

# Comparison of Reflective Thinking Profiles of Individuals Using Social Networks for Education in Terms of Time Variable

Korhan Kayışlı [1], Tuncay Sevindik [2], Hanbey Hazar [3]

[1] Dept. of Computer Engineering  
Istanbul Gelişim University  
TURKEY  
korhankayisli@gmail.com

[2] Dept. of Computer and Inst. Tech.  
Yildiz Technical University  
TURKEY  
tsevindik@gmail.com

[3] Dept. of Automotive Engineering  
Firat University  
TURKEY  
hanbeyhazar@hotmail.com

## ABSTRACT

Throughout the history, to find information has not been so easy but this situation has changed after development of computer and internet technology. There are some methods using technology and internet developed in the education field parallel with them. These methods developed as an alternative to traditional training methods have been improving themselves to increase the interaction between educator and student, achieve meaningful data from accumulated data that occur as a result of the data exchange. At this point, development of the information, skills, creative thinking, problem solving, reflective thinking and critical thinking of participants, students, educators and network leaders have been gaining importance day by day. To think effectively, consistently and carefully of the information, any belief or knowledge support the results aimed by them emerges as the reflective thinking. The information and the number of users is so much in social networks and this situation reveals that the reflective thinking skills should take an active role in these networks. In this study, it is aimed to bring out and compare the reflective thinking skills and profiles of the participants in social networks. A 28-item questionnaire was adapted and prepared to determine of 511 social network users' reflective thinking profiles in terms of the time variable. The obtained data were analyzed with statistical methods (t-test, frequency, percent) by using spss software.

Keywords: *social networks, reflective thinking, time variable, web-based education.*

## INTRODUCTION

Throughout the history, to find information has not been so easy like today due to the development of computer and internet technology. Because of the increasing in information day by day about themselves of humans and outer world, to make sense, process and use of these information has become an increasingly important expertise area. Especially in our country, the ratio of social network usage is nearly 80-85%. Therefore, social networks are often preferred for advertising, marketing, sosyal sharing, education etc. In addition, the use of social networks in distance education environment (web-based education) as reinforcement or an educational tool is possible today. The studies about this area have been increased significantly in the last two years.

To increase knowledge and skills of the participants, students, educators and network leaders, development of creative thinking, problem solving and critical thinking have been gaining importance each passing day. Reflective thinking emerges as effective, consistent and careful thinking of a knowledge structure supporting any belief or knowledge and the aimed results of them. The information and the number of users is so much in social networks and this situation reveals that the reflective thinking skills should take an active role in these networks.

In this study, it is aimed to bring out and compare the reflective thinking skills and profiles of the participants (member, student, educator or leader) in social networks. It would be an appropriate study that detection of the reflective thinking skills of individuals who use the social networks in terms of time variable since technology has been developed so fast and interaction in educational environments should be increased. A 28-item questionnaire was adapted and prepared to determine of 511 social network users' reflective thinking profiles in terms of the time variable. The obtained data were analyzed with statistical methods (t-test, frequency, percent) by using spss software.

### Social Networks

Internet-based communication tools referred to as *social networks* that allows to get along with humans in spite of ethnic or cultural differences, to set up groups or share our thoughts, to reach information, and information or profiles of the users are fully or partially open other users in this formation specified limits on internet (Kayışlı, Hazar & Öztürk, 2011). The widespread use of social networks brings attractive ideas for most sectors together. In a study, it is determined that 73% of 5000 participants can be linked with social networks. Moreover, 32% of the participants follow minimum one trademark, 75% of participants control mails for network notifications and every shared message reaches an average 77 friends. Facebook is dominant in the 5 of 6 surveyed countries with 88% social network usage (url-1). Social networks have the ability to be used for teaching purposes addition to offered conventional services. It is claimed that over communicating on virtual environment directs the people to some negative characteristics like non-sociality and internet addiction. The numbers of social network platforms are increasing each passing day because it is commonly used by people (Sevindik, T., Kayışlı, K. ve diğçerleri, 2011).

