

Survey on the Effect of Informational Technology on Development of Reflective Thinking and Social Education

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ABSTRACT

The main purpose of this study is to investigate the effect of IT (internet) on growth of reflective thinking and social education of male students in secondary school grade. Statistic society includes all male students of private schools in region 4, Tehran, academic year of 2011-12. One school was selected by random sampling method, and finally 15 students who had access to internet, and 15 students who had no access to internet were selected. The problem solving inventory, Adjustment inventory for school students, adolescent social self-efficacy scale, and a questionnaire designed by researcher were used to evaluate the effect of using internet in selected students. It was concluded that using internet has no meaningful effect on reflective thinking growth and social education elements of students such as adjustment, and spirit of cooperation and collaboration, but increasing time spent in internet decreases adjustment of students.

Keywords: IT, reflective thinking, social adjustment, spirit of cooperation and collaboration

1. INTRODUCTION

Thinking is one of the main aspects of human personality, and other aspects are in domain of wisdom. Dewey believes the only freedom is freedom of mind [1]. One way of growing thinking in human is confronting problem to force him to think. John Dewey [2], contemporary American professor, states: "It's a none-sense request to ask a kid (or even an adult) who have never confront a problem in his life- to motivate him, bother him or disturb his tranquility- to think [3]. In this age, the age of information and technology, learning environments have changed from their traditional form and take new concept. Internet, the most pioneer innovation of 20th century, makes it available to break the constraints of time and space and makes life-lasting learning realizable, the issue which can't be ignored by educational institutions [4]. Entering this virtual world and massive amount of information and data means not independence of human in thinking, but this new world necessitates thinking, since human should be armed with thinking to find the necessary information from amount of massive information, and not accept all information, but to analyze them and accept them if they are based on evidences, unless, ignore them. One of the ways of growing thinking is confronting the problem, which necessitates thinking. Internet, as the contemporary technology, helps thinking growth of people by creating puzzling and problematic issues, and makes it possible to share our thinking in the world. Ideas and feedback of these thinking in websites force people to review their experiences, which results in deep thinking and reflective thinking growth [5]. Undoubtedly, now we are living in the most revolutionary age in which constant changes are changes on basic and undeniable truth [6]. During all history of humanity, the rate of social changes is slow and most of the people follow their ancestors. However, today's life can be considered as the most marvelous and exciting phenomena in contemporary world because of its unprecedented rate of social changes. What create the bed of this wonderful change and makes this period of history significant are new technologies of human known as information technology. Hence, some talk about the new technological paradigm organized based on information technology [7].

Based on McLuhan, information technologies that are not related to previous cultures create cultural crisis involved with social changes [8]. Based on above-mentioned issues, authors of this paper first explain reflective thinking and social training, and then briefly investigate the effect of internet on reflective thinking and social training.

Reflective thinking

John Dewey believes that reflective thinking is "accurate, dynamic and continuous reviewing of any idea or hypothetical form knowledge in the contexts that support it and next consideration which want to form reflective thinking" [2]. Rodgers explain Dewey's four criteria of reflective thinking as: 1) a meaningful process leads learner from one experience to another, with deep understanding of relation and its unity with other experiences and thinking; 2) a systematic, disciplined, and accurate thinking based on scientific research; 3) should be happen in society along with others; 4) needs attitudes to respect individual growth and thinking of self and others [9]. Dewey believes accepting other's ideas and stating them is not thinking, but continuous evaluation of any idea based on consequent concepts and results are the prerequisite of accurate and reflective thinking. The process of reflective thinking from view point of Dewey [2] is scientific, research method or

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problem solving defined as follow: 1) *confronting problem*: the researcher confront a situation in which the relationship between events are not clear and problem is not clear, this initiates thinking; 2) *defining problem*: defining and analyzing the problem needs thinking. When the problem is defined, the direction of discussions is cleared. The instructor should help the students in discussing scientific topics to consider the basic issue which form the center of the discussion. How the problem is stated influences thinking growth of the student; 3) *proposing possible solutions*: to offer a supposed solution, the solutions should be based on evidences, which are acquired from collected information. The information resource can be previous experiences, using other's experiences, observing, and testing. Based on them, the researcher offers the possible solutions; 4) *thinking about proposed implications or studying the hypothesis*: sometimes various hypotheses are proposed in replying to one problem. The researcher choose the best hypothesis which explain more aspects of the phenomena, have inner logic, and is in accordance with other hypothesis; 5) *observing and testing hypothesis*: the hypothesis which is most approved by reasons and is effective in solving the problem is selected as the final or rational hypothesis.

