USING FACEBOOK AS A LMS?

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ABSTRACT

The main purpose of this research was to compare the communication media according to effective teaching. For this purpose, in the research, the mixed method, including quantitative and qualitative data collecting techniques, was applied. For the quantitative part of the research, the static group comparison design was implemented as one of the quasi- experimental designs. The population of the research consisted of all pre-service teachers attending Adnan Menderes University Faculty of Education during the fall term of 2011- 2012 academic year. The study group composed of junior class students attending the Primary Education Program. One of the classes was divided into two. While Information Technology classes were conducted via Facebook in one group, the other group studied Information Technology via Adobe Connect. As a result of the research, there is no statistically significant difference between the academic success posttest scores of pre-service teacher groups, which were obtained from the whole sub-dimensions of Effective Teaching Scale. According to the pre-service teachers' views, Facebook needs to have a 3rd Party Software in the teaching and learning process. In addition, the study groups should consist of fewer students.

Keywords: Prospective primary education teacher, e-learning, scenario - based learning, facebook.

1. INTRODUCTION

With the increasing use of information technologies in the industrial field and daily life, computer literacy and related skills education has become extremely important. For the last 25 years, computer technologies have also been an effective concept in the field of learning-teaching (Cuban, 2001). Mouza (2002) stated that the use of computer technologies in the classroom creates an attractive communication setting due to the inexpensive, easily accessible and remarkable media features and therefore, it has become more common in the last 10 years. As Jonassen (1995) emphasizes, the use of technology supported materials in the learning-teaching process has the quality of being an extensive tool that increases student success.

Technological developments change not only teaching approaches and methods but also the typical features of learners with the same pace. According to the New Millenium Learners Project published by OECD in 2006, the learners of the new generation are defined by concepts such as millennials, digital natives, net generation and cyberkids (Pedro, 2006).

In this respect, it is not possible fir today's teachers to keep technological devices such as the internet, computers or CD-ROM etc. away from the classroom setting (Angers and Machtmes, 2005). In addition to the devices mentioned, social network sites, which can reach large crowds today, are also striking. When the history of social network sites are examined, according to Boyd and Ellison (2008), the beginning of social network sites, which are also known as social network software in the relevant literature, was the sixdegrees.com web site, where profiles could be formed and friends were added. Facebook, which is now one of the most common social network sites, was initiated in 2004 as a site that was only accessed by the students of Harvard University by using their school e-mail addresses. Later, it was used as a site open to all universities and then, in 2005, everyone was able access the site.

When expressed in numbers, a remarkable picture is seen. According to the statistics of the website Socialbakers, in the first month of 2013 there were 963,812,360 Facebook users in total. The USA is on the first rank in the list with 163,071,460 users while Turkey is the sixth with 32,438,200 users. The ratio of current users to population in our country is 41.69%. Other striking ratios are as follow: 64% of the users are male, and the user group between the ages of 18 and 24 constitutes the biggest group with a ratio of 34% (socialbakers.com). It is foreseen that ensuring the integration of social network sites with such a user potential in a short time will have positive contributions to the education process both qualitatively and quantitatively.

2. PURPOSE OF THE STUDY

The main purpose of this study was to determine the effect of scenario based curriculum offered via two different communication settings on the pre-service teachers' basic information technologies course to compare

the communication settings in terms of effective teaching. In line with this purpose, we attempted to answer the following questions:

1. Is there a significant difference between total scores of pre-service students, who use different communication settings, regarding sub scales of the effective teaching scale?
a) Do total scores of pre-service students, who use different communication settings, regarding sub scales of the effective teaching scale differ significantly in terms of group and gender variables?
b) Do total scores of pre-service students, who use different communication settings, regarding sub scales of the effective teaching scale differ significantly in terms of group and use of internet frequency variables?
2. How do pre-service teachers assess the learner characteristics, the learning-teaching process and the communication setting that they use based on the individual interviews and focus group interviews?

3. LIMITATIONS OF THE RESEARCH
1. The present research is limited with students who are enrolled to the must course of titled as "Basic Information Technologies" in Adnan Menderes University, Faculty of Education.
2. This research is also limited with the fall semester in 2011-2012.

4. METHOD
This is a Mixed Method study, where both qualitative and quantitative research methods are used. "The static group comparison model", which is one of the Quasi-Experimental research models, was used.

3.1. Respondents
The study group was composed of first grade students who were studying at the Faculty of Education Primary School Teaching Program of a public university in Turkey in the fall semester of 2011 – 2012 academic years. Within the experimental process, the Basic Information Technologies compulsory course was taught over Facebook with one group and over Adobe Connect virtual class application with another. Twenty-six of the pre-service teachers that made up the study group were female and 16 were males. Twenty-four of the pre-service teachers had their own computers and 19 of them attended the computer course prior to undergraduate program. When individuals' internet use frequency is examined, it is seen that pre-service teachers that made up the 88% of the sample were using the internet regularly. Regarding the access to online courses, it is seen that 83% of the participants were using internet cafes.