As the world's most widely used social network platform, facebook is available in more than seventy language translations and it continues service with aiming to cover all internet users. 87 percent of 100 people of internet users in Turkey are the members of facebook and number of Turkish users has reached 30.5 million. The number of social network users nearly about 800 million with 70 different languges and average friend number of the users is 130 according to the daha determined at the end of 2011 (url-2). The statistics belongs to twitter as the second in use of social network were explained in Conference of Webrazzi Digital and it is stated in this conference that there are 7.2 million singular member live in Turkey. 5.3 million of these members actively use this social network and 1.7 million Turkish tweet are being send every day. This situation correspondes approximately 20 tweet per a second. 53% of the users are male, 47% are female. Average number of followers is 151 as a value close to number of friends on facebook (url-3).

### Reflective Thinking

According to Dewey, reflective thinking skill is to think actively, constantly and carefully of any subject. Dewey determined reflective thinking as *to think effectively, consistently and carefully of the information, any belief or knowledge support the results aimed by them*. In addition, Dewey (1933) presented the meaning of reflective thinking in four dimensions:

1. There is a sequence based on the relations between opinions on reflective thinking.
2. Reflective thinking aims to bring positive of the feelings.
3. Reflective thinking bases the belief to some of the basics.

4. Reflective thinking requires to do a conscious research related nature, conditions and basics of a belief (Doğçan Dolapçiođlu, S., 2007 ve Kozan, S., 2007).

In terms of dimensions expressed by Dewey, it has observed that individuals in social networks establish a relationship between his own opinions and different opinions, base these opinions to some foundations of relief and reflect their feelings again on the same platform. Dewey stated that the most important requirement of the society is to reflect what they have learned in school about life. A reflective practitioner is defined as an individuals who examine assumptions and applications as well as active and stable. The attitudes owned from reflective practitioners can be summarized as open-mindedness, sincerity and responsibility (ctd. Kozan, S., 2007).

Reflective thinking gains a new dimension with today's technology and the relational aspect of the ideas emerge on the virtual environment. Reflective thinking develops faster and effectively in individuals with the use of social network platforms efficiently. In addition, it is thought that technology could be used as a powerful tool to support the reflective thinking. Reflective practices help to evaluate learning processes of learners with allowing them to be agents of their own learnings. In this respect, one of the supports for the student during the process of problem solving is to provide activities recognizing oppurtunity for reflective thinking and to create a stimulating and encouraging environment about this subject.

According to Dewey, problem is everything that confuse the human mind, challenge to human, obscure the belief and doesn't met before. According to Bingham, problem is obstacle that collected in order to achieve the desired goal of a person and against the existing forces. Morgan defines the problem as a conflict that is faced with frustration in achieving a goal of individual (ctd. Kozan, S., 2007). A lot of research take into consideration almost the same procedure after defining the problem. The stages of the procedure are to understand the problem with examining, perform solution plan, application of this plan and evaluation of the obtained results. It is expressed in these researches that computer softwares can be used effectively to solve problem and create an interactive environment. Based on their study, Harskamp and Suhre (2007) mentioned that thinking tips can be effective on problem solving processes of students especially in computer based education. In their research, they provided some activities as a support to reflective thinkings in order to reveal the differences between problem solving successes. They used a tool named thinking tips for supporting the reflective thinking. According to the results of this research, the experimental group is more succesful than control group (Kızılkaya, G., 2009).

## MATERIALS AND METHODS

The universe of the study consists of Bitlis Eren University Tatvan Vocational High School Students who study in fall semester of 2012-2013. Randomly selected 212 females and 299 males totally 511 students create the sample of the research.

A reflective thinking scale developed by Doğan Dolağcıoğlu is adapted and used as a data collection tool. Measurement tool was ready to be implemented after adaption for the students of research group. The scale was applied to individuals using social networks on the internet by the researchers.

Spss 15.0 for Windows was used to analyze the data. Score ranges for the degree of participation in scale items are determined as follows: Completely agree: 4.21-5.00, Agree: 3.41-4.20, Partially agree: 2.61-3.40, Disagree: 1.81-2.60, Completely disagree: 1.00-1.80.

Frequency (f) and percentage (%) techniques were used for descriptive statistical analysis of the data related to personel characteristics. Reflective thinking profile of the individuals who use social network were compared by sex and, for this purpose, independent groups t test and variance technique was used for the time variable. In addition, significance level on data analysis was accepted as 0.05.

