

Development of an Attitude Scale Towards Social Networking Sites

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Abstract—The purpose of this study is to develop a scale to determine the attitudes towards social networking sites. 45 tryout items, prepared for this aim, were applied to 342 students studying at Marmara University, Faculty of Education. The reliability and the validity of the scale were conducted with the help of these students. As a result of exploratory factor analysis with Varimax rotation, 41 items grouped according to the structure with three factors (interest, reality and negative effects) is obtained. While alpha reliability of the scale is obtained as .899; the reliability of factors is obtained as .899, .799, .775, respectively.

Keywords—Attitude, reliability, social networking sites, validity.

I. INTRODUCTION

SOCIALIZATION is the process of becoming a member of the society. It follows a lifetime fellowship and membership based on one's caregivers, social groups, social events and mass media [1]. In addition to given social circles such as family, school, peer groups, work places; virtual platforms, particularly social networking sites are also recognized since it's the age of internet we're living in. Barnes says that social interaction happens between people who are psychologically caring for each other (as cited in [2]). Boyd defines social networking sites as software where people engage, interact and give feedback in multiple ways (as cited in [3]). These sites offer collaboration, enhanced information flow and interaction on a software-based customization of interests, needs and objectives for individuals [4]. These platforms and their features have a huge impact on daily life of which integration to the education system on the relevance of its facilities is an ongoing discussion.

Effect of the Internet usage on social relations may depend on how and why it is being used. Common grounds of social networking and education derived from the way people participate in social networking sites, their expectations and positive or negative experiences out of it should be investigated.

Ignoring the huge impact of virtual communication and its effective use for education system would be not living up to the today's world of technology. In a broader sense, we should be aware of the positive or negative reflections of virtual platforms regarding the educational practices. Aspects like enhanced information flow and update, multiple features, self-directed usage, density of cogent feedback, free of charge in

the greater part, largest database are some of the reasons justifying social networks effective use in education [5].

Zafarmand [6] lists the benefits of social networking sites as:

- Social networking sites are platforms where everybody has an equal opportunity to engage with it and each other.
- Social networking sites offer mutual interaction and a chance to speak out.
- People can gather as online groups and produce information.
- Via Internet, people share their own thoughts, interests and intellects in visual and audial forms.
- Social networking sites enable us to be not only a consumer, but also a producer and this facilitates to create a student centered education environment rather than a teacher centered education environment where students have a considerably passive voice.
- Social networking users have the right to choose the content they want to engage with. Users do not have to follow a specific program or a list of information; they build and shape their own information flow virtually.
- Well-known figures, politicians, corporations, public organizations can firsthand interact with the community through these sites; listen to their reflections and answer their questions the fastest way.

Zafarmand [6] also indicates the disadvantages of social networking usage. One of them is the massive amount of content being produced through the social networking sites. This is a disadvantage if someone is looking for a specific data and the information flowing online is not filtered out; it eventually creates an information pollution and series of challenges to sort out the useful data. Therefore, the content of online educational programs must be handled out under the consultation of an expert team. On the other hand, social networking sites can be very distracting in a work environment because they are also filled out with out-of-context information. That is something executive normally frown upon because employees can easily prefer sending a video to their friends, updating their profiles over the assignments that need to be done within working hours. Aware of these important side notes, instructors should create content that will attract students in an inclusive way when working on a social networking based curriculum.

Ofcom [7] conducted a qualitative research intending to evaluate people's attitudes, behaviors and motivations towards social networking sites. It resulted that people differentiated in all these three categories: our age groups, gender and socioeconomic status shape how and why we use the Internet.

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Research also predicts why Internet users choose not to engage in social networking sites.

Ajjan and Harsthone [8] found that social networking sites enhance learning capacity, create its strong interaction between student and teacher, increase satisfaction towards school, and facilitate learning through this integration. Research also showed that majority of school teachers do not use Internet as a teaching device and they're not using it in the future; some of them mentioned that although they're using it in the future they don't use it for the present; and a very few of them stated that they actively use Internet throughout the teaching process.