3.2. Data collection
3.2.1. Effective teaching scale
In the study, in order to analyze the opinions of pre-service teachers, who use different communication settings, regarding the quality of teaching, "Evaluating the quality of e-learning at the degree level in the student experience of blended learning", which was developed by Ginns and Ellis (2009), was used by making the adaptation study with the required permissions. The scale is composed of a total of twenty-eight items and six sub scales. The subscales are as follow, respectively: good teaching, Clear Goals and Standards, appropriate assessment, appropriate workload, e-learning and generic skills.

3.2.2. Exploratory factor analysis
In examining the structural validity of the scale, exploratory factor analysis and confirmatory factor analysis were made. Whether the data obtained from the pilot application were appropriate to the exploratory factor analysis was examined with KMO (Kaiser-Meyer-Olkin) coefficient and Barlett Sphericty test. The KMO value of the data obtained was 0.80 so it is appropriate for the analysis. The Barlett test of data obtained from the adapted scale (χ^2=1256.97, df= 378, p= 0.00) was found to be significant.

3.2.3. Findings regarding structural validity
In order to determine the significant factor number, instead of a line graph, eigenvalue coefficient was taken as a base. According to Gorsuch (1983. cited. Tabachnick and Fidell, 1996); line graph gives reliable results when sample size is large. As a result of the analysis, it was seen that the scale had a 7-factor structure. When item distributions and the results of confirmatory factor analysis were examined, it was seen that the 7-factor structure did not form a suitable structure. At this point, the scale was limited to 6 min factors appropriate to its original.

In order to separate scale items from one another to unrelated factors, various rotation techniques were tried and easily interpretable conclusion was reached through Equamax rotation technique. Following the Equamax rotation, common variance of items was between 0.42 and 0.86; item load values were between 0.42 and 0.81. The amount of variance that was explained by six factors was 63 percent. Fifteen percent of this was on the first factor while 13 percent was on the second, 11 percent was on the third, 9 percent was on the fourth, 8 percent

was on the fifth and 7 percent was on the sixth factor. Nine of the items were on the first factor while 6 were on the second 4 were on the third, 3 were on the fourth, 4 were on the fifth and 2 were on the sixth factor. Factor values of the scale are shown in Table 1.

Table 1: Factor Values of the Factors of effective teaching scale following the equamax rotation

Item	Factor 1 Good teaching	Factor 2 Generic skills	Factor 3 E-learning	Factor 4 Clear goals and standards	Factor 5 Appropriate assessment	Factor 6 Appropriate workload	Ratio of Explaining Total Variance
2	.60						8.29
4	.52						4.96
6	.76						4.31
13	.62						2.18
15	.72						1.67
17	.64						1.44
20	.51						1.11
21	.56						1.05
23	.65						.71
5		.47					4.85
7		.70					4.13
8		.76					3.53
14		.74					1.90
18		.43					1.37
19		.69					1.20
25			.63				.58
26			.81				.49
27			.69				.41
28			.80				.24
9				.52			3.34
11				.42			2.82
12				.70			2.43
10				.77			3.10
16					.53		1.53
22					.60		.77
24					.50		.65
1						.61	34.33
3						.79	6.60

3.2.4. Findings regarding reliability
For the reliability study of the Effective Teaching Scale, Cronbach alpha coefficient was calculated. When internal consistency analysis of the whole scale as well as six sub scales was examined separately, the Cronbach alpha coefficients were found as .91 for the whole scale and .91 for the good teaching subscale, .85 for generic skills, .78 for e-learning, .68 for clear goals and standards, .51 for assessment and .50 for appropriate workload subscale. These findings are shown in Table 2.

Table 2: Findings regarding effective teaching scale reliability study

	r
1. Sub Scale (Good teaching)	.91
2. Sub Scale (Generic Skills)	.85
3. Sub Scale (E-learning)	.78
4. Sub Scale (Clear goals and standards)	.68
5. Sub Scale (Assessment)	.51
6. Sub Scale (Appropriate workload)	.50
Total	

3.2.5. Confirmatory factor analysis
Confirmatory Factor Analysis was performed in order to determine whether factor structure of the original scale would be confirmed in target sample or not. Analysis was performed over the same data set for the six-factor structure. The fit indexes obtained were listed in Table 3.

Table 3: Findings regarding confirmatory factor analysis

	Fit
χ^2	432.90 (p=.000)
χ^2/df	1.29
RMSEA	.06
Standardize RMR	.08
GFI	.72
AGFI	.67
NFI	.86
NNFI	.94
CFI	.95
IFI	.95
RFI	.85

According to Tabachnick and Fidell (1996), when χ^2/df ratio is smaller than 3, it shows that .08 is an acceptable fit value for RMSEA and .05 is perfect fit while the acceptable fit value is considered .90 and above for GFI, AGFI, CFI, NFI, NNFI, RFI, IFI and AGFI indexes. For the SRMR value, .05 and smaller values show perfect fit. Current fit indexes are examined as a whole and it can be said that the six-factor structure of the effective teaching scale is confirmed as a model.