## FINDINGS

In this section of the research, personel information of the students, results belong to student attitudes which obtained from reflective thinking scale and reviews of these are available. Findings obtained from the analysis of the research data are presented with tables. Table 1 shows personel information of students who are in the scope of this research.

Table 1. Statistically findings of students' personal profiles

| Gender?   | Frequency (f) | Percent (%) |
|---|---------------|-------------|
| Female  | 212           | 41,5        |
| Male  | 299           | 58,5        |
| How long are you using computer?                  |               |             |
| 0-12 Months                                       | 26            | 5,1         |
| 13-24 Months                                      | 46            | 9           |
| 25-36 Months                                      | 40            | 7,8         |
| 37-48 Months                                      | 81            | 15,9        |
| 49 Months and above                               | 318           | 62,2        |
| How many hours you use internet per a day?        |               |             |
| 0-59 min.   | 98            | 19,2        |
| 60-119 min.                                       | 172           | 33,7        |
| 120-179 min.                                      | 92            | 18          |
| 180 min. and above                                | 149           | 29,1        |
| What is the reason for using social networks?     |               |             |
| Communication with friends                        | 283           | 55,4        |
| To obtain social environment                      | 10            | 2           |
| To make new friendships                           | 24            | 4,7         |
| To share information (source, video, audio, etc.) | 155           | 30,3        |
| Games and to spend time                           | 39            | 7,6         |
| <b>Total</b>                                      | <b>511</b>    | <b>100</b>  |

The findings related to attitudes which identified as a result of likert-type survey questions with responses of the individuals are included in Table 2.

Table 2. Findings related to attitudes

|             | N   | x      | SS      |
|-------------|-----|--------|---------|
| Question 1  | 511 | 3,8141 | 1,19913 |
| Question 2  | 511 | 3,8278 | 1,12794 |
| Question 3  | 511 | 3,9804 | 1,17307 |
| Question 4  | 511 | 3,6301 | 1,21679 |
| Question 5  | 511 | 3,5342 | 1,22647 |
| Question 6  | 511 | 3,5186 | 1,24426 |
| Question 7  | 511 | 3,4012 | 1,24204 |
| Question 8  | 511 | 3,6732 | 1,13104 |
| Question 9  | 511 | 3,4423 | 1,06830 |
| Question 10 | 511 | 3,8454 | 1,09972 |
| Question 11 | 511 | 3,3601 | 1,10591 |
| Question 12 | 511 | 3,0372 | 1,20318 |
| Question 13 | 511 | 3,4599 | 1,15549 |
| Question 14 | 511 | 3,4207 | 1,08152 |
| Question 15 | 511 | 3,7299 | 1,07076 |
| Question 16 | 511 | 3,5323 | 0,88253 |
| Question 17 | 511 | 3,8395 | 0,81028 |
| Question 18 | 511 | 3,8591 | 0,84928 |
| Question 19 | 511 | 3,8082 | 0,73459 |
| Question 20 | 511 | 3,5577 | 1,13072 |
| Question 21 | 511 | 3,5538 | 1,13955 |
| Question 22 | 511 | 3,5362 | 1,06004 |
| Question 23 | 511 | 3,5499 | 0,94400 |
| Question 24 | 511 | 3,5205 | 0,96765 |
| Question 25 | 511 | 3,6517 | 1,05347 |
| Question 26 | 511 | 3,4090 | 1,11454 |
| Question 27 | 511 | 3,4932 | 1,00169 |
| Question 28 | 511 | 3,2681 | 1,10460 |

The results obtained with independent samples t-test about gender differences by using answers of participants are given in Table 3.

