Students' Profiles of Information Seeking Behaviors on Facebook: Relations to Personality, Time Management, Gender, and Facebook Use

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Article Info	Abstract
	This study attempts to explore for different profiles of information seeking behaviors on Facebook and to analyze whether or not personality, time management, gender and Facebook use are viable differentiating students based on the their profiles. The data were collected through self-report scales from 196 university students of the three public universities. Cluster analysis was used to explore the profiles. Discriminant analysis was performed to identify a boundary among the students' profiles based on personality, time management, gender and Facebook use of students. We found five different clusters based on information seeking behaviors of Facebook of the students. The results show significant differences among these clusters. The result of discriminant analysis indicates that personality, time management and Facebook use are meaningful for discriminating information seeking behavior groups of students. The study reveals that students with high scores of information seeking behavior on Facebook have also high scores on openness to experience, agreeableness, conscientiousness and extroversion, time management skills. In spite of its limitations, the study certainly adds to our understanding of profiles of students using Facebook as a source of information.

Introduction

Social media environments have become a part of internet users' lives. For example, Facebook, one of the most well-known social media environments, has reached over 1.5 billion daily users (Roth, 2019). It is an undeniable fact that Facebook is a useful tool for connecting with friends and family (Öncü, 2015). However, it is clear that while the rapid dissemination of social media continues, there are two different views on the possible effects of social media use. The results of some studies show that the use of social media did not positively affect the students' academic achievement (Chugh & Ruhi, 2018); the use of Facebook may lead to addiction (Brailovskaia, Margraf, & Köllner, 2019) which may lead to various mental health problems including depression (Wright et al., 2013); has negative effects on life satisfaction (Hayes, Van Stolk-Cooke, & Muench et al., 2015; Tromholt, 2016) and happiness (Satici & Uysal, 2015), and increased the level of stress of users (Bevan, Gomez & Sparks, 2014). In contrast to these results, there are some studies which show that social networks have positively affected welfare (Kim & Lee, 2011; Tosun, 2012); increasing communication among peers (Kim & Lee, 2011); and a cost-effective way of spreading news, promoting services and communicating with customers in commercial meaning (Witte, 2014). It is also known that especially Facebook contributes to the social interactions of students like communicating with friends and having new friends (Ellison, Steinfield, & Lampe, 2011) and actively contributing to the teaching-learning process (Junco, 2012).

Considering the general trends; it is known that students especially prefer to use Facebook to get information about the lives of people that they are curious about, parallel to this the organizations show similar behaviors for communicating easily with their contacts (customers, parents, patients, etc.). Although Fallows (2008) stated that using search engines for online information seeking is the most popular trend, Giade, Yanti Idaya Aspura and Noorhidawati (2018) found that there is an increase in the use of social media services as a source of information. Thus, social media could play an important role in online information seeking of individuals.

Information seeking is defined by Niederdeppe et al. (2007) as "*active efforts to obtain specific information outside of the normal patterns of exposure to mediated and interpersonal sources*". Information seeking behavior refers to purposive seeking of information as a consequence of a need to satisfy some goal (Wilson, 2000). With its renewed features, social media services provide a new and potential resource for people to use for seeking information. Social media services play an important role and can be used for the transmission of different types of information, especially in real-time sharing and rapid updating of information (Hamid et al., 2016; Osatuyi, 2013). In this respect; it can be said that social media services become a source of information

for students (Balakrishnan & Gan, 2016; Kim, Sin, & Tsai, 2014). Individuals can access information and experience, which cannot be obtained through the search engine, via Facebook (Westerman & Spence, 2014). The studies show that information seeking behavior on Facebook is frequently focused on searching information about the social environment (Ellison, Steinfield & Lampe, 2011; Westerman, Van Der Heide, Klein, &Walther, 2008) and about Facebook groups (Sharma & Govindan, 2015). However, studies indicate that information seeking behaviors supported by social media services are not understood very well (Giade, Yanti Idaya Aspura, & Noorhidawati, 2018; Kim et al., 2014; Tess, 2013). Asghar (2015) indicate that very little is currently known about information seeking in social media.

The related literature and the reports about the use of social media services show that there is a significant relationship between Information Seeking Behavior on Facebook and time factor. The conducted studies found that using Facebook for long time periods has a negative effect on students' academic achievement (Kirschner & Karpinski, 2010) and significantly affect the distraction of students for academic duties (Feng, Wang, Wang & Hossain, 2019). Moreover, it is claimed that spending long time periods on Facebook directly affect the students' academic performance and indirectly affect self-esteem (Kalpidou, Costin & Morris, 2011). Actually, when the positive relationship between academic performance and time management skills is considered (Indreicaa, Cazanb & Truţac, 2011; Nasrullah & Khan, 2015), the effect of spending long time periods for social media services may be understood clearly. Therefore; while studying on the information seeking behavior on Facebook, time management is an essential subject to be focused on. To manage time effectively gives the opportunity of successful career planning, more reading and learning, following the developments and technology, having more time for family and friends, resting, having fun, thinking, creating new ideas and starting to new projects (Sayan, 2005). For this reason, it is very important to manage the time spent on Facebook for students' academic achievement. In this respect; to investigate the relationship between information seeking behavior on Facebook and time management skills can be a guide for researchers aimed to use Facebook as a potential learning environment.