3.2.2. Individual interview and focus group interview
A semi-structured interview form including nine questions was used for individual interviews. In determining the students to be interviewed, criterion sampling technique, which is one of the purposeful sampling methods, was used. Six students were interviewed; two people from each group arranged as low, middle and high groups based on students' mid-term scores. Also gender and volunteerism are the other criteria considered at the process of determining the students to be interviewed. Data were recorded with a voice recorder throughout the interviews. Electronic data of the interviews which approximately lasted for 17 minutes were transferred into a 43 –page word document with 2.5 cm margin, single spaced and 12 font size in Times New Roman characters and codes as C_S1, C_S2, F_S1, F_S2 were used to indicate the participants.

In order to maintain the reliability and validity of the research, questions posed by Miles and Huberman (1994) were selected as the baseline. In line with this, in order to ensure internal validity it is seen that 1) considering the setting where data were obtained, research findings are significant, 2) findings are consistent and significant, concepts make up a meaningful whole 3) findings were confirmed by using different data collection methods and different analysis strategies, 4) findings were examined by the participants and were found to be realistic, 5) estimations and generalizations made based on the findings are consistent with the findings. In order to maintain external validity, it is thought that 1) every effort was made to thoroughly demonstrate the research method, 2) necessary explanations were made in order to test findings with other studies, 3) research findings can easily be tested in similar settings.

There are seven questions regarding external reliability and nine about internal reliability. In order to ensure external reliability, 1) research findings were supported with direct quotations from the interviews, 2) research duration was clearly defined, 3) different views and alternative explanations were included in the findings, 4) raw data with regards to the study were saved in a way that they could be examined by others. In order to ensure internal reliability, 1) Research questions were clearly expressed 2) research findings are in conformity with the data 3) Data were tried to be collected elaborately and suitable for the purpose as required by the research questions, 4) Data that are not valid were removed in data analysis. Also, in order to increase internal reliability, a randomly selected interview form was coded by the researcher and the advisor professor and consistency between the analyses was examined. With the "(agreement/agreement + disagreement) x 100" formula, the agreement coefficient between two coders was found as .77.

Focus group interviews were performed by forming student groups of six from each group. The criterion sampling technique, which is one of the purposeful sampling methods, was used while determining the students to be interviewed. Six participants were interviewed; two people from each group arranged as low, middle and high groups based on students' mid-term scores. Interviews were recorded with a video camera. Electronic data of the interviews, which lasted approximately 40 minutes, were transferred into a 20 –page word document with 2.5 cm margin, single spaced and 12 font size in Times New Roman characters, and codes as C_S1, C_S2, F_S1, F_S2 were used to indicate the participants.

3.2.3. Course design and implementation
Implementation lasted for one semester (15 weeks) in the fall term of 2011-2012. While conducting e-courses, Facebook was used in one of the groups and "Adobe Connect" virtual classroom application was used for the other.

5. FINDINGS
4.1. Findings regarding the total scores of pre-service teachers using different communication settings on the sub scales of effective teaching scale

The Effective Teaching Scale factor scores of pre-service teachers, who use two different communication settings and group variables, were tested with multi-variable variance analysis (*MANOVA*). The equality of covariance matrixes, which is the main assumption of *MANOVA* (Leech, Barrett and Morgan, 2008), was maintained with the Box M test and the variance equality of each independent variable according to grouped in independent variables was maintained with the Levene F test ($p > .05$). Descriptive statistics obtained as a result of analysis are summarized in Table 4.

Table 4: Descriptive statistics related with sub scale total scores according to group variable

Group		Good teaching		Generic Skills		E-learning		Clear goals and standards		Appropriate assessment		Appropriate workload	
	n	$\overline{X}$	S	$\overline{X}$	S	$\overline{X}$	S	$\overline{X}$	S	$\overline{X}$	S	$\overline{X}$	S
Connect	21	33.67	4.88	21.09	4.47	14.67	3.17	11.43	1.94	13.28	2.87	4.90	2.12
Facebook	21	35.48	4.31	22.05	3.48	14.48	3.57	12.05	1.66	14.00	2.93	4.90	1.70

The results of MANOVA, conducted on the factor scores of effective teaching scale of pre-service teachers, show that the effect of group variable [$\lambda=.91$, $F(6,35)=.55$, $p > .05$, $\eta^2=.08$] on the scale in general is not significant. Data regarding on which subscales differentiation occurs can be seen in Table 5. When data in Table 4.2.1 and 4.2.2 are examined together, it is seen that there is no significant difference with regards to the sub factors of effective teaching scale.