Table 3. According to gender variable

|             | Gender | N   | X      | SS     | f   | t      | p    |
|-------------|--------|-----|--------|--------|-----|--------|------|
| Question1   | Female | 212 | 3,5236 | 1,3435 | 509 | -4,706 | .000 |
|             | Male   | 299 | 4,0201 | 1,0392 |     |        |      |
| Question2   | Female | 212 | 3,5660 | 1,3350 | 509 | -4,500 | .000 |
|             | Male   | 299 | 4,0134 | 0,9121 |     |        |      |
| Question 3  | Female | 212 | 3,5896 | 1,3513 | 509 | -6,601 | .000 |
|             | Male   | 99  | 4,2575 | 0,9361 |     |        |      |
| Question 5  | Female | 212 | 3,1651 | 1,3823 | 509 | -5,917 | .000 |
|             | Male   | 299 | 3,7960 | 1,0274 |     |        |      |
| Question 6  | Female | 212 | 3,1415 | 1,4271 | 509 | -5,961 | .000 |
|             | Male   | 299 | 3,7860 | 1,0171 |     |        |      |
| Question 7  | Female | 212 | 3,1792 | 1,2452 | 509 | -3,437 | .001 |
|             | Male   | 299 | 3,5585 | 1,2175 |     |        |      |
| Question 11 | Female | 212 | 3,1698 | 1,0528 | 509 | -3,307 | .001 |
|             | Male   | 299 | 3,4950 | 1,1243 |     |        |      |
| Question 15 | Female | 212 | 3,5472 | 1,0632 | 509 | -3,280 | .001 |
|             | Male   | 299 | 3,8595 | 1,0588 |     |        |      |
| Question 18 | Female | 212 | 3,7217 | 0,9603 | 509 | -3,105 | .002 |
|             | Male   | 299 | 3,9565 | 0,7473 |     |        |      |
| Question 27 | Female | 212 | 3,6368 | 1,0281 | 509 | 2,747  | .006 |
|             | Male   | 299 | 3,3913 | 0,9714 |     |        |      |

Table 4 shows the results obtained with variance analysis (anova) for time of daily internet usage as an independent variable.

Table 4. The results of variance analysis for average time of daily internet usage

|             |                    | Sun of Squares | f   | Per squares | F     | p   | Significant differences * |
|-------------|--------------------|----------------|-----|-------------|-------|-----|---------------------------|
| Question 3  | Between the groups | 32,548         | 3   | 10,849      | 8,219 | 000 | 1-4,2-4                   |
|             | Within the group   | 669,257        | 507 | 1,320       |       |     |                           |
|             | TOTAL              | 701,804        | 510 |             |       |     |                           |
| Question 20 | Between the groups | 32,636         | 3   | 10,879      | 8,904 | 000 | 1-4,2-4,3-4               |
|             | Within the group   | 619,411        | 507 | 1,222       |       |     |                           |
|             | TOTAL              | 652,047        | 510 |             |       |     |                           |

p < 0,05

## RESULTS AND DISCUSSION

It is determined from the responses of 211 females and 299 males participating in research that 62.2% percent of the participants have being used internet for more than 4 years. Similarly, daily internet usage is identified as 1-2 hours of 33.7% of the participants and 3 or more hours of 29.1% of the participants. The most widely used activity is social networks on internet and the aim of more than of the individuals that use these networks is to communicate with friends. Nearly 30% usage for information sharing is followed by them. Related data about these findings are available in Table 1.

According to attitude scale frequency information is given in Table 2, the average value of the participants' answers is nearly 3.58 (*agree*) as positive.

It can be seen in Table 3 that answers of females (x=3,5236) are obtained as *agree* and males (x=4,0201) as nearly *completely agree* to the first question "Teaching-learning process should be arranged depend on social network participants' capabilities and needs of individuals" of scale. A significant difference was found about the organization of teaching-learning process depend on needs according to these values.

Answers of females are *agree* about (x=3,5660), males are nearly *completely agree* about (x=4,0134) for second question "Some activities should be performed in order to determine the level of social networks participants (exam, homework etc.)". In the same way, the answers given to the third question "The results of the activities to determine the level of social network participants' learnings should be evaluated" close to the first two questions on average, and there are some significant differences between these attitudes.

While the mean of answers given by females to question 5 "In social networks, teaching-learning objectives, issues, methods and techniques of assessment should be considered when deciding over and over again", question 6 "The issues in social networks should be processed in relation to their own lives of the participants" and question 7 "I praise the participants advocates their thoughts freely in the social network environment" is nearly x=3.15 as *agree*, the mean of the males' answers is nearly x=3.7 as between *agree-completely agree*. Some significant differences was determined about these three questions.