In addition to the importance of time management skills, it can be seen that the personality behaviors affect the overuse of Facebook (Hong, Huang, Lin, & Chiu, 2014; Tang et al., 2016). One of the conducted studies indicated that the extroverted people spend more time on Facebook than the introverted people (Pornsakulvanich & Dumrongsiri, 2012). This is an indicator of the relationship between the use of Facebook and personality; because every person expresses themselves in different manners. The reaction, comment and the way of expressing oneself to a topical development can differ according to the personality traits. These differences were classified into five basic personality traits in the study conducted by Gosling et al. (2011).

Most of the studies on personality indicated that the five factor model of personality is the best model that explains the personality (Funder, 2000; McCrea & Costa, 2003). According to the Five Factor Model of Personality, the personality traits are divided into five groups as extraversion, conscientiousness, openness to experience, agreeableness, and emotional stability/neuroticism (Bacanlı, İlhan, & Aslan, 2009). It is known that the individuals who have extraversion personality trait spend more time on social media (Wilson, Fornasier, & White, 2010); subscribe more groups and add more friends (Ong et al., 2011); contact more and share more photos on Facebook (Correa, Hinsley, & De Zuniga, 2010); update their status and albums more and spend more time on Facebook (Eftekhar, Fullwood, & Morris, 2014; Lee, Ahn & Kim, 2014). The conscientious individuals use internet and social media less (Butt & Phillips, 2008; Ross et al., 2009) and generally for academic purposes (McElroy, Hendrickson, Townsend, & DeMarie, 2007). The individuals who have openness to experience personality share posts to the profiles of others frequently (Ross et. al., 2009); share personal information on his/her own profile and use Facebook to keep contact with others (Amichai-Hamburger & Vinitzky, 2010). These individuals continue their real life interactions by following the activities of others on Facebook (Carpenter, Green, & LaFlam, 2011). The agreeable people prefer to use Facebook to tell the truths about themselves and to communicate more than taking attention and gathering information (Seidman, 2013); and also to leave positive comments to their friends' sharing (Wanga, Jackson, Zhang, & Su, 2012). Moreover, it was mentioned that the female individuals who have agreeableness personality share more photos than males (Amichai-Hamburger & Vinitzky, 2010). It is also known that the people who have the indicators of neuroticism (emotional instability) as anxiety spend more time on Facebook (Amichai-Hamburger & Vinitzky, 2010; Ross et.al., 2009) and it is found that these people use Facebook for expressing their negative feelings (Forest & Wood, 2012). It can be seen that different personality traits affect the behavior of using Facebook. While some of the users tend to share more, the others express information seeking behavior. In this context, only a study in the literature found that personality traits were inconsistently related to information seeking behavior (Kaspar & Müller-Jensen, 2019). They suggest that new additional studies should be conducted to investigate relation between information seeking and personality.

There is another difference in the aims of using Facebook in line with gender. The related literature shows significant differences in motivation to use social media, perceptions about social media and aims of using social media according to gender (Biernatowska, Balcerowska, & Bereznowski, 2017). The study conducted by Idemudia et al. (2017) found that female and male social media users express different types of information seeking behavior and also female users internalize the social media instruments slower than male users. The studies show that male social media users mainly use social media in order to take lover, play games, gather information about crucial events and for discussion (Joiner et.al., 2012; Muscanell & Guadagno, 2012) while female users mainly aim to share messages, photos that can be seen by everyone; and direct messaging (Muscanell & Guadagno 2012). Moreover, female users see Facebook as an inseparable part of their lives more than males (Biernatowska, Balcerowska, & Bereznowski, 2017). Parallel to these it can be seen that there is a relationship between gender and the variables that are mentioned above. For instance, Khan and Nisa (2017) told on their study that there is a strong relationship between gender and the variable of time management. Moreover, the study conducted by Gülnar, Balcı and Çakır (2010) indicated that narcissism and the ways of self-expression are the predictors of motivation to use social media for male participants, while the motivation of female users is predicted by information seeking behavior. As a result, in the light of the related literature it can be said that gender has an effect on information seeking behavior on Facebook.

Purpose and Significance of the Study

Due to computers and information communication technologies, use of electronic information resources have become widespread fast (Desta, Preez, & Ngulube, 2017). A study conducted by Superio, Canaman, Jaco and Estember (2018), indicates that the large part of respondents has preferred online sources of information (e.g., web pages, online journals, online monographs, etc.). The related literature presents that the frequency of information seeking behavior via social media services show increases but the behavior has not been specified exactly yet; and also there is a need to investigate the behaviors within the scope of individual differences and socio-psychological traits (Ashgar, 2015; Giade, Yanti Idaya Aspura, & Noorhidawati, 2018; Kim et.al., 2014; Tess, 2013). In this sense, the aim of this study is to determine that whether gender, personality traits, time management skills and the frequency of using social media environments has an effect on the information seeking behavior on Facebook, or not. At first, the process of adaptation to Turkish of the scale of "Information Seeking Behavior on Facebook" constructed by Asghar (2015) were completed. Then the profiles according to the information seeking behavior on Facebook were identified. The research problems in line with the purpose of the research are as follows:

1. How are university students grouped according to their profiles based on their information seeking behaviors on Facebook?
2. Is there any significant difference between the profile groups of university students according to their personality traits, time management skills, gender, and the frequency of using information and communication technologies and Facebook?
3. Which variables are significant in classifying the students' profiles according to information seeking behavior on Facebook?

This study will present the knowledge of creating learning environments by considering the individual differences for educators who want use Facebook for educational purposes in future. Because different traits of the users, especially university students who have high scores on Information Seeking behavior on Facebook, will be explained in line with the mentioned variables. In addition to these, it is thought that this study will contribute to the international and national literature with categorizing the information seeking behavior on Facebook by identifying the relations; and patterns of these relations. This study includes important knowledge about the beneficial use and potential of social media services that can be transmitted to education.