Yuen and Yuen designed a curriculum on a social networking platform and carried out a part of it for a blended course for undergraduate students [9]. Only the students enrolled in this class had access to this social networking platform. Each student created a personal page that includes information regarding their self description, email addresses, personal web pages, location, interests, messaging platforms and a feature to let students share their personal blogs, videos, photographs, music and documents related to course. Academic program, schedule, links, assignments and homework were posted online to this social networking platform. Each week on the learning board, online discussions, thoughts and intellects regarding the class were carried out; students also created social circles that came up with social events for themselves. By the end of the semester, a questionnaire evaluating students' thoughts and feelings about the process showed that social networking based learning board enhanced students' learning experience by online discussions, facilitated cooperative learning; contributed to their career development and with the social circles feature, it created a feeling of belongingness. Students had positive attitudes toward the experience, they felt comfortable with engaging in online learning, had no difficulty in managing the process. They shared digital media, created study groups, found it useful to reach source books, shared their inputs and outcomes regarding the class and connected with their classmates.

Lockyer and Patterson [10] performed a semester-long class on a social networking site with graduate students who want to master the implication of information and communications technology (ICT) to education system. On the platform, students gathered for online discussions, uploaded photos and commented on them. Research revealed that social interaction among students was remarkably high during the process and for those who were new to these platforms, it was quite user-friendly and instructive.

Karaman, Yıldırım and Kaban [11] suggested in "Researches Regarding the Web 2.0 Practices in Education" that blog and wikis were frequently used, publications regarding the subject were rising and studies were mostly structured on elementary and undergraduate education levels. It also suggested that these practices enhanced learning, created an optimum environment for group studies and helped developing better metacognitive skills.

Öztürk [12], revealed in a study conducted with undergraduates that in social networking sites students express themselves more properly; the online learning attracts them to the experience more, elevates their point of views, helps them develop their personalities, self esteem and communication skills in a better way, supports them socially, reduces the perceived stress, works as an online assisting system because it's quite capable of depicting the situation they're in and saves time when producing, sharing and reaching the information.

Elçiçek [13] conducted a research aiming to evaluate the impact of learning through social networking platforms on school culture on the relevance of variables. It resulted that males comparing to females; the people who have personal computers comparing to ones who don't; Facebook users comparing to the other social network users; people who spend more time and share true information regarding themselves comparing to ones who spend less time and share misinformation show a more positive attitude toward implication of social networking sites to the school culture.

Özdayı [14] studied the correlation between social networking sites and interpersonal relationships of undergraduate students using Facebook. Study focused on social 'effect' regarding how these students use the platforms and at what frequency, how social networking platforms; Facebook in this specific study, effect and shape our interpersonal relationships and how our adaptive behavior engages us using social networking sites. This study can guide us towards how to integrate social networking sites within our daily lives, or in education better by revealing our attitudes toward these platforms.

II. METHODOLOGY

A. The Study Group

The data of the attitude scale towards social networking sites was conducted by inquiring 342 students who have been studying in different departments of Marmara University, Faculty of Education. Information of the study group was given in Table I.

TABLE I
INFORMATION OF THE SAMPLE

Departments	Frequencies (f)	Percentage (%)
Guidance and Psychological Counseling	120	35
English Language Teaching	98	29
Primary Mathematics Teacher Education	73	21
Social Studies Education	51	15
Total	342	100

B. Development Process of the Scale

At the first stage of the scale development, the literature about social networking sites was examined. After the subject was examined carefully, 105 students were asked to write an essay about their feelings, opinions and experiences towards social networking sites. Considering the literature, the essays of the students were evaluated one-by-one and 56 items that were thought as to be a sign of the attitude towards social

networking sites were prepared. There were 30 positive and 26 negative statements in the item pool of draft attitude scale. The prepared items were studied by a group of five experts who are studying in the departments of Turkish Language Teaching, Guidance and Psychological Counseling and Educational Measurement and Evaluation for taking their opinions about whether the selected items were valid items. The experts were asked to examine items with regard to their relevance to purpose of the attitude, content coverage, understandability and consistency. Having received feedback from the experts, 11 items were deleted because they are not found suitable for the scale and eight items were edited. As a conclusion, the attitude scale towards social networking sites consists of 28 positive and 17 negative items. Considering the formation of the scale, 5-point Likert type was used (1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree). The scale was applied as a pilot study to 40 students. After the pilot study, the instruction of scale was reviewed and original form prepared. The original form was applied to 342 students from Marmara University in 2012-2013 Academic Year at Spring Term.