Social education and its components

From viewpoint of social sciences, social education is accepting society and being socialized. Socialization is adjustment of individual with social and group values, norms and attitudes. In another word, socialization is a process which helps individual to acquire necessary social knowledge and skills to have effective cooperation in group and social life [10].

Components of social education include: 1) *cooperation*: from viewpoint of sociology, cooperation is a flow in which individual and groups unite their activities to achieve their common objectives and help each other. Success of one member is considered as success of the group. Continuation of social life depends mostly on cooperation of society members and accustoming to cooperation and understanding its value in social life should be considered by instructors. Cooperation of students in training and educational activities and doing group works, strengthen cooperation among them. The bases of training activities should be cooperation of instructor, student and parents. In this regard, the teacher should help students in preparing curriculum, selecting educational material, and etc.; 2) *Social adjustment*: a flow in which relationship between individual and different groups is in a way to satisfy them. From viewpoint of training, social education is necessary. The child confronts special customs, rules and conditions at school, home or other situations. Some of these issues are necessary to continue the life and the person is obliged to follow them to have satisfactory life with others. Teacher should familiarize the students with values and importance of these issues. The main point of adjustment is that teacher should not expect others to accept the situation and be passive. In this case, individual characteristics of them are destroyed and independency disappears; 3) *Opposition*: from sociological viewpoint, opposition is reaction used to achieve objectives by certain situations and factors; whereas these situations prevent others to achieve objectives. 4) *Agreement*: in which relationship between people is changed to prevent conflict, decreasing or destruction, and adjustment among people is increased. Mutual adjustment and agreement is very important in social life since in most cases it's impossible to solve thinking differences, hence agreement and adjustment of people with different thinks and ideas is necessary [11].

Thinking about the above mentioned issues shows that the importance of thinking and need to growing it is more sensed by complication of life and design of new tools and technologies, because these technologies, such as internet, and explosion of knowledge and accessibility of information to all people, have confused them to find the answer to what information are reliable and which of them are ignorable. In this regard, need for growing reflective thinking is more sensed, to rely on to recognize necessary information and acquire them. These facilities should be used to achieve reflective thinking growth, facilities such as internet and technologies that can be used to prepare an environment which leads to improvement of reflective thinking growth. Social education is also coordination of individual with social and group values, norms and attitudes. While social education of people depends on social relations, new technologies often fill a lot of opportunities of young. Programs of this media contain special cultural models that can be effective on social training. Hence, finding quantity and type of effect of this technology on social education can support us in confronting its probable problems. Results of the researchers show that people in internet environment have more freedom and their learning is affected and they are interacting in web space [12]. Recording ideas in weblogs increases writing abilities of learners and knowing that their ideas are spread among all users, improve their ability in critical and reflective thinking [13]. Based on statistics, using weblogs have 86.5% influence on acquiring ideas, thinking, and electronic discussion, 90.23% on power of reasoning on information bases, 87.5% on recognizing valid information from invalid ones [14]. Using internet also increase average score of students in understanding, thinking and reflective thinking [15]. But has no effect on social identity and social adjustment [16].

Increasing time spent on internet decreases the time spent by family or friends [17], and cause problems in relationship between adolescents and their parents and effect quality of their social relationships with others [18]. Meanwhile, some researches show that Iranian adolescent users are unaware of how to use internet and mostly have no specific objective in using it. Using entertainment parts, immoral issues and vain conversation in chat rooms is cause of this [19].

2. MATERIAL AND METHOD

Research objective and hypothesis

The main objective of this research is to investigate the effect of internet on growing reflective thinking and social education of male guidance school students. The following hypotheses are studied in this research:

Hypothesis 1: students who use IT (internet) are more skilled in problem solving than other students.

Hypothesis 2: students who use IT (internet) are more social adjustable than other students.

Hypothesis 3: students who use IT (internet) are more cooperative than other students.

Hypothesis 4: the time spent on using IT (internet) influence adjustment of students.

Hypothesis 5: the time spent on using IT (internet) influence cooperation of students.

Methods

In this research, causative-comparative method was used to investigate the effect of internet on social education and reflective thinking.

Statistic society, sample and sampling method

Statistic society of this research includes all male guidance students (3087 individual) of private schools in region 4, Tehran. Random sampling method and terminal group methods were used. In sample group, 15 individual had access to internet, while 15 students had no access to it.