Method

Research Design

This study is a correlational survey design. The aim of the correlational studies is to determine the relationship between two or more variables and to investigate the cause and effect relations between these variables (Frankel, Wallen, & Hyun, 2012). The main purpose of the correlation research is to identify the determining variables for crucial subjects by defining the relations between variables. Therefore, this study focuses on the relations between information seeking behavior on Facebook and some variables based on individual differences.

Study Group

The data were gathered from two different study groups in line with the sub-research questions. Convenience sampling is followed to select participants. The first study group participated to the adaptation process of the Scale of Information Seeking Behavior to Turkish. The data for identifying profiles of the students related to Information Seeking Behavior and significant variables of classifying these profiles were gathered from the second study group. The data were collected from the students of different state universities in 2016 and 2017. Data from both the first and second samples were collected in two formats such as paper-based and online form. Paper-based forms were administered by researchers and online forms were disseminated through social media services.

There are different arguments about the rate of number of items per number of observations in the literature of scale development and adaptation. While Gorsuch (1983) pointed that the minimum number of items should be 5 times of each observation in the scale development process, Tavşancıl (2002) suggested that the number of items should between 5 to 10 times of the number of observations. In the light of these criteria, for the twenty-three items of this study the rate of 23:5 was taken into consideration. Within this scope, the data were gathered from 140 participants of 72 (51,4%) female and 68 (48,6%) male.

In order to determine significant variables for classifying the information seeking behaviors, the data were gathered from 196 university students (pre-service teachers) including 97 (49 %) females and 99 (51%) males. The 37,5% of the participated students use Facebook for longer than seven years, 33,2% of them use it for 5 to 6 years, 17,3% of them use for 3 to 4 years, 8,2% of them use Facebook less than 1 year and 3,6 of them use Facebook for 1 to 2 years. The 49% of the students' mention that they use Facebook less than 1 hour per day, 28,6% of them use it for 1 to 2 hours per day, 11,72% of them said that they hardly ever use Facebook in one day, 7,1% of them use it for 3 to 4 hours and 3,6% of the students' mention that they use Facebook longer than 4 hours daily. Moreover 49,5% of the participants indicated that they use Facebook for educational purposes as to share documents/home-works/activities; while 50,5% of the participants do not use Facebook for educational purposes. In addition, the 50% of the participants who use Facebook for educational purposes use it for less than 1 hour per day, 12,8% of them seek educational information on Facebook for 1 to 2 hours daily, 7,1% of them use for 3 to 4 hours and 3,2% of them seek educational information longer than 4 hours. Lastly, 55,1% of the students use information technologies for 5 to 6 years, 19,4% of them use for 3 to 4 years, 17,9% of them use these technologies longer them 7 years, 8,2% of the students use them less than 1 year and 3,6% of them use information technologies for 1 to 2 years.

Data Collection Tools

The data of the study were collected by using three different scales. The details about the scales are as follows.

The Scale of Information Seeking Behavior on Facebook

The Turkish adapted version of the Scale of Information Seeking Behavior on Facebook was used in this study. The original scale was developed by Asghar (2015) in order to determine the Facebook users' information seeking behaviors on Facebook. The 23-item scale has five factors as Social Searching, Hedonic Proclivity, Social browsing, Consumer Trends Information, and General Erudition. The reliability coefficient of scale is 0.89. Also, the adaptation process to Turkish was completed within this study. The scale adaptation is a development process in order to use the scale for another culture (Oakland & Lane, 2004). The main purpose of the scale adaptation is to develop a parallel test in accordance with the social, cultural, linguistic characteristics of the target group without the alteration of the structure (Oakland & Lane, 2004). The permission of the developer of the scale was taken before the adaptation process. The second step of the adaptation process is the translation of the scale by qualified translators and expertise for the language validity (Hambleton & Patsula, 1999). In this step, Geisinger (1994) suggested that for a successful translation there is a need to an individual and group study, and also the combination of these two. For this study, the Scale of Information Seeking Behavior was translated by the group of three specialists and then the opinions of seven specialists about the translation were taken. The final version of the scale was developed in line with the opinions of the specialists. In order to check the equivalency of the scales in two languages; the original and translated versions of the scale were conducted to a group who has adequate language skills; and the correlation coefficients were compared. Table 1 illustrates the Pearson Moment Correlation Coefficients calculated at the result of the conduction of two scales.

Table 1. The Correlation Coefficients of Conducting Information Seeking Behavior on Facebook Scale in Two Languages

Variables	N	r	p
Turkish Version * English Version Total Score	17	0.881	<0.001
Turkish Social Searching * English Social Searching Sub-Scale	17	0.897	<0.001
Turkish Hedonic Proclivity * English Hedonic Proclivity Sub-Scale	17	0.807	<0.001
Turkish Social browsing * English Social browsing Sub-Scale	17	0.848	<0.001
Turkish Consumer Trends Information * English Consumer Trends Information Sub-Scale	17	0.748	<0.001
Turkish General Erudition * English General Erudition Sub-Scale	17	0.772	<0.001

The values of correlation coefficients between .70 and .90 are indicators of strong correlation (Hinkle, Wiersma, & Jurs, 2003). Table 2 shows that the total scores and the five sub-dimensions of the both versions of the scales have positive strong relationship that is significant (p<.05). In the light of these it can be said that there is language validity and equivalency between the English and Turkish versions.