III. FINDINGS

After the attitude scale towards social networking sites was administered to the students, the suitability of the current data for factor analysis was checked through several criteria. First, the Kaiser-Meyer-Olkin Measure (KMO) of Sampling Adequacy and Bartlett's test was checked. The Kaiser-Meyer-Olkin measure of sampling adequacy and Bartlett's test were calculated to evaluate whether the sample was large enough to apply a satisfactory factor analysis and examine to determine appropriateness of factor analysis [15]. The KMO value of the initial analysis was .895, which is considered marvelous by [16]. The Bartlett's Test of Sphericity reached a significant value supporting the factorability of the correlation matrix obtained from the items ($\chi^2_{990} = 5345.760$, $p = .000 < 0.010$). According to the results, Bartlett's test of Sphericity statistic was significant. Results of KMO and Bartlett's test appear to support the validity of the factor analysis usage for this study. Third, item analysis of the scale was carried out. Item-total correlations and the differences between mean scores of upper 27% and lower 27% groups were calculated.

A. The Results of Item Analysis

Firstly, Item-total correlations and the differences between mean scores of upper 27% and lower 27% groups were calculated. Table II presents correlation coefficients and t-tests between items' means of upper 27% and lower 27% points in item analysis of the scale.

As can be seen in Table II, item-total correlation coefficients and the t-test results between each item's means of upper 27% and lower 27% group showed significant differences except item 40 ($r = .016$, $p = .771 > .05$; $t = .279$, $p = .78 > .05$). According to this result, 44 items are appropriate to measure the attitudes towards social networking sites.

TABLE II
ITEM-TOTAL CORRELATION COEFFICIENTS, P VALUES AND T-TESTS MEANS
OF UPPER AND LOWER POINTS

Items	Item-total correlation	p	t	p
1	.345	0.000	5.235	0.000
2	.298	0.000	5.697	0.000
3	.531	0.000	8.518	0.000
4	.459	0.000	7.910	0.000
5	.568	0.000	10.352	0.000
6	.428	0.000	6.758	0.000
7	.612	0.000	10.434	0.000
8	.288	0.000	5.061	0.000
9	.277	0.000	5.216	0.000
10	.619	0.000	13.504	0.000
11	.509	0.000	10.473	0.000
12	.353	0.000	5.620	0.000
13	.415	0.000	6.819	0.000
14	.580	0.000	10.074	0.000
15	.385	0.000	7.047	0.000
16	.582	0.000	12.223	0.000
17	.547	0.000	11.171	0.000
18	.600	0.000	12.196	0.000
19	.460	0.000	5.861	0.000
20	.433	0.000	8.912	0.000
21	.406	0.000	7.280	0.000
22	.615	0.000	11.796	0.000
23	.486	0.000	9.366	0.000
24	.183	0.001	3.065	0.003
25	.279	0.000	4.881	0.000
26	.617	0.000	11.644	0.000
27	.616	0.000	12.787	0.000
28	.187	0.001	2.203	0.029
29	.625	0.000	13.017	0.000
30	.316	0.000	5.413	0.000
31	.574	0.000	11.691	0.000
32	.516	0.000	8.317	0.000
33	.448	0.000	8.509	0.000
34	.597	0.000	11.247	0.000
35	.352	0.000	6.875	0.000
36	.397	0.000	7.163	0.000
37	.606	0.000	12.791	0.000
38	.422	0.000	8.896	0.000
39	.317	0.000	5.381	0.000
40	.016	0.771	.279	0.780
41	.351	0.000	6.382	0.000
42	.446	0.000	8.914	0.000
43	.370	0.000	7.196	0.000
44	.361	0.000	6.962	0.000
45	.363	0.000	7.446	0.000

As can be seen in Table II, item-total correlation coefficients and the t-test results between each item's means of upper 27% and lower 27% group showed significant differences except item 40 ($r = .016$, $p = .771 > .005$; $t = .279$, $p = .780 > .050$). According to this result, 44 items are appropriate to measure the attitudes towards social networking sites.