There is a significant difference about the question 11 "I follow carefully the teaching process of participants, shares and comments about the system disruptions, provide contribution with my comments" that females answers to this question is x=3,1698 as *partially agree* and males answers to this question is x=3,4950 as *agree*. The answers of the participants to question 15 "I evaluate my strenghts and weaknesses when i participate training in virtual environment" and question 18 "I ask to myself which changes can be performed when this course is repeated, and i share my comments on social network" are nearly x=3.6 as *agree* for females and nearly x=3.9 as *completely agree* for males. At the same time, significant differences are also available.

The answers to question 27 "I consistently perform sharing in order to trace my professional progress and see my incompletes" are in *agree* level (x=3,6368) for females and in *partially agree* level (x=3,3913). The significant difference shows that females are more enthusiastic about diary.

Significant difference in terms of time variable between participants who use internet 0-59 min. in a day and 180 min. and above can be seen Table 4 in p<0.05 level. While participants who use internet 180 min. in a day show attitude towards between *agree* and *partially agree* (x=3,6309) for "The results of the activities to determine the level of social network participants' learnings should be evaluated", participants who use internet between 0-59min. in a day show attitude towards *agree* (x=4,0816). In addition, participants who use internet between 60-119min. in a day show attitude towards *completely agree* (x=4,2558) and significant difference is available with participants who use internet 180 min. in a day (x=3,6309).

As a result of variance analysis, it is determined that participants who use internet between 0-179 min. show attitude towards agree but participants who use internet between 180 min. and above show attitude towards partially agree ( $x=3,1879$ ) for "I think on alternative methods and perspectives" in terms of time variable. This situation can be interpreted as while the use of internet increase, individuals exhibit pause on thoughts and perspectives.

In the light of the answers given by the participants, reflective thinking skills are clearly seen in the attitudes of the social networks and it is concluded that they generally meet these skills. In the same way, the attitudes towards reflective thinkings about paying attention to criticism are in *agree*. This situation shows that criticism is generally accomplished. Additionally, it is determined that reflective thinking behaviors about self-ratings are generally occurred as similar. This situation is the indications of criticism and being open to this. The reflective thinkings about problem-solving changes between agree-partially agree and it can be considered that there are some shortcomings about this point.

The capabilities about social network usage changes proportional to period of internet usage when especially considering time variable about this. Similarly, it can be said that reflective thinking skills also increase in parallel to increasing of dominance to social networks.

## REFERENCES

Doğan Dolapçioğlu, S. (2007). Evaluation Of Reflective Thinking Level of Pre-Service Teachers. Master Thesis. Mustafa Kemal University, Hatay.

Harskamp, E. G. & Suhre, C. J. M. (2007). Schoenfeld's problem solving theory in a student controlled learning environment. *Computers & Education*, 49, pp.822-839.

Kayıslı, K., Hazar, H. & Öztürk, U. (2011). The effect of social network on student attitudes. *III. International Congress of Educational Research. Northern Cyprus/TRNC*. pp.1062-1071.

Kozan, S. (2007). The Effect of Reflective Thinking Skill on The Source Searching and Report Writing Course. Master Thesis. Selçuk University, Konya.

Kızılkaya, G. (2009). The Effect of Web-Based Learning Environments Supported with Reflective Thinking Activities to Problem Solving. PhD Thesis. Hacettepe University, Ankara.

Sevindik, T., Kayıslı, K., Genç, Z. & Başal, B., (2011). Distance Education and Social Networks. *International Computer & Instructional Technologies Symposium, Elazığ, Turkey*, pp.1031-1036.

[url-1] Social media and E-mail Marketing, (2012). <http://www.digitalfabrika.com/sosyal-medya-ve-e-mail-pazarlamasi-infografik/> (retrieved 25 december 2012)

[url-2] Sırt, T. (2011). We have 30 Million in Facebook. <http://www.sabah.com.tr/Teknoloji/Haber/2011/11/13/facebookta-30-milyon-olduk> (retrieved 25 december 2012)

[url-3] Twitter Statistics of Türkiye (2012). <http://1sosyalmedya.com/twitter-turkiye-istatistikleri.html> (retrieved 25 december 2012)