There is also a need to check the construct validity of the scale that has language equivalency in the adaptation process of the scale (Hambleton & Patsula, 1999). In order to determine that the adapted version of the scale is suitable for the adapted culture, confirmatory factor analysis was conducted. The model of the results of the confirmatory factor analysis conducted to 140 participants for construct validity was illustrated in Figure 1.
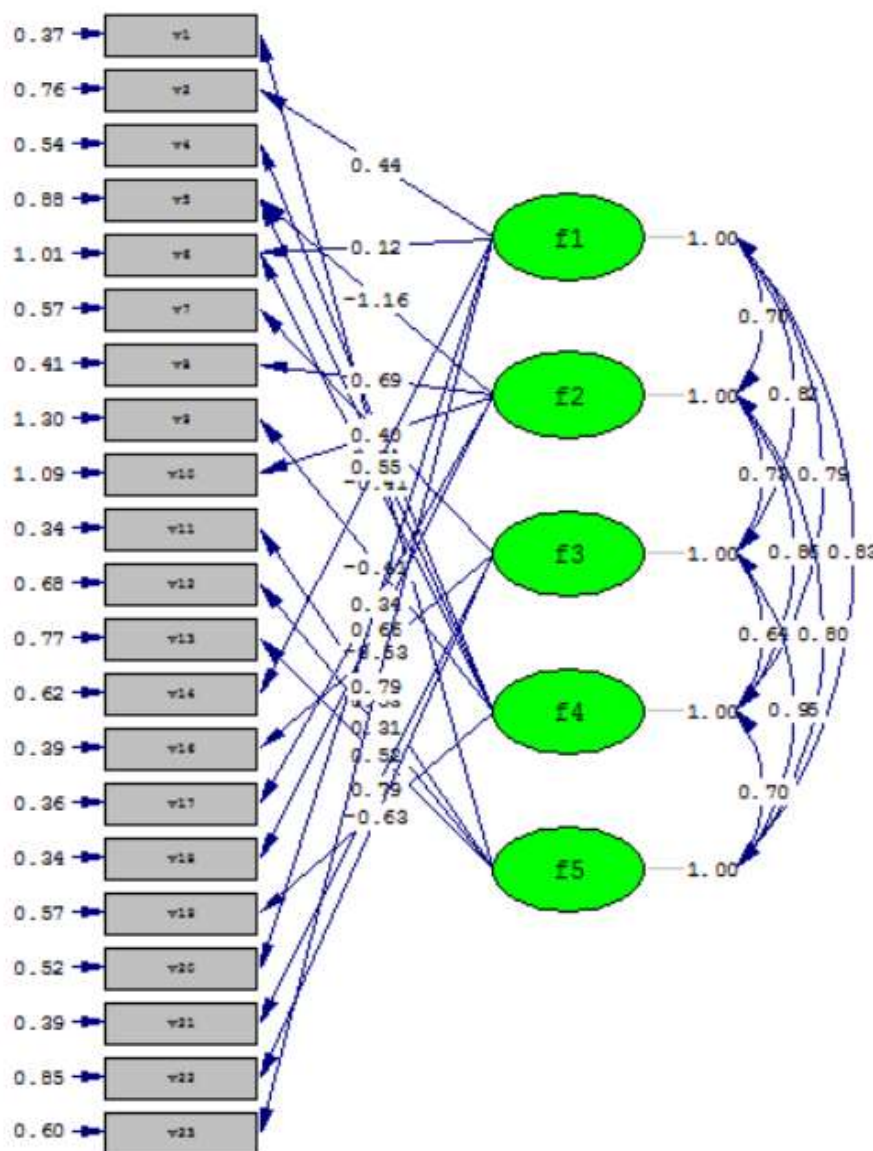

Figure 1. Confirmatory Factor Analysis Model for Scale

Figure 1 showed that the Chi-square and degrees of freedom are $\chi2=364.26$ (df = 177, p<.01) with the rate of $\chi2/df=2.05$. The related literature shows the value of the rate that is below 3 indicates the good fit of the model (Jöreskog & Sörbom, 1993; Kline, 2005). It can be said that the results of the CFA shows that there is a perfect fit between the model and the data. RMSEA (root mean square error of approximation) is an index that is commonly used in CFA. The studies point that the RMSEA indexes should be 0.08 or less (Schermelleh-Engel, Moosbrugger, & Müler, 2003; Vieira, 2011). Therefore, the RMSEA value that is equal to 0.08 of this study is acceptable.

The other indicators for goodness of fit are having the SRMR (Standardized RMR) value between "0.05" and "0.10" (Schermelleh-Engel, Moosbrugger, & Müler, 2003); and the value of RMR (Root- mean-square residual) below "0.10" (Marsh, Balla & McDonald, 1988). The results of the confirmatory factor analysis this study are RMR=0,085 and SRMR= 0.08. According to these results the goodness of fit of the model of this study is acceptable. In the CFA, the values of NNFI (Non-Normed Fit Index), CFI (Comparative Fit Index) and IFI (Incremental Fit Index) which are 0 .95 at least indicates the model has good fit (Hu & Bentler, 1999; Schermelleh-Engel, Moosbrugger, & Müler, 2003).

The results of the analysis show that these values are above "0.95" in this study. According to these results, the goodness of fit of the model for this study is acceptable. The confirmatory factor analysis also check whether the factor structure of a scale determined by a theory or exploratory factor analysis is confirmed for another sample or not (Brown, 2006). In accordance with, it can be said that the five-factor structure of the scale of Information Seeking Behavior on Facebook was confirmed by the results of the confirmatory factor analysis.