Research tools

In this research, the 35-question Problem Solving Inventory, was used to assess reflective thinking. Validity of this questionnaire is approved by experts, and its reliability in researches that was 0.86 in 1998 and in 2004 was 0.66. To study adjustment, adjustment inventory for school students, prepared by Sinah and Singh [19], was used. This questionnaire includes 60 questions. Validity of this questionnaire is 0.51. Its reliability is 0.95 in half off method. Adolescent Social Self-Efficacy Scale, designed by Connolly [20] to assess cooperation of adolescents among their peers, is the third evaluating tool used. This scale is a self-reporting tool including 25 comments. Validity of it is 0.95 from re-testing method. Reliability of this scale is also determined by experts. Finally, a questionnaire designed by the researcher is used to find out using or not using internet by student.

3. RESULTS AND DISCUSSION

Data analysis method

To analyze data, descriptive and deductive statistic method was used. Descriptive method, using statistical indexes such as mean, standard deviation, and deductive method, T-test and Pierson's Correlation Coefficient test was used to test research hypothesis.

Hypothesis 1: students who use internet are more skilled in problem solving than other students. Based on table 1, a summary of results of comparing problem solving skill in two sample groups is offered. Due to the fact that the minimum level of meaningfulness calculated in statistical process of Table 1 is higher than the minimum level of meaningfulness accepted by researcher (0.05), null hypothesis about lack of difference between functionality of these two groups in solving problem is approved. In another word, using internet has no effect on problem solving skills of students.

Table 1. T-independent test to compare problem solving skills among two sample groups

Groups	Statistic indexes	Number	Mean	Standard deviation	Freedom degree	T	Meaningfulness
Using internet		15	107.20	17.37	28	0.277	0.783
Not using internet		15	105.66	12.49			

Hypothesis 2: students who use internet are more social adjustable than other students. A summary of results of comparing social adjustment of two sample groups are presented in Table 2. Due to the fact that the minimum level of meaningfulness calculated in statistical process of table 2 is higher than the minimum level of meaningfulness accepted by researcher (0.05), null hypothesis about lack of difference between functionality of these two groups in social adjustment is approved. In another word, using internet has no effect on adjustment of students.

Table 2. T-independent test to compare social adjustment among two sample groups

Groups	Statistic indexes	Number	Mean	Standard deviation	Freedom degree	T	Meaningfulness
Using internet		15	12.93	2.43	28	1.465	0.154
Not using internet		15	14.40	3.01			

Hypothesis 3: students who use internet are more cooperative than other students. Table 3 presents a summary of results of comparing cooperation of two sample groups. Due to the fact that the minimum level of meaningfulness calculated in statistical process of table 2 is higher than the minimum level of meaningfulness accepted by researcher (0.05), null hypothesis about lack of difference between functionality of these two groups in cooperation is approved. In another word, using internet has no effect on cooperation of students.

Table 3. T-independent test to compare cooperation among two sample groups

Statistic indexes Groups	Number	Mean	Standard deviation	Freedom degree	T	Meaningfulness
Using internet	15	117.33	10.78	28	0.525	0.604
Not using internet	15	120.40	19.90			

Hypothesis 4: the time spent on using internet influence adjustment of students. Table 4 summarizes the results of comparing time of using internet in two sample groups. As it's presented in table 4, correlation coefficient ($r=0.571$) is meaningful in $p=0.05$, so the null hypothesis about lack of influence of internet using time and adjustment is not accepted. In another word, the time table of using internet has direct and positive effect on adjustment of students. High score of adjustment shows its weakness. Hence, it can be said that spending more time in internet increases score of adjustment which indicate reduction of adjustment.

Table 4. Correlation test between time spent on internet and adjustment in sample groups

Test variables	Correlation	Meaningfulness level	Test result
Time spent on internet and adjustment	0.571	0.026	Meaningful correlation

Hypothesis 5: the time spent on using internet influence cooperation of students. Table 5 represents results of comparing time spent on using internet and cooperation of two groups. As it's shown in table 5, correlation coefficient ($r = -0.189$) is not meaningful in $p = 0.05$, hence, null hypothesis about lack of effect of time spent on internet and cooperation is approved. In another word, the time spent on using internet has no effect on cooperation of students.