Table 5: The effect of group variable on sub scale total scores

Source	Dependent Variable	df	F	η^2	p
Group	Good teaching	1	1. 226	.039	.210
	Generic Skills	1	.593	.015	.446
	E-Learning	1	.033	.001	.856
	Clear goals and standards	1	1.237	.030	.273
	Appropriate assessment	1	.637	.016	.429
	Appropriate workload	1	.000	.000	1.000

4.2. Findings regarding the analysis of total scores of pre-service teachers using different communication settings on the sub scales of effective teaching scale according to groups and gender
Effective teaching scale factor scores of pre-service teachers using two different communication settings, group and gender variables and group-gender interaction were tested with multi variable variance analysis (MANOVA). Descriptive statistics with regards to the aforesaid variables are summarized in Table 6.

Table 6: Descriptive statistics with regards to sub scale total scores according to group and gender variables

Group		Good teaching		Generic Skills		E-learning		Clear goals and standards		Appropriate assessment		Appropriate workload	
	n	$\overline{X}$	S	$\overline{X}$	S	$\overline{X}$	S	$\overline{X}$	S	$\overline{X}$	S	$\overline{X}$	S
Connect													
Female	13	33.00	5.55	20.38	4.57	14.46	3.62	10.85	1.86	13.77	2.98	4.92	1.75
Male	8	34.75	3.62	22.25	4.33	15.00	2.45	12.38	1.77	12.50	2.67	4.88	2.75
Facebook													

Female	13	34.46	4.65	21.08	3.73	12.93	3.33	12.00	1.35	13.85	3.13	4.92	1.60
Male	8	37.13	3.31	23.63	2.50	17.00	2.39	12.31	2.17	14.25	2.76	4.88	1.96

The equality of covariance matrices, which is the main assumption of MANOVA (Leech, Barrett and Morgan, 2008), was maintained with Box M test and the variance equality of each independent variable according to groups in independent variables were maintained with Levene F test (p>.05). MANOVA results on pre-service teachers' effective teaching scale factor scores show that the effect of group [λ=.93, F(6,33)=.40, p>.05, η^2=.07], gender [λ=.82, F(6,33)=1.22, p>.05, η^2=.18] and group x gender [λ=.75, F(6,33)=1.85, p>.05, η^2=.25] interaction on the scale in general is not significant. Data regarding which sub scales have the differentiation according to group, gender and group x gender interaction are shown in Table 7, and mean and standard deviation data of the aforesaid variables are shown in Table 6. When data in Table 6 and 7 are examined in terms of gender, it is seen that there is a significant difference in favor of male students among mean values regarding "e-learning" sub scale.

Table 7: The Effect of group and gender variables on subscale total scores

Source	Dependent Variable	df	F	η^2	p
Group	Good teaching	1	1.736	.044	.195
	Generic Skills	1	.678	.018	.416
	E-Learning	1	.054	.001	.818
	Clear goals and standards	1	.649	.017	.425
	Appropriate assessment	1	.959	.025	.334
	Appropriate workload	1	.000	.000	1.000
Gender	Good teaching	1	2.298	.057	.138
	Generic Skills	1	3.089	.075	.087
	E-Learning	1	5.386	.124	.026*
	Clear goals and standards	1	2.173	.054	.149
	Appropriate assessment	1	.215	.006	.645
	Appropriate workload	1	.006	.000	.939
Group x Gender	Good teaching	1	.098	.003	.755
	Generic Skills	1	.074	.002	.787
	E-Learning	1	.3166	.077	.083
	Clear goals and standards	1	1.566	.040	.218
	Appropriate assessment	1	.804	.021	.375
	Appropriate workload	1	.000	.000	1.000

4.3. Findings regarding the analysis of total scores of pre-service teachers using different communication settings on the sub scales of effective teaching scale according to the variables of group and the frequency of internet use.

Effective teaching scale factor scores of pre-service teachers using two different communication settings, group and frequency of internet use variables and group- frequency of internet use interaction were tested with multi variable variance analysis (MANOVA). Descriptive statistics with regards to the aforesaid variables are summarized in Table 8.

Table 8: Descriptive statistics regarding sub scale total scores according to group and frequency of internet use

Group		Good teaching		Generic Skills		E-learning		Clear goals and standards		Appropriate assessment		Appropriate workload	
	n	$\overline{X}$	S	$\overline{X}$	S	$\overline{X}$	S	$\overline{X}$	S	$\overline{X}$	S	$\overline{X}$	S
Connect													
Every day/ Almost	7	35.00	3.16	21.57	3.69	15.28	3.04	11.86	2.12	12.71	3.68	5.43	2.70
At least once a week	11	34.18	5.15	22.27	3.90	14.82	3.34	11.45	2.07	13.54	2.73	4.73	1.85
At least once a month	3	28.66	5.51	15.66	5.51	12.66	3.05	10.33	.58	13.66	1.53	4.33	2.08
Facebook													
Every day/ Almost	9	36.11	4.19	23.00	3.87	15.89	3.10	12.33	1.41	15.44	2.01	5.55	1.66
At least once a week	10	36.20	3.42	22.20	2.48	14.60	2.36	12.10	1.91	13.80	2.48	4.70	1.57
At least once a month	2	29.00	5.65	17.00	2.83	7.50	3.53	10.50	.71	8.50	2.12	3.00	1.41

The equality of covariance matrices, which is the main assumption of MANOVA (Leech, Barrett and Morgan, 2008), and the variance equality of each independent variable according to groups in independent variables were maintained (p>.05). MANOVA results on pre-service teachers' effective teaching scale factor scores show that the effect of group [λ=.85, F(6,33)=.95, p>.05, η²=.16], frequency of internet use [λ=.54, F(6,33)=1.90, p>.05, η²=.27], group x frequency of internet use interaction [λ=.65, F(6,33)=1.24, p>.05, η²=.19] are not significant on the scale in general. However, frequency of internet use variable factor scores are not significant yet quite interesting with the p=.052 value.