Finally, the reliability analysis of the scale was completed and the Cronbach Alpha Coefficient is equal to 0.712. Kalaycı (2008) mentioned that for the reliability of the scale the Cronbach Alpha Coefficient should between $0.60 \leq \alpha < 0.80$. Therefore, it can be said that the results gathered from the scale is reliable. At the result of the reliability and validity analysis, it is decided to use the scale of "*Information Seeking Behavior on Facebook*" in 5-points Likert-type, included 23 items and have five factors.

Five Factor Personality Trait Scale (FFPS)

The Scale developed by Benet- Martinez and John (1998) and translated to Turkish by Sümer, Lajunen and Özkan (2005) in order to be used in an intercultural study, determines personality traits in five factors. With its five factors as extraversion, conscientiousness, openness to experience, agreeableness, and emotional stability the scale has 44 items. The high scores from each factor indicates that the individual express high level of this personality trait. The Cronbach alpha results were detected as between .64 and .77 for the sub-scales conducted to Turkish sample during the adaptation process (Sümer, Lajunen, & Özkan, 2005).

Time Management Inventory (TMI)

The scale was developed by Britton and Glynn (1989) in order to measure the time management skills of university students. It was adapted to Turkish by Alay and Koçak (2002), and they also completed the validity and reliability analysis. The scale has 27 items and three sub-scales as "time planning", "time attitudes" and "time wasters". The total score gathered from these three factors indicates the result for time management skill that individual has. The maximum score gathered from the inventory is 135 while the minimum score was 27. The higher scores mean better time management skills.

Data Analysis

The Adaptation of the Scale of Information Seeking Behavior on Facebook to Turkish

In the adaptation process of the Information Seeking Behavior on Facebook to Turkish culture, the correlational analysis was conducted and also expert opinions were taken for the language validity. The confirmatory factor analysis was performed for the construct validity. The Cronbach alpha coefficients were also calculated in order to prove the reliability of the measurements.

Defining the Profiles of the Students according to their Information Seeking Behavior on Facebook by Nonhierarchical Clustering Analysis

The dependent variable should be categorical in order to be subjected to discriminant analysis. The clustering analysis was conducted for defining the profiles of information seeking behavior on Facebook and for categorizing these profiles. The purpose of the clustering analysis is to classify the data according to specific behavior traits and to define the data sets of the clusters (Tryfos, 1998).

Discriminant Analysis Conducted for Defining Significant Variables while Classifying the Information Seeking Behaviors on Facebook

The discriminant analysis can be defined as the whole process that clusters the subjects with minimum error rate (Tatlıdil, 1996). In this analysis the dependent variable (The Profiles of Information Seeking Behavior on Facebook) should be categorical, and the dependent variables should be categorical or continuous (Hair et al., 2006). The discriminant analysis is accepted as suitable for this study because of having a categorical dependent variable (with 5 category), having all of these categories for each observation and in order to determine the variables of classification. Table 2 presents the categories of the independent variables subjected to discriminant analysis and the interpretation of the results.

Table 2. Interpretation of the Items and Indexes of the Questionnaires and Scales that Define the Independent Variables

Independent Variables	The type of the independent variable and the scale items that discriminate the variable	Interpretation of the Scores
The Scores of Time Management	Continuous The maximum score gathered from the TMI is 135, while the minimum score is 27.	The highest score from this inventory indicates that the students have high level of time management skills.
Gender	Categorical Female, male	The female category is the reference category while interpreting the highest scores gathered from this inventory.
The Duration of using Information and Communication Technologies	Categorical Less than 1 year /1 to 2 years/3 to 4 years/ 5 to 6 years / More than 7 years	The category of less than 1 year is the reference category for interpreting the highest scores from this inventory.
The Time spent for searching for academic purposes per day	Categorical Never/ Less than 1 hour /1 to 2 hours / 3 to 4 hours / More than 4 hours	Never is the reference category of the interpretation of the highest scores gathered from this inventory.
The Time spent for using Facebook per day	Categorical Never/ Less than 1 hour /1 to 2 hours / 3 to 4 hours / More than 4 hours	Never is the reference category of the interpretation of the highest scores gathered from this inventory.
Five Factor Personality Trait Scale	Continuous variable Extraversion/Agreeableness/Conscientiousness/Emotional stability/Openness to experience	The high score gathered from the factor of the inventory shows having high level of this personal trait.

The data sets gathered from the result of the discriminant analysis is expected to satisfy some assumptions. One of these assumptions is the size of the sample. According to Diekhoff (1992) the minimum sample size should be 10 times of the number of independent variables. The number of the smallest group of this study (196) is greater than 10 times of the number of independent variables (10). The assumption, which mentions that all the participants should have the categories, is satisfied by the categorical dependent variable with five categories. The other assumption is not to have outliers. So, the data were analyzed for univariate and multivariate outliers. Beside the results of the multi-collinearity analysis shows that the highest correlation is .52. The Box M test was conducted at the significance level of .05 for the homogeneity of variances and covariance; and all of the results of this analysis satisfy the assumptions and it is agreed that the statistics gathered from the discriminant analysis is reliable.

Results

How are university students grouped according to their profiles based on their information seeking behaviors on Facebook?

Within the context of the study, the students classified to different profiles according to their scores of information seeking behavior on Facebook with nonhierarchical clustering analysis. The reason of conducting clustering analysis is to cluster the data as similar within groups and different between groups and to test whether the differences between the groups are significant or not. To have significant differences is crucial for entitling the clusters. Five groups were detected according to the students' behavior of information seeking on Facebook at the result of the nonhierarchical clustering analysis. Table 3 illustrates some examples about these five clusters with IDs and distances.