Table 5. Correlation test of time using internet and cooperation of students

Test variables	Correlation	Meaningfulness level	Test result
Time spent on internet and adjustment	- 0.189	0.499	Meaningless correlation

4. CONCLUSION

In this study, to investigate the role of internet on reflective thinking and social training, the first hypothesis on tendency of students using internet to problem solving skill is more than other students is not accepted, and the null hypothesis on lack of difference in functionality of students of two groups in solving problem is approved. In another word, using internet has no effect on problem solving skill of students. Second hypothesis that using internet has effect on social adjustment of students is also rejected and null hypothesis on lack of difference between functionality of students of two groups in adjustment is approved. This finding is in accordance with studies of Douran [16], MoharamZadeh [7] and Fatahybayat [21]. The third hypothesis about relationship between using internet and cooperation of students is also rejected and null hypothesis on lack of difference between functionality of two groups of students in cooperation is approved. The fourth hypothesis about relationship between time spent on internet and adjustment is approved, and null hypothesis on lack of influence of time using internet and adjustment is rejected. Time spent in internet has direct and positive relation on adjustment of students; the more time spent on internet, the less adjustable the student. The finding is in accordance with Pour Shahriary [22], Nie [17], and Mesh [18]. The fifth hypothesis on effect of time spent on internet and cooperation of students is also rejected and null hypothesis on lack of influence of the time spent on using internet on cooperation of students is accepted. In another word, the time spent on internet has no effect on cooperation of students.

ACKNOWLEDGMENTS

The presented study financially assisted in part by Department of Education, Science and Research Branch, Islamic Azad University, Tehran, Iran. It was summarized from PhD thesis in philosophy of education with grant number awarded 2012.

REFERENCES

1. Shariatmadari, A. (2004). *Growing Thinking*. Farashenakhty Andishe publication, Tehran.
2. Dewey, J. (1910). *How we think*. New York.d.c. Health and Co Publishers.
3. NaghibZadeh, A. (2001). *A View on Philosophy of Teaching and Training*. Tahouri University, Tehran.
4. Ataran, M. (2004). *Information Technology, Reform Platform in Teaching and Training*, institute of developing educational technology in smart schools, Tehran.
5. Sevelj, M. (2006). *Weblogs as dynamic learning spaces*. Paper presented at the distance education association.
6. Lanksi, G. and Lanksi, J. (1990). *Human Society Path*; translated by Movafaghian, N., Islamic Revolution training and publication organization, Tehran.
7. MoharramZadeh, S. (2005). *Studying the Effect of Using Computer on Educational Progress and Social Adjustment of Second Grade of High School Students*, Tehran; M.A. thesis, Al-Zahra University.
8. Mohseni, M. (2004). *Basics of Science Sociology*; Tahouri publication, Tehran.
9. Rodgers, C. (2002). *Defining reflection: Another look at John Dewey and reflective thinking*. *Teachers College Record*, 104(4): 842-866.
10. Alaghe band, A. (1987). *Sociology of Teaching and Training*. Fardin publication, Tehran, third edition.
11. Shariatmadari, A. (2006). *Society and Training; Basics of New Training*; Amir Kabir publication, Tehran.
12. Williams, J.B. and Jacobs, J. (2004). *Exploring the use of blogs as learning spaces in the higher education sector*. *Australasian Journal of Educational Technology*, 20(2): 232-247.
13. Roberertson, C. and Whiting, W. (2006). *Weblogs: Building an academic community in cyberspace*. Retrieved May 5: 2005, from http://prof_chuck.edublogs.org/files/2006/02/Weblogs.pdf.
14. GorjiKarsami, A. (2010). *Investigating the Effect of Internet Educational Medium on Critical Thinking of Young*, Department of Social Security Command, Mazandaran, Iran.
15. Namvar, Y. (2008). *Investigating the Effect of Web-Based Learning With Problem-Solving Approach on Reflective thinking Growth of Language Students of Islamic Azad University, Ardabil Branch*, PhD thesis, Islamic Azad University, Science and Research Branch, Tehran, Iran.
16. Douran, B (2002). *The Effect of Cybernetic Space on Social Identity*, PhD thesis, Tarbiat Modares University
17. Nie, N. (2000). *Internet and Socirty: a preliminary report*. SIQSS, inter survey Inx, and Mckinsey & co.
18. Mesh, G. (2002). *The internet and the Family; A Study In Israel Forged*. Available at <http://soc.Haifa.Ac.II>.
19. Sinha, A.K.P. and Singh, R.P. (1993). *Manual for Adjustment Inventory for School Students*. Agra National psychological Corporation.
20. Connolly, J. (1989). *Social self-efficacy in adolescence: Relations with self-concept, social adjustment and mental health.* *Canadian Journal of Behavioral Science*, 21(3): 258-269
21. Fatahybayat, S. (2006). *Investigating the Effect of Communication Technology on Social Training; with Emphasize on Adjustment of Second Grade of High School Students*, Tehran, M.A. Thesis, Al-Zahra University, Psychology and Training Science Faculty.
22. Pour Shahriary, M.S. (2005). *The Effect of Using Internet on Depression and Social Isolation, and the Relationship between Iranian Adolescents and Their Parents*, University plan, research chancellor of Al-Zahra University.