r=0.216. When the regression model is examined, it is seen that the variables of the student's daily use of Facebook and the number of teachers added to Facebook account together show a significant and low level of correlation with the students' LRV scores ($R = 0.230$, $R^2 = 0.053$, $p <0.05$). These two variables together explain 5.3% of the total variance in students' LRV scores. While it is seen that both predictive variables are significant predictors of students' LRV scores, according to the standardized regression coefficients (β), the number of teachers added to student's Facebook account is more important than the daily usage time of Facebook. According to the results of the regression analysis, the regression equation (mathematical model) for the prediction of the LRV is as follows:

LRV= 3.237+ 0.001xDaily Use+ 0.092xNumber of Teachers

For the second factor (LaT), a positive low (r=0.113) correlation was found between the student's daily Facebook use time and the LaT scores, but when the other independent variable is controlled, it decreases to r= 0.093. The correlation between the number of teachers added on the student's Facebook account and LaT score was also positive and at low level (r = 0.241), which reduces to r = 0.233, when the other variable is controlled. When the regression model is examined, it is seen that both variables of the student's daily usage time of Facebook and the number of teachers added on the Facebook account together show a significant and low correlation with the students' LaT scores ($R=0.257$, $R^2 = 0.066$, $p <0.05$). These two variables together explain 6.6% of the total variance in students' LaT scores. While it is seen that both predictive variables are significant predictors of students' LaT scores, according to the standardized regression coefficients (β), the number of teachers added to student's Facebook account is again more important than the daily usage time of Facebook. According to the results of the regression analysis, the regression equation (mathematical model) for the prediction of the LaT is as follows:

LaT= 3.074+ 0.002xDaily Use + 0.104xNumber of Teachers

For the third factor (LRS), a positive low (r=0.076) correlation was found between the student's daily Facebook use time and the LRS scores, but when the other independent variable is controlled, it decreases to r= 0.058. The correlation between the number of teachers added on the student's Facebook account and LRS score was also positive and at low level (r = 0.198),

which reduces to r = 0.192, when the other variable is controlled. When the regression model is examined, it is seen that both variables of the student's daily usage time of Facebook and the number of teachers added on the Facebook account together show a significant and low correlation with the students' LRS scores ($R = 0.206$, $R^2 = 0.043$, $p < 0.05$). These two variables together explain 4.3% of the total variance in students' LRS scores. While it is seen that both predictive variables are significant predictors of students' LRS scores, according to the standardized regression coefficients (β), the number of teachers added to student's Facebook account is again more important than the daily usage time of Facebook. According to the results of the regression analysis, the regression equation (mathematical model) for the prediction of the LRS is as follows:

LRS= 3.143+ 0.001xDaily Use + 0.086xNumber of Teachers

For the last factor (GCC), a positive low (r=0.106) correlation was found between the student's daily Facebook use time and the GCC scores, but when the other independent variable is controlled, it decreases to r= 0.090. The correlation between the number of teachers added on the student's Facebook account and GCC score was also positive and at low level (r = 0.179), which reduces to r = 0.170, when the other variable is controlled. When the regression model is examined, it is seen that both variables of the student's daily usage time of Facebook and the number of teachers added on the Facebook account together show a significant and low correlation with the students' GCC scores ($R = 0.199$, $R^2 = 0.040$, $p < 0.05$). These two variables together explain 4% of the total variance in students' GCC scores. While it is seen that both predictive variables are significant predictors of students' GCC scores, according to the standardized regression coefficients (β), the number of teachers added to student's Facebook account is again more important than the daily usage time of Facebook. According to the results of the regression analysis, the regression equation (mathematical model) for the prediction of the GCC is as follows:

GCC= 3.158+ 0.002xDaily Use + 0.087xNumber of Teachers

DISCUSSION and CONCLUSIONS

This study investigated the effect of student-teacher interactions through social media on students from a hidden curriculum perspective, i.e. students' hidden learning outcomes regarding general or school-based rules or values, teachers' characteristics, some codes of conducts about restraining self, and gaining confidence in communication both online and at school. Although previous studies also investigated the effect of student-teacher interactions on learners and learning or teachers and teaching, we have not found any study discussing this effect within the scope of hidden curriculum. For example, in their scale development study, Akkoyunlu, Dağhan and Erdem (2015) investigated the teachers' tendencies and reasons for adding their students as "Friend" on Facebook. They concluded that those teachers who have their students added as friends on Facebook feel that they are responsible for their students' whole life, and this responsibility covers not only the real world but also the virtual world.