As a result of the analysis of sub scales, when data in Table 8 and 9 are examined together in terms of the frequency of internet use, it is seen that there are significant differences in group x frequency of internet use interaction and "good teaching", "generic skills" and "e-learning" subscales.

The results of Scheffe multiple comparisons test, which is done in order to find out among which groups the differences among units are present, are summarized in Table 10. According to multiple comparisons test, for the good teaching dependent variable, it was found that the difference among the means between everyday/almost every day and at least once a month is 6.825 and the difference among the means between at least once a week and at least once a month is 6.343 and in favor of frequency of internet use every day/almost every day and at least once a week. For generic skills dependent variable, it was found that the mean difference between everyday/almost every day and at least once a month is 6.175 in favor of frequency of internet use every day/almost every day and the mean difference between at least once a week and at least once a month is 6.038 in favor of frequency of internet use at least once a week. For e-learning dependent variable, it was found that the mean difference between everyday/almost every day and at least once a month is 5.025 in favor of frequency of internet use every day and the mean difference between at least once a week and at least once a month is 4.114 in favor of frequency of internet use at least once a week.

Table 9: The Effect of Group and Frequency of Internet Use Variables on Sub Scale Total Scores

Source	Dependent Variable	df	F	η²	p
Group	Good teaching	1	.508	.014	.481
	Generic Skills	1	.426	.012	.518
	E-Learning	1	1.978	.052	.168
	Clear goals and standards	1	.391	.011	.536
	Appropriate	1	.530	.015	.471

	assessment				
	Appropriate workload	1	.323	.009	.574
Frequency of Internet Use	Good teaching	1	4.909	.214	.013*
	Generic Skills	1	5.609	.238	.008*
	E-Learning	1	6.258	.258	.005*
	Clear goals and standards	1	1.568	.080	.222
	Appropriate assessment	1	2.411	.118	.104
	Appropriate workload	1	1.835	.092	.174
Group x Frequency of Internet Use	Good teaching	1	.098	.005	.907
	Generic Skills	1	.214	.012	.808
	E-Learning	1	1.733	.088	.191
	Clear goals and standards	1	.036	.002	.965
	Appropriate assessment	1	4.152	.187	.024*
	Appropriate workload	1	.278	.015	.759

Table 10: Scheffe multiple comparisons test results

Independent Variable	Use of Internet		Difference between means	Standard Error	p
Good teaching	Every day/Almost Everyday	At least once a week	,4821	1,42601	,945
		At least once a month	6,8250(*)	2,20169	,014
	At least once a week	Every day/Almost everyday	-,4821	1,42601	,945
		At least once a month	6,3429(*)	2,13837	,020
	At least once a month	Every day/Almost everyday	-6,8250(*)	2,20169	,014
		At least once a week	-6,3429(*)	2,13837	,020
Generic Skills	Every day/Almost Everyday	At least once a week	,1369	1,20939	,994
		At least once a month	6,1750(*)	1,86724	,008
	At least once a week	Every day/Almost everyday	-,1369	1,20939	,994
		At least once a month	6,0381(*)	1,81355	,008
	At least once a month	Every day/Almost everyday	-6,1750(*)	1,86724	,008
		At least once a week	-6,0381(*)	1,81355	,008
E-learning	Every day/Almost Everyday	At least once a week	,9107	,99786	,662
		At least once a month	5,0250(*)	1,54064	,009
	At least once a week	Every day/Almost everyday	-,9107	,99786	,662
		At least once a month	4,1143(*)	1,49634	,032
	At least once a month	Every day/Almost everyday	-5,0250(*)	1,54064	,009
		At least once a week	-4,1143(*)	1,49634	,032

6. DISCUSSION AND CONCLUSION
In this section, findings regarding the effect of scenario based curriculum administered in different communication settings on the access of basic information technologies course are discussed.

6.1. Comparing two different communication setting in terms of "effective teaching"
Analyses were made over the total scores of twenty eight items in total and six sub scales as good teaching, clear goals and standards, appropriate assessment, appropriate workload e-learning and generic skills.