Table 3. The IDs and Cluster Distances of Data

ID	Cluster	Distance	ID	Cluster	Distance	ID	Cluster	Distance
184	1	4.364	95	2	2.316	17	3	2.423
185	1	.636	96	2	.316	18	3	4.577
186	1	3.364	97	2	4.684	27	4	5.154
187	5	3.000	98	2	2.316	28	4	5.154
188	5	2.000	20	3	3.423	29	4	5.154
184	1	4.364	21	3	.423	30	4	4.846

The results of the cluster analysis indicated there 13 individuals in the first group, 23 for the second group, 86 for the third group, 64 for the fourth group and 10 individuals for the fifth group. However, before entitling the clusters, the analysis should be conducted to understand whether the mean differences between groups are significant or not.

Is there any significant difference between the profile groups of university students according to their personality traits, time management skills, gender, and the frequency of using information and communication technologies and Facebook?

To detect the significance of the differences is very important for entitling the groups. Table 4 represents the ANOVA test results, which was conducted to compare the means of the groups.

Table 4. The Results of ANOVA Test Conducted for Determining the Differences of the Clusters

	Sum of Squares	df	Mean Square	F	p
Between groups	26018.685	4	6504.671	612.184	<0.001
Within groups	2029.444	191	10.625		
Total	28048.129	195			

Table 4 shoes that there is a significant difference between the group scores (F=612.18; p<.01). This result indicates that there is significant difference between the mean scores of the groups and the groups can be entitled according to the mean scores. However, there is a need to calculate the mean scores of the groups before entitling. Table 5 summarizes the results of the frequency analysis defined the number of participants and mean scores of the groups.

Table 5. The Size and Means of Groups

	Groups					
	Group 1	Group 2	Group 3	Group 4	Group 5	Total
n	13	23	89	64	10	196
Mean	38.8462	51.8696	64.0957	74.6362	92.0000	65.8518

According to Table 5, the first group has minimum and the fifth group has maximum mean scores. The other groups have increased mean scores from 1 to 5. Based on these analyses the groups are entitled as follows:

        Group 1: The Lowest Level of Searching Skills on Facebook
        Group 2: The Low Level of Searching Skills on Facebook

> Group 3: The Medium Level of Searching Skills on Facebook
> Group 4: The High Level of Searching Skills on Facebook
> Group 5: The Highest Level of Searching Skills on Facebook

Which variables are significant in classifying the students' profiles according to information seeking behavior on Facebook?

In this part of the study, the analyzed independent variables' significance level and the percentages of the accuracies while classifying the students' profiles of the information seeking behaviors on Facebook are illustrated. Table 6 includes the distribution of independent variables according to dependent variables and descriptive statistics within this study.

Table 6. Mean Indexes of the Variables according to Groups

Independent Variables	Group 1 Mean	Group 2 Mean	Group 3 Mean	Group 4 Mean	Group 5 Mean
Emotional instability	25.07	25.56	25.54	25.98	28.70
Extraversion	35.00	36.43	40.45	43.27	37.50
Openness to experience	33.15	31.47	36.16	39.09	39.10
Agreeableness	37.30	34.00	43.02	45.21	42.80
Conscientiousness	26.61	29.91	33.09	34.06	34.60
Time Management	2.47	2.78	2.98	2.89	3.06
Gender	1.23	1.47	1.53	1.52	1.60
Duration of Using Information and Communication Technologies	3.76	4.08	3.74	3.84	3.80
Daily Time spent for Searching on Facebook for educational purposes	2.15	2.21	1.96	2.06	3.00
The Frequency of using Facebook	1.84	2.04	2.44	2.55	2.90

In this study, first of all, the frequencies of the sub dimensions of the five factor personality inventory as extraversion, agreeableness, self-control, emotional instability and openness to experience were analyzed. While the emotional instability taken into consideration, it can be seen that the lowest index is belong to first group and the highest index is belong to fifth group. This means that the emotional instability scores are higher for the first group (the group of students who has low scores of searching behavior on Facebook). The results show that the highest mean score of the extraversion factor is belong to fourth group, for the factor of openness to experience it is belong to fifth group, for the factor of agreeableness the fourth group and for conscientiousness the fifth group has the highest mean score. In the light of these, it can be said that the students of the fourth and the fifth groups have the highest mean scores in the four personality traits. In other words, the students who have high scores of information seeking behavior on Facebook have also high scores of openness to experience, agreeableness, conscientiousness and extraversion.

The results of the students' time management scores indicated that the students of the fifth group have the highest indexes while the students of first group have the lowest indexes. This means that, the students who have high level of information seeking behavior on Facebook have highest time management skills, while the students who have low level of information seeking behavior on Facebook have lowest time management skills. When the gender variable is evaluated (female: 1, male: 2); it is seen that the possibility of having male members is high for the 5th group which the members have high score of information seeking behavior on Facebook, and the 4th, 3rd and 2nd groups are followed the 5th group respectively. In addition, Group 1, which consists of female students more, have students with the lowest scores of information seeking behavior on Facebook.

When the duration of using information and communication technologies is examined, the students who have high score of information seeking behavior on Facebook (Group 5) are belong to the groups of using Information and Communication Technologies for 4 to 5 years and more than 7 years. The other students distributed between the groups of 3 to 4 years and 4 to 5 years. When the daily educational purposed research time on Facebook variable is examined, it is seen that the highest index value belongs to Group 5. According to the mean scores of the students who have high information seeking behavior on Facebook for used it for educational purposes for 1 to 2 hours per day. It is observed that the third group's students have the lowest information seeking behavior. The third group's students vary between the groups of never and less than 1 hour about using Facebook for educational purposes. Finally, it is seen that the frequency of daily use of Facebook of

the students is between less than 1 hour and 1 to 2 hours for group 5, 4, 3 and 2; and the students in group 1 never use or use it less than 1 hour per day. Table 7 shows the eigenvalues, which indicate the variance of the observed variables that the total score of Information Seeking Behavior on Facebook explains.