B. The Results of Exploratory Factor Analysis

In this study, the purpose of the exploratory factor analysis was to investigate the factors underlying the attitude scale towards social networking sites. The data obtained from the analysis of this study was initiated by examining the dimensions of data obtained from the analysis. So, the exploratory factor analysis was administered to 44 items. The Principle components factor analysis was used for all the data in order to extract the appropriate number of the factors. Eigenvalues and explained variance were considered in an attempt to determine the number of factors. Eigenvalues of 10 factors were bigger than 1 and total variances explained by three factors were 37.512%. It was shown that contributions of other factors on total variance were lower. Varimax rotation was used. After using varimax rotation, the factor loadings for each item were examined. Loadings of less than 0.320, a commonly-used cut-off, were eliminated. Component matrix and scree plots (Fig. 1) demonstrated these items were collected at three factors.

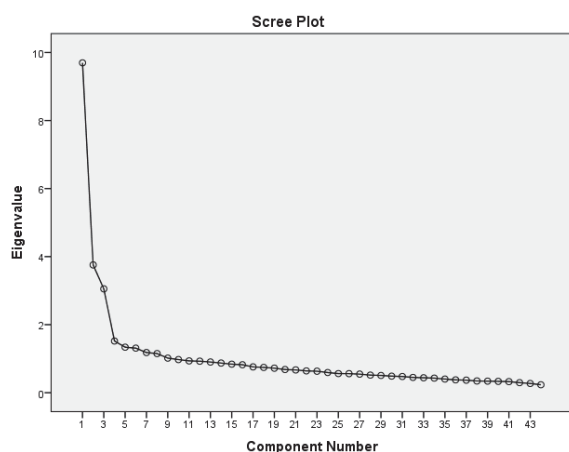


Fig. 1 Scree Plot

Scree plot shows that three factors were in sharp descent and then started to be level off. When fixed number of factors were three and Varimax rotation was implemented, some items (5, 26 and 28) could not be under any factors. Each method of determining the number of factors was revealed that attitude scale towards social networking sites consists of three factors. Table III presents Eigenvalues, percentages of variances and percentages of total variances of the three factors.

TABLE III
EIGENVALUES, VARIANCES AND TOTAL VARIANCES OF THE THREE FACTORS

Factors	Eigenvalues	Percentages of variances	Percentages of total variances
Factor 1	7.103	17.324	17.324
Factor 2	4.454	10.863	28.187
Factor 3	4.049	9.874	38.061

As can be seen in Table III, there are three factors in the attitude scale. Eigenvalues of the factors are 7.103, 4.454 and 4.049. Factor 1 explained 17.324 % of total variance, factor 2

explained 10.863% of total variance and factor 3 explained 9.874% of total variance. These three factors explained 38.061% of total variance and were named according to the common characteristics of the items loaded on the same factor. According to the results of item loading and Eigenvalues of the factors, it can be said that this attitude scale is appropriate to measure the attitudes towards social networking sites.

When the factor numbers of the attitude scale were determined, distribution of 41 items to three factors was obtained. Table IV presents factor loadings and factor structures of the items.