As a result of one-way MANOVA analysis, which was made in order to test whether there was a statistically significant difference among effective teaching scale subscale total scores of pre-service teachers using different communication settings, it was seen that there was no significant difference between post-test scores of Connect

and Facebook groups. In other words, it can be said that using whether Facebook or Connect as the communication setting has no effect on sub scale scores. Despite the gains obtained at the end of the learning-teaching process, the views that a traditional classroom setting is better and both communication settings are similar support the result of the analysis.

Effective teaching scale sub scale total scores of pre-service teachers, who used two different communication settings, group and gender variables and group x gender interaction, were tested with two-way MANOVA. According to the results of the analysis, the effects of group, gender and group x gender interaction on the scale in general are not significant. When data regarding on which scales differentiations according to group, gender and group x gender interaction exist are examined, it is seen that there is a significant difference in favor of male students between the means with regards to "e-learning" scale. When averages of two groups are examined, it is seen that they are close in the Connect group with 14.46 and 15.00. On the other hand, in the Facebook group, the average scores of female students are 12.93 while the average scores of male students are 17.00, which generated the reason of difference. The fact that the pre-service teacher who formed and managed the Facebook group stated that male pre-service teachers in the class made the request at the stage of forming the group supports the quantitative data. Also, it is another point supporting this finding that 64% of Facebook users in our country are men (socialbakers.com). Further, according to Cetin, Caliskan and Menzi (2012) male pre-service teachers, who deals with technology in daily life more than females, consider themselves more competent in technology and similarly, in literature it is emphasized that female teachers are more hesitant and have less confidence in terms of their skills of using technology.

Effective teaching scale sub scale total scores of pre-service teachers, who used two different communication settings, group and type of high school variables and group x type of high school interaction, were tested with two-way MANOVA. According to the results of the analysis, the effects of group, type of high school and group x type of high school interaction on the scale in general are not significant. When data regarding on which scales differentiations according to group, type of high school and group x type of high school interaction exist are examined, it is seen that there is a significant difference in favor of pre-service teachers graduated from general/academic high school between the means with regards to "good teaching" and "generic skills" factor scores. There is an approximately 3-point difference in both sub scale and both groups in favor of general/academic high school. The reason why there is such a difference might be that pre-service teachers graduated from Anatolian High School have higher expectations from learning-teaching process and their expectations are not met.

Effective teaching scale sub scale total scores of pre-service teachers, who used two different communication settings, group and frequency of internet use variables and group x frequency of internet use interaction were tested with two-way MANOVA. According to the results of the analysis, the effects of group, the frequency of internet use and group x the frequency of internet use interaction on the scale in general are not significant.

As a result of analyzing sub scales, data were examined together in terms of the frequency of internet use and it was seen that there are significant differences with low level of effect in group x the frequency of internet use and "good teaching", "generic skills" and "e-learning" sub scales.

According to the Scheffe multiple comparisons test, which is administered in order to find out among which groups differences between units exist, significant differences were found in each one of the good teaching, generic skills and e-learning sub scales between everyday/almost every day and at least once a month and also between at least once a week and at least once a month. It is seen that the aforesaid difference is in favor of every day/almost everyday frequency of use and at least once a week frequency of use. When average scores were examined, it was concluded that there are significant differences for both groups. However, no significant difference was observed between every day/almost every day and at least once a week frequency of internet use

According to Kutluca and Ekici (2010); pre-service teachers' self-efficacy perceptions about computer assisted education differ depending on their frequency of computer use and year of computer use. A significant difference was found between pre-service teachers' self-efficacy perceptions regarding computer assisted education and their frequency of computer use in favor of the ones who use computers more often. According to Cetin, Caliskan and Menzi (2012), the fact that pre-service teachers' frequency of internet use has increased creates a positive effect in terms of both technological competencies and attitudes towards technology. The technology competencies of pre-service teachers who deal with technology more in their daily lives increase while their attitudes towards technology change in a positive way.

When mean values were examined in order to interpret the significant difference seen in the appropriate assessment sub scale of group x 'frequency of internet use interaction', it was seen that in the Connect group, the values are 12.71, 13.54 and 13.66 in terms of all three frequency of uses, which indicate a small difference. On the other hand, in the Facebook group, the average scores, 15.44 for every day/almost every day, 13.80 for at least once a week, decrease to 8.50 at the at least once a month frequency of use. This difference can be explained with the fact that in the individual and focus group interviews, Connect was assessed as a more suitable application for academic purposes. Also, as a result of the analysis of their interviews with 20 university students and lecturers in the UK, who use social tools in their learning activities such as social network sites, blogs wiki, podcast, Schroder, Minocha and Schneidert (2010) stated that the weak aspect of social software is the assessment of cooperative learning activities. In the study by Ozcinar and Ozturk (2008), the students interviewed stated that they believe online discussions should be assessed. However, there was no agreement in terms of whether the criterion in assessment should be participation or the quality of the content because students think that deciding on what the criteria should be while assessing online discussions is a very challenging task.