Table 7. Eigenvalues

Functions	Eigenvalues	Variance	Accumulated %	Canonical Correlation
1	.531[a]	76.2	76.2	.433
2	.358[a]	30.3	74.8	.369
3	.196[a]	18.5	93.3	.296
4	.035[a]	6.7	100.0	.183

Table 7 illustrated that four different discriminant function produced by the categories of the five dependent variables. To have equal discriminatory powers for the four functions produced by the same dependent variables because of the discriminant analysis cannot be expected. It is expected to have diminishing increase in the discriminatory powers of the four functions from the first to the last one. It can be said that in this study, the produced functions fits to this equality. The eigenvalues gathered from the discriminant analysis have values between 0.531 and 0.035 respectively. Although there is not any clear definition in the literature, it is known that the eigenvalues greater than 0.40 can be accepted as "good" (Kalaycı, 2005). When the eigenvalues are closer to 1, the discriminatory power will be increased. The first function of the four functions gathered from the five dependent variables in this study, has the highest eigenvalue. Having the value of .521 which is greater than 0.40 of the first function can be criticized as having an acceptable value which is between the desired measures. Moreover, the canonical correlation equal to 0.433 can be interpreted as having medium level of discriminatory power while defining the groups of the functions. For the other functions, this value is below the acceptable measures. From this point of view, it can be said that the first function has the power of discriminating the dependent variable. It is expected to be free from chance while classifying the dependent variable by the produced function in the discriminant analysis. To test the significance of the discriminant functions is a way of eliminating the effect of chance (Cramer, 2003, p. 209). The Wilks' Lambda Statistics was performed for testing the significance of the analysis (see Table 8).

Table 8. Wilks' Lambda Statistics

Function	Wilks' Lambda	Chi-square	df	p
1-4	.618	90.135	40	<.001

Wilks' Lambda analyses whether the independent variables as a whole classified the dependent variable significantly or not (Garson, 2012; Tabachnick & Fidell, 2007). The significant value of Wilks' Lambda means that the independent variables of the function discriminate the dependent variable. Table 8 illustrates that the value of Wilks' Lambda is significant (p<.01). Therefore, it can be said that the discriminating power of independent variables is significant. However, these values do not determine which of these independent variables' discriminating power is significant. In order to analyze which of the independent variables have significant discriminating power, separate analysis of Wilks' Lambda were conducted (see Table 9).

Table 9. The Results of Wilks' Lambda Analysis

Independent Variables	Wilks' Lambda	F	df1	df2	p
Emotional Instability	.985	.740	4	191	.566
Extraversion	.955	2.258	4	191	.044
Openness to Experience	.951	2.475	4	191	.046
Agreeableness	.938	3.150	4	191	.015
Conscientiousness	.961	1.950	4	191	.104
Time Management	.813	4.535	4	191	.002
Gender	.976	1.166	4	191	.327
Frequency of Using ICT	.984	.783	4	191	.537
Frequency of Using Facebook for Educational Purposes	.946	2.735	4	191	.030
Frequency of Using Facebook	.832	3.463	4	191	.009

Table 9 shows that extraversion of students [$F(4, 191) = 2.258$, $p<.05$], openness to experience [$F(4, 191) = 2.475$, $p<.05$], agreeableness [$F(4, 191) = 3.150$, $p<.05$], time management [$F(4, 191) = 4.535$, $p<.05$], frequency of using Facebook for educational purposes [$F(4, 191) = 2.735$, $p<.05$] and frequency of using Facebook [$F(4, 191) = 3.463$, $p<.05$] have significant discriminating power ($p<.05$). In contrast, the variables of emotional

instability, conscientiousness, gender and Frequency of Using ICT do not have statistically significant power. The percentages of correct classification of the discriminant function are summarized in Table 10.

Table 10. The Percentages of Correct Classification of the Independent Variable

	Group 1		Group 2		Group 3		Group 4		Group 5		Total	
	%	f	%	f	%	f	%	f	%	f	%	f
Group 1	61.5	8	7.7	1	7.7	1	15.4	2	7.7	1	100	13
Group 2	17.4	4	43.5	10	21.7	5	4.3	1	13.0	3	100	23
Group 3	11.6	10	22.1	19	33.7	29	25.6	22	7.0	6	100	86
Group 4	7.8	5	7.8	5	21.9	14	45.3	29	17.2	11	100	64
Group 5	10.0	1	10.0	1	10.0	1	0	0	70.0	7	100	10

Percentage of Correct Classification = 62.7%

Table 10 illustrates the percentage of correct classification of predicted group membership. The total percentage of correct classification of the discriminant function is 62.7 %. To have a value greater than 50 % and the initial classification rate (initial percentage was 42.4%) can be interpreted as having correct classification without chance factor (Çokluk, 2010). Therefore, it can be said that the effect of the independent variables included in this study on the classification is free from the chance factor. Then the results related to the standardized coefficients giving the relative importance order of the variables that have a significant contribution to the classification were calculated and given in Table 11.