TABLE IV
FACTOR STRUCTURES AND LOADINGS OF THE 41 ITEMS IN THE ATTITUDE SCALE TOWARDS SOCIAL NETWORKING SITES

Items	Factor 1	Factor 2	Factor 3
1	.528		
3	.484		
6	.578		
7	.623		
10	.523		
12	.608		
14	.648		
16	.578		
17	.524		
18	.524		
19	.465		
22	.648		
23	.459		
27	.689		
29	.523		
32	.650		
34	.716		
36	.675		
37	.639		
8		.361	
20		.420	
25		.651	
31		.535	
38		.603	
41		.693	
42		.613	
43		.710	
44		.499	
45		.657	
2			.508
4			.450
9			.508
11			.501
13			.419
15			.527
21			.630
24			.412
30			.528
33			.691
35			.632
39			.455

As can be seen in Table IV, factor loading of items in the scale changes between 0.361 and 0.716. Kline [17] said that the value of factors' loads between 0.30 and 0.60 is medium and between 0.6 and 1.0 is high quality. This situation indicated that 41 of items are enough qualified in the scale. Distribution of 41 items to three factors is as follows: factor 1 includes nineteen items: 1, 3, 6, 7, 10, 12, 14, 16, 17, 18, 19, 22, 23, 27, 29, 32, 34, 36 and 37. These items explicitly measure the students' attitudes towards interest regarding the usage of social networking sites. Therefore; this factor was named as 'interest'. Factor 2 includes ten items: 8, 20, 25, 31, 38, 41, 42, 43, 44 and 45. These items explicitly measure the students' attitudes towards reality to the usage of social networking sites. This factor was named as 'reality'. Factor 3 includes twelve items: 2, 4, 9, 11, 13, 15, 21, 24, 30, 33, 35 and 39. These items explicitly measure the students' attitudes towards negative effect to the usage of social networking sites. This factor was therefore named as 'negative effect'.

C. Reliability of the Attitude Scale

Reliability analysis was performed for each factor and Cronbach's alpha correlation coefficients were calculated. Table V summarizes factor names, number of the items and reliability of each factor.

TABLE V
FACTOR NAMES, NUMBER OF THE ITEMS AND CRONBACH'S ALPHA VALUE OF EACH FACTOR

Factors Name	Number of Items	Cronbach's Alpha
Interest	19	.899
Reality	10	.799
Negative Effect	12	.775
Total Scale	41	.899

As can be seen in Table V, it was determined that Cronbach's alpha value of 'Interest' is 0.899, 'Reality' is 0.799 and 'Negative Effect' is 0.775. Also, it was found that Cronbach's alpha value of total scale is 0.899. According to these results, it can be said that attitude scale towards social networking sites is a reliable scale.

IV. CONCLUSION

This research is a study of developing a scale to measure the attitudes towards social networking sites. At the first stage of scale development, the literature about social networking sites was examined and then the 105 students were asked to write an essay about their feelings, opinions and experiences towards social networking sites. Thus, as for all values, not only universal truths of altruism but also the culture specific truths were handled.

Item analysis of the scale was carried out. Item-total correlations and the differences between mean scores of upper 27% and lower 27% groups showed significant differences except from item 40. According to exploratory factor analysis, developed scale was formed by 41 items that had three sub-dimensions. It was seen that three sub-dimensions explained 38.061% of total variances considering the results of the

statistical analysis. This value can be assessed as fairly enough regarding a measurement instrument for affective domain.

Testing the internal consistency of the scale; the sub-dimensions were determined based on the factor results and Cronbach Alpha Coefficient of these sub-dimensions were examined and it was found out that the scale is relevant and appropriate to the reliability standards. It can be said that developed scale is a reliable and valid scale.

Research so far have shown that integration of social networking sites to education is necessary. As Pettenati and Ranier [4] depicted the social networking sites as softwares where people can get a chance to express their thoughts, needs and interests virtually and meet an information flow where they can interact with one another and learn cooperatively; it stated a fact that these platforms have an essential and effective use in education that promises a more student-centered, intriguing and enhanced learning process.

We should also keep an eye on the disadvantages and manipulation that may occur when engaging social networking sites. Preventive services must be well thought out and restrictions should be made or at least students must be informed on this issue. How people act out in social networking sites will also take the lead to conduct further research to study people's sense of identity and multiple psychological topics because this behavior also reflects a lot about ourselves. Thus experts will be able to reach out to students in need and run the preventive services before it's too late.

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