6.2. Views regarding learner characteristics, learning-teaching process and communication settings
6.2.1 Views about learner characteristics
Academic readiness, learner effort and access to information technologies are noteworthy among views towards learner characteristics that are collected under two themes as academic and generic skills. At this point, having a certain amount of knowledge about computers and their applications positively affects learning-teaching processes. This is stated in a different way by Ozcinar and Ozturk (2008). In the interviews, students explained why different approaches did not arise in discussions as "they have nothing new to say". When literature is reviewed, it is seen that one of the main obstacles to students entering into discussions is lack of knowledge. With a broader perspective, Erturgut (2008) claims that the fact that students and teachers do not have enough level of knowledge in terms of computers and internet is a risk factor in internet based education. Hung, Chou, Chen and Own (2010) emphasized the importance of individuals' computer and internet use self-efficacy following the use of networks within the online learning-teaching processes. In a similar approach, Wu, Tennyson and Hsia (2010), as a result of their experimental study with a purpose of identifying student satisfaction in the mixed e-learning process, concluded that the two important factors affecting student success were performance expectation and learning atmosphere. They stressed computer self-efficacy as one of the factors indirectly affecting learning success by contributing in the two factors mentioned.

It is reflected in pre-service teachers' views that there are still some problems experienced, although quite important progress has been made in our country in terms of computer and internet access. According to Erturgut (2008), the insufficiency of technological infrastructure is the most important limitation of internet based distance education, because technical problems in computers and the internet would negatively affect both student and teacher motivation and the continuity of education.

With the generic skills theme, pre-service teachers consider the presence of a researcher as an obstacle in online communication. This finding is in parallel with the study results of Wise, Skues and Williams (2011). According to Ozcinar and Ozturk (2008), students could not agree on teacher participation. However, expert participation supported by the constructivist approach (experienced teachers' participation in discussions when considered within the context of teacher training) would give pre-service teachers the opportunity to assess the problems and classroom setting from the perspective of a teacher who knows this environment better and thus it can be used to find effective solutions in online discussions.

Masoumi and Lindström (2011) qualify student-student or teacher-student interactions in e-learning processes as the main activity of learning. However, in the implementation process, it is understood from student views that pre-service teachers prefer one-to-one dialogues in academic focused communication rather than groups. This may be a result of the fact that the group was composed of first grade undergraduate students. Also, according to Jones and Healing (2010), while the students of formal education use communication technologies in order to organize face to face meetings, students of distance education use it in order to form relationships with others and create a group, which can be a factor in not providing the expected interaction in our study. The positive result of ensuring communication is stated by Ractham, Kaewkitipong and Firpo (2012). In their social-constructivist learning setting which they designed to support learning inside and outside the classroom through Facebook, each student was found to post about two messages weekly. They stated that this provided the live communication between student – student and student – teacher. Thanks to this communication mentioned, students presented positive opinions about their learning experiences with Facebook. In providing the interaction, according to Hung, Chou, Chen and Own (2010), learners' online communication self-efficacy is another important aspect in e-learning. With a similar perspective, Ozcinar and Ozturk (2008) stated the factors that prevent students from joining online discussions as whether students have online experiences and problems

in expressing their opinions well. The fact that students did not know how to discuss in online settings caused them to get bored with online discussions and criticize others' online statements in terms of both style and content properties (length – shortness, clarity of the language used…etc.). It was also shown that students with a high level of online communication experience felt more comfortable in their learning experiences in an online setting and were able to gain more satisfaction.

6.2.2. Views about learning – teaching process

In this section the views of participants, who were arranged into groups according to the themes of effectiveness of instruction, e-learning and scenarios, about the learning – teaching process, were discussed. The results of experimental studies regarding Facebook's contribution to student achievement as an online learning environment (Keles and Demirel, 2011, Kayri and Cakir, 2010, Kabilan, Ahmad and Abidin, 2010) show that it makes a positive contribution to cooperative learning and improving online communication skills (Schroder, Minocha and Schneidert, 2010) as well as having a great potential as an informal learning environment (Ractham, Kaewkitipong and Firpo, 2012).

Pre-service teachers stated that with the effectiveness of instruction theme, they first learnt to complete the tasks given on their own. Further, a negative point expressed by many participants was related to the size of both groups. It was seen in many pre-service teachers' opinions that the large number of learners in both groups prevented the learning process. It was seen that problems such as not getting feedback for their posts, repetition of the same words all the time and being faced with questions irrelevant to the task were experienced. Kuo, Shadiev, Hwang and Chen (2012) stated that giving feedback immediately at e-learning settings have a positive effect on students' academic success. According to Ozcinar and Ozturk (2008), when the number of participants increase in a nonsynchronous communication setting, the number of messages that students have to read in order to follow up the discussion increase as well. They stated that in synchronized communication the abundance of participants in the group increases message transfer rate; thus there may be problems in following up the issue discussed and it might be better to discuss in small groups. In line with the finding of the present study as well as the above mentioned opinions, micro learning communities suggested to be formed with Facebook, which was proposed by Bosch (2009) draws attention.