Table 11. Standardized Coefficients of Canonical Discriminant Function

Variables	Coefficients
Extraversion (EX)	.250
Openness to Experience (OE)	.462
Agreeableness (AG)	.176
Time Management (TM)	.595
Frequency of Using Facebook for Educational Purposes (FEP)	.229
Frequency of Using Facebook (FUF)	.459

Table 11 shows that the variable of time management (.595) has the most significant contribution to grouping information on information seeking behaviors on Facebook. Beside the coefficients of other variables, from the highest to lowest, are frequency of using Facebook (.459), openness to experience (.462), extraversion (.250), frequency of using Facebook for educational purposes (.229) and agreeableness (.176). In this respect, the function of this study is as follows:

$$\text{Function} = 0.250 * EX + 0.462 * OE + 0.176 * AG + 0.595 * TM + 0.229 * FEP + 0.459 * FUF$$

In the result of the discriminant analysis, the function can be explained as follows: Students who frequently perform information seeking behavior on Facebook (students with high scores on information seeking behavior on Facebook) have high level of time management skills, spend more time to use Facebook for education and other purposes, and belong to the groups of openness to experience and extroversion.

Discussion and Conclusion

This study attempts to explore for different profiles of information seeking behaviors on Facebook and to analyze whether or not personality, time management, gender and Facebook use are viable differentiating students based on the their profiles. In the light of the hypothesis mentions to use social media services as knowledge searching engines, the study emphasized that Facebook can be used as a source of information and learning. Before the data collection process of the study, the adaptation of the Scale of Information Seeking Behavior on Facebook developed by Ashghar (2015) was carried out and validity and reliability studies were conducted for the use of the scale in Turkish culture.

In the scope of validity analysis, for language validity the scale was translated into Turkish and expertized. The Turkish and the original scale were applied to a dominant group. The data were analyzed by correlation analysis and the language validity was tested for the total and sub-factors of the scale. Afterwards, the scale was subjected to confirmatory factor analysis for the verification of the structure and it was concluded that the scale

could be used in the same way as the original factor structure in Turkish culture. The goodness of fit for CFA revealed that the five-factor structure showed an acceptable fit. The twenty-three items and the five factors structure of the Scale of Information Seeking Behavior on Facebook were confirmed in this study.

Within the scope of the research, according to the information seeking behavior scores on Facebook, students were divided into five profiles: Highest, high, medium, low and lowest. In order to distinguish these profiles, it was found that only the independent variables of personality, time management and frequency of using Facebook were significant. The variable of time management has the highest effect on profiling of the students. This variable is followed by the duration of Facebook usage and the time spent using Facebook for educational purposes. While the daily usage of Facebook was around 90 minutes per day in 2012, this time increased to 135 minutes in 2017 (Statista, 2019). With the increasing use of mobile devices, the internet, and new features added in the social networks, it is evident that the time spent on using social media is increasing. In this case, an efficient information seeking activity can be provided to students by gaining effective time spending and time management. Thus, by taking advantage of the potential of social media, the student can capture the opportunities of time management for better career and future planning, new developments and technology, creating new ideas and starting new projects (Sayan, 2005).

The study highlights the importance of personality traits and information seeking behaviors of the students in Facebook. However, only the extraversion, agreeableness and openness to experience of the five-factor personality traits significantly contribute to the classification. The common features of the groups of extraversion and openness to experience are being the most active group of messaging via Facebook (Seidman, 2013) and using Facebook to search information (Butt & Phillips, 2008; McElroy et al., 2007). These results are parallel to the results of this study but not to Kaspar and Müller-Jensen (2019). However, the high scores of information seeking behavior on Facebook of the people who have the personality trait of agreeableness is a surprising result. Although it is the variable that has the least contribution to the classification, it is stated in the literature that the feature of being agreeableness is not an important factor in the use of Facebook (Bachrach et al., 2012; Ross et al., 2009). Generally, it is known that this personality trait is in effort to make self-sharing or self-disclosure rather than searching through Facebook (Amichai-Hamburger & Vinitzky, 2010; Yılmaz & Bilgin, 2017). In this respect, the results of the study are not parallel with some studies in the literature. These results can be used for the purpose of creating personalized profiles, advertising, promotional environments and using these profiles according to the personality characteristics of the users. Another interesting result of the study is that there is no relationship between gender and information seeking behavior on Facebook. This result is consistent with the results of other studies on gender and social media use, and gender and information seeking behavior. Because studies have shown that female users use social networks for research purposes more than male users (Acun, Yücel, Belenkuyu, & Keleş, 2017), female users are more likely to have social networking sites such as Facebook than male users (Duggan & Brenner, 2013), and there is a significant difference between female and male users on information seeking behavior (Halder, Ray, & Chakrabarty; 2010; Laroche et al., 2000).

As a result, it was found that people with high time management skills, and have the personality traits of openness to experience, extroversion and agreeableness, use Facebook daily for long times can be clustered in the group with high scores on information seeking behavior on Facebook. The results of the study provide important information for individuals who want to use social media services in an online learning environment or for commercial purposes. Especially, these results can be used for individualizing process according to the users of Facebook groups, profiles and activities.

Limitations and Recommendations

The study has several limitations. The major limitation of the study is that the results were based on the data obtained via measures of university students' information seeking behaviors only on Facebook university students. For further studies, with a larger sample group, the information seeking behaviors of social media users at different age levels and from various branches of profession can be examined. It may be recommended to carry out detailed studies on information seeking behavior in other social media services (Instagram, Twitter, etc.). Moreover, comparative studies can be suggested in order to examine the relationship between gender and information seeking behavior with respect to age and education level. Based on the results of the study, actions to be taken in order to improve the information seeking behavior on Facebook and to disseminate the seeking behavior for educational purposes can be studied.

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