Social media let the relations and interactions between students and teachers move out of the classroom, establishing an affinity and emotional bond between the teacher and the student (Smith, 2015) and improving the quality of the relationship between the teacher and the student (Haeger, Wang and Lorenz, 2014; Kuzu, 2014). When students learn about their teacher's personal information, friends, interests and other background information through interactions with teachers on social media, it brings out positive effects on the classroom climate and their own motivations (Munoz & Towner, 2009). Interacting with teachers and having common interests with teachers both gives pleasure to students and improve the relationship between students and teachers (Atkins, 2010; Eke, Omekwu and Odoh, 2014; Kırksekiz, 2013). As a result of these interactions, students have less stress on communication and gain self-confidence in classroom communication (Kamnoetsin, 2014). There are studies also reporting that students' interaction with their teachers on social media positively affects students' communication skills (Ha & Shin, 2009; Hassan & Landani, 2015; Menteşe, 2013),

enable students learn more about the course and subjects (Nkhoma et al., 2015), the classroom atmosphere (Munoz and Towner, 2009), and the school and class (Atkins, 2010).

In addition, students' interactions with their teachers on Facebook provide students with opinions on political, religious and various current issues and contribute to their identity development (Eke et al., 2014). In addition, as a result of these interactions, it is stated that students learn the rules of the school and the classroom and that they will learn the expectations of teachers and what kind of sanctions will be imposed if these expectations are not fulfilled (Adıay, 2011; Veznedaroğlu, 2007; Yüksel, 2004).

However, these learning outcomes are not necessarily positive. Student-teacher interaction on Facebook can reveal the ideological tendencies of a person, whether a student or a teacher (Atkins, 2010), which may cause teachers or students to be biased towards each other. From the student perspective, students may develop negative attitudes or prejudices about their teachers as a result of their interactions on social media (Selwyn, 2009). Sang (2014), for example, states that some posts, likes or comments shared by teachers on social media may harm the reliability of teachers in the eyes of the students. Some teachers may also believe that when students learn such information as teachers' personal characteristics, private life, friend milieu, this may undermine his/her authority in the classroom and cause some other abuses (Akkoyunlu et al., 2015).

As mentioned earlier, the present study is different from the previous ones in discussing the effects of student-teacher interaction on students' learning outcomes from the perspective of hidden curriculum. As a result of this interaction with teachers, students can learn new attitudes, opinions, values, information etc. as a part of the hidden curriculum, rather than the formal curriculum, either intentionally or unintentionally. Teachers' extracurricular activities, their behaviors and manners in and outside the classroom or the school may cause the students learn various values in a hidden way (Akbulut, 2011). The hidden curriculum has various functions in providing students with some social skills (Serhatlıoğlu, 2012). This can happen as a result of observing teachers' attitudes towards students, modelling his/her communication styles etc. In parallel with the research findings in the literature, it was also found in the present study that the students get some learning outcomes as a result of their interaction with their teachers on social media, which can be attributed to the effect of hidden curriculum. Accordingly, it has been understood that as a result of student-teacher interaction on social media, students learn rules and values that their teachers do not express in a written or open way in the school, they get clues to get to know the teacher they cannot otherwise get during their interactions in the school, they learn to restrain themselves with the idea that their teachers would be aware of their sharing on social media, and learn to communicate more confidently at school or on social media. In addition, it was found that there was a significant difference in favor of male students in terms of learning to restrain themselves and gain self-confidence in communication within the scope of the hidden curriculum, while gender did not cause any difference in terms of learning rules and values and learning about teachers. In terms of grade level, it was determined that the hidden learning outcomes obtained by 5th grade students over social media were significantly higher than the students in other grades. However, since all the statistically significant differences were found to have small effect sizes, they are questionable and can be ignored in practice. It was also found that students' daily use of social media and the number of teachers added on their accounts were significant predictors of the students' views on their levels of learning outcomes within the hidden curriculum. As a result, based on the information in the literature and the findings obtained from the research, it has been revealed that the students continue to learn outside the school as a part of the hidden curriculum, and the interaction between teacher and student on social media is an important factor in terms of affecting the classroom teaching-learning process. Following suggestions were developed in line with the results of the research:

1) In this study, it was found that the students have got learning outcomes as a result of their interactions with their teachers on social media in terms of hidden curriculum. In this respect, teachers can collaborate to prepare a collection of visuals, messages, videos, etc. to share on their social media accounts in order for their students to acquire some favorable

values. They can evaluate the quality of the elements in this collection of materials and their positive and negative effects on the student more carefully according to pedagogical criteria.

2) As a result of the interactions on social media, students can acquire learning outcomes that may cause the teacher to lose his/her authority and credibility in the classroom. When sharing posts, likes or comments on social media, teachers should take into account that they have students following their social media accounts, and should make these shares by removing their students from the target audience when they may cause them to lose their classroom authority and credibility. In this regard, teachers should be made aware of the use of social media through pre-service and in-service activities.

3) The population of this research included the secondary school students attending state schools. Similar researches can be conducted at different educational stages and at different school types.

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