Under the theme e-learning, almost all pre-service teachers emphasized the flexibility of access from home. Opinions regarding the fact that courses can be attended without the need to go to school as well as the opportunity for long weekend holidays reveal this situation clearly. Based on pre-service teachers' opinions, the biggest problem in e-learning process is the focusing on things other than the task. Student opinions showed that the warner effect of teacher at the traditional classroom decreases in e-learning processes. Hung, Chou, Chen and Own (2010) stated that traditional learning settings are much different than web-based learning settings. While there is a linear order in traditional learning settings, web-based settings offer freedom and flexibility in working with the materials. It gives learners the control of their own learning. Moreover, the fact that participants in both groups showed Facebook regarding the negativity mentioned is significant. According to Jones and Healing (2010); this is because of the nature of social network sites. The off-duty interaction, which was stated as a hazard by Schroder, Minocha and Schneidert (2010) affects learning and teaching activities in a negative way.

The most important factor emphasized under the scenarios heading is the positive outcome of learning through assignments. Participants agree on the point that learning is more permanent. Despite this, the fact that there is an expectation for a traditional classroom setting and direct instruction was explained by Ozcinar and Ozturk (2008) as follows: "Pre-service teachers currently studying at the universities have always been educated based on programs designed with a traditional educational approach. This has supported pre-service teachers' established educational habits to look for the correct information by listening from the teacher and trying to tell the correct answer. Thus, the effort to perform constructivist activities with a traditional learning perspective made students reluctant to give their own opinions and test their assumptions in these settings. However, this should not be thought of as a limitation; instead it should be perceived as a stage in realizing the radical transformation of constructivist approach in education."

Another positive view that should be presented with the scenarios theme is that scenarios prepared on different issues were reflected in students' opinions in an interesting way.

6.2.3. Views about communication setting

According to the participant views on communications setting, which is thought to be among the most important data of the study, Connect provides teacher-student interaction in the classroom setting better than Facebook.

It can be said that the views of a pre-service teacher in the Connect group who compared both settings was formed due to the habit of Facebook use and the sound, image and desktop share properties of Connect. The need for third party software for the use of Facebook in learning-teaching activities overlaps with the studies of Lim (2010) and Wang (2012). Despite the superiorities of Connect over Facebook, according to Senkal and Dincer (2012), software that provides synchronic virtual classroom applications such as Wiziq and Adobe Connect generally helps teachers show students the documents on a computer through video images. However, the board used in traditional classrooms cannot show course material etc. Although through these kinds of software the image of the classroom or the course material is shown with video stream, due to internet speed the image quality may be at quite low levels. Therefore, while student interface interaction can be provided in digital materials such as presentations or etc. that can be sent over computer, the desired interaction cannot be maintained in transferring the traditional classrooms into the e-learning system.

According to the views of pre-service teachers, the only academic advantage that Facebook provides is that it can be accessed regardless of time. In addition to this view, it is an important progress in terms of ensuring independence from location that social network sites can be accessed through mobile phones. Also, Ractham, Kaewkitipong and Firpo (2012) think that social network sites like Facebook, which are well-known, easy to use and quite popular, can be convenient for both teachers and students as a learning setting due to these properties, and students' personal use can easily be adapted towards academic purposes.

Although it has no direct effect on the expectation of academic achievement, according to Yu, Tian, Vogel and Kwok (2010) social network sites help students to be socially accepted and adopt univeristy culture. The important effect of those two factors on learning outputs is in parallel with the views of a pre-service teacher who is in the Facebook group.

One of the key concepts of e-learning activities is communication and the other is motivation. Research shows that motivation affects learning both in traditional teaching and in the process of e-learning (Martens, Bastiaens and Kirschner, 2007; Lim, 2004). For this purpose, teachers should spend time in getting to know their students better (Chen and Jang, 2010)

One of the motivation theories that can be used at this point is the ARCS model of Keller. Keller and Suzuki (2004) propose participative analysis in order to be able to develop suitable motivation tactics. Thus, desired outcomes can be reached as a result of motivational activities that would be performed. In case analysis cannot be made, they suggest that more motivational tactics should be implemented. The adaptation of Keller's ARCS model in –learning processes is effective on learner motivation, achievement and self-learning skills (Miltiadou and Savanye, 2003; Chang and Lehman, 2002). Kim and Keller (2008) stated that they had obtained quite successful results with the motivation tactic that they realized with personal messages.

Another variable in e-learning settings, which is as important as communication and learner motivation is the "management of e-learning process". Unlike the traditional classroom management concept, this is quite important in maintaining the "effective instruction" at learning-teaching processes where there is less or no classroom instruction or an exact concept of traditional classroom. In this study, it was seen that learners formed an alternative Facebook group without the knowledge of lecturers. This shows that variables which are outside the control of lecturers play an effective role in the learning-teaching process. Therefore, it is necessary for lecturers to closely monitor each learner's learning process in terms of the management of e-learning process.

In conclusion, social network sites have the potential to be important teaching devices in offering economic and effective solutions in order to meet the ever increasing education need in the globalized